GISI Impact Factor 0.2310
May, July & September 2015
Volume-9 Number-3,4 &5
ISSN 0973-9777
ijraeditor@yahoo.in

Science

The Indian Journal of Research

Anvikshiki

Bi-monthly International Journal of all Research

www.anvikshikijournal.com

Published on
Behalf of the MPASVO in association with
the Member's of Anvikshiki
&
Saarc: International Journal of Research
Asian Journal of Modern & Ayurvedic Medical Science
Varanasi, U.P. INDIA

MPASVO

Volume-9
Number- 3&5
May, July & September 2015

Anvikshiki
The Indian Journal of Research

Bi-Monthly International Journal of All Research

Abstracts and Indexing

http//nkrc.niscair.res.in/browseByTitle.php?Keword=A, ICMJE ,www.icmje.org, , banaras.academia.edu, ebookbrowse.com, BitLibrary! http:/ www.bitlib.net/, Tech eBooks ,freetechebooks.com, ,artapp.net,Catechu PDF / printfu.org, ,www.fileaway.info, ,http://www.docslibrary.com, ,Android Tips, Apps, Theme and Phone Reviews http://dandroidtips.com, , http://www.edu-doc.com, www.themarketingcorp.com,Dunia Ebook Gratis duniaebook.net, ,www.cn.doc-cafes.com., Google ,http://scholar.google.co.in, Website : www.onlineijra.com.Motilal Banarasi Das Index,Varanasi, Motilal Banarasi Das Index,Delhi. Banaras Hindu University Journal Index,Varanasi. www.bhu.ac.in, D.K.Publication Index, Delhi. National Institute of Science Communication and Information Resources Index, New Delhi.

Subscriptions

Anvikshiki,The Indian Journal of Research is Published every two months (January,March,May,July,September and November) by mpasvo Press,Varanasi.u.p.India. A Subscription to The Indian Journal of Research : Anvikshiki Comprises 6 Issues in Hindi and 6 in English and 3 Extra Issues. Prices include Postage by Surface mail,or For Subscription in the India by Speed Post. Airmail rates are also available on request. Annual Subscriptions Rates (Volume 9,6 Issues in Hindi,6 Issues in English and Few Special Issues of Science 2015):

Subscribers

Institutional and Personal : Inland 5,000 +1000 Rs. P.C., Single 1500+100 Rs.P.C., Overseas 6000+2000Rs. P.C., Single 1000+500 Rs.P. C.

Advertising & Appeal

Inquiries about advertising should be sent to editor's address. Anvikshiki is a self financed Journal and support through any kind or cash shall be highly appreciated. Membership or subscription fees may be submitted via demand draft in faver of Dr. Maneesha Shukla and should be sent at the address given below. Sbi core banking cheques will also be accepted.

All correspondence related to the Journal should be addressed to

B.32/16 A., Flat No.2/1,Gopalkunj,Nariya,Lanka, Varanasi, U.P.,India

Mobile : 09935784387,Tel.0542-2310539.,e-mail : maneeshashukla76@rediffmail.com,www.anvikshikijournal.com

Office Time : 3-5 P.M.(Sunday off)

Journal set by : Maheshwar Shukla,maheshwar.shukla@rediffmail.com

Printed by : mpasvo Press

Date of Publication : 1 September 2015

Maneesha Publication

(Letter No.V-34564,Reg.533/2007-2008)

B-32/16-A-2/1,Gopalkunj,Nariya,Lanka

Varanasi,U.P.,India

Anvikshiki
The Indian Journal of Research
Volume 9 Number 3,4&5 May, July &September 2015

Science
Papers

PRINT ISSN 0973-9777,WEBSITE ISSN 0973-9777

Letter No.V-34564,Reg.533/2007-2008 INDIAN JOURNAL OF RESEARCH(2015)**9,1-6**
ANVIKSHIKI ISSN 0973-9777 Advance Access publication 10 March 2015

ROLE OF PRAKRITI IN MANAGEMENTAND PROGNOSIS OF ATISARA IN CHILDREN

N. SRIVASTAVA* AND V. SAXENA**

Declaration

The Declaration of the authors for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: We, *N. Srivastava and V. Saxena* the authors of the research paper entitled ROLE OF PRAKRITI IN MANAGEMENTAND PROGNOSIS OF ATISARA IN CHILDREN declare that , We take the responsibility of the content and material of our paper as We ourself have written it and also have read the manuscript of our paper carefully. Also, We hereby give our consent to publish our paper in Anvikshiki journal , This research paper is our original work and no part of it or it's similar version is published or has been sent for publication anywhere else.We authorise the Editorial Board of the Journal to modify and edit the manuscript. We also give our consent to the Editor of Anvikshiki Journal to own the copyright of our research paper.

Abstract

Ayurveda is a natural health care system that originated in India more than 5000 years ago. It emphasizes the treatment of disease in highly individualized manner as it believes that every individual is unique having different constitution. Ayurveda classifies all individuals into different 'Prakriti' types based on the theory of Tridosha and each type has varying degree of predisposition to different diseases. This is independent of racial, ethnic, or geographical considerations and may provide appropriate means of classifying phenotypes to be considered collectively for genotyping. Prakriti ,for its tangible impacts upon decision making in Ayurvedic clinical practice ,require a thorough and fool proof method of examination.Assessment of Prakriti and Vikritiin childrenis essential and enables the pediatrician to evaluate the metabolic imprinting, individual physiology, susceptibility to specific disease, prevention, diagnosis, treatment and as well as prognosis of diseases. Atisara (diarrhea) has been deal in much detail in Ayurvedic literature, but not in terms of children specially. It has to be of six types i.e. Vataja, Pittaja, Kaphaja, Sannipataja, Bhayaja and Shokaja (Aamaja). However certain specific disorder in which diarrhea is the major symptoms in children have been reported in ancient Ayurvedic literature like Ksheeralasaka, Graha Roga, (Putana, Sheet Putana, Andhaputana).Prakriti-based medicine and other traditional medicine systems have the potential to offer remedies to the challenging health issues like adverse drug reactions, drug withdrawals, and economic disparities among few.

Key words: Prakriti, VatajaAtisara, PittajaAtisara, KaphaAtisara, treatment, prognosis.

*Assistant Professor &Ph.D Scholar, Department of Kaumarbhritya/Balroga, FOAy [IMS] BHU. Varanasi (U.P.) India. e-Mail : nirajimsbhu@gmail.com
**Ph.D Scholar, Department of ShalyaTantra [IMS] BHU. Varanasi (U.P.) India. e-Mail :nirajimsbhu@gmail.com

Introduction

Prakriti is an important tool that explains individuality and has important role in prevention [1], diagnosis[2], indeciding the line of treatment of disease[3] and forecast of future disorders. It explains unique but definite unchangeable traits, decided by specific and permanent configuration of dosha in an individual[4]. One or more than one dosha predominates at the time of conception which reflects the DoshikaPrakriti of an organism andcan be identified byDosha specific characteristics manifested in growing individual[5]. The word Prakriti is derived from 'Pra' and 'Kriti', here 'Pra' means origin or beginning and 'Kriti' means to create or to act; while the Prakriti means constitution, disposition or fundamental form[6]. The word Prakriti is referred in many contexts, while the Vikriti is a Vikara (disorder) or pathological manifestation [7]. Meaning of Vikara is a change of form or nature, alteration or deviation from any natural state and change of bodily or mental condition[8]. When, these Doshaare not in perfect equilibrium state (qualitative and quantitative) in the body, may present various abnormal clinical features termed as VaikritaDosha and finally lead to Vikara in the body. It is well-established concept thatsingle DoshaPrakriti individuals frequently fall sick i.e. more vulnerable to various diseases, while Samyavastha (Equilibrium state) of threeDosha in an individual results in healthy state[9]. Knowledge about the Prakriti is prerequisite for assessment of Vikriti (pathology) hence it plays a very important role in deciding diagnosis,Therapeutics and prognosis[10]. It has, also, a decisive role in maintenance of health and cure of the disease, which is the prime objective of Ayurveda[11].

Ayurveda identifies the best set of substrates (Ahara and Vihara) useful to optimize the system performance referring to Prakriti Subtype. It is clear that knowledge of Prakriti subtype may go a long way in health maintenance by making one aware of suitable and unsuitable substances applicable on a one to one basis. Prakriti is also held responsible for disease susceptibility and drug behavior variations among people of similar age and physical profiles [12,13]. As per Ayurveda, Diarrhoea (Atisara) occurs because of abnormal and less potent digestive power (Agnidosha) and (Ajeerna). The clinical manifestations of Atisara are similar to 'Diarrhoea' in modern medicine which is treated with specific Antibiotics and Antispasmodics. The Classics describe; six types of Atisara viz. Vataj, Pittaj, Kaphaj, Sannipataj, Aamatisar and Raktatisar. Cardinal symptom of Infective Diarrhoea (Amatisara) is frequent passage of stools in liquid status alongwith fluids. ('*GudenBahu Drava Saranam'*)

Description of Atisara

The description of Atisara is available in each text book of Brihatrayi.[14, 15, 16,17]. In Brihatrayi Charaka Samhita is most authentic and oldest book. CharakaSamhita has the complete description of Atisara in very elaborated form. Atisara has been a common problem in past and also in the present time. Sushruta[18] and Vagbhatta[19] both have mentioned that Krimi is also a causative factor for Atisara. Vijayarakshita has defined that Atisara is Excessive passage of liquid from anus.

The term Atisara is combination of two words-

ATI = Excessive
SARA = Passing of liquid matter through anus

This means excessive flow of watery stool through anus. Dalhana on his commentary on Sushruta Samhita stated that passing of watery stools in increased quantity is a characteristic feature of Atisara. However certain specific disorder in which diarrhea is the major symptoms have been reported in ancient Ayurvedic literature like Ksheeralasaka, Graha Roga, (Putana, Sheet Putana, Andhaputana).
According to Ayurveda diarrhea is categorized under the diseases caused by Agni mandya- impaired digestive power. If we analyze the causes of diarrhea, we could conspicuously see almost all the causes

end up with Agni mandya. According to Ayurveda, Jatharagni [digestive power] consists of mainly three components; Pachaka Pitta, SamanaVata and KledakaKapha. Imbalance between any of these doshas causes Agni mandya. The result of Agnimandya is the accumulation of Ama [undigested food particles] within the digestive tract, and it leads to diarrhea.

Criteria for Making Diagnosis of Atisara as Per Doshic Features

According to Ayurveda on the basis of stool characteristic (stool color, stool smell, stool consistency, stool quantity, stool frequency and mucous/blood in stool) and associated features (vomiting, appetitive, fever and pain in abdomen) we can classify Vataja, Pittaja and Kaphajaatisara[20, 21, 22].

Vataja Atisara

1 Stool color; Black/Reddish

2 Stool smell; Not specific

3 Stool consistency; Watery and this features is associated with other features of VataDosha like passage of stool with sound, frothy/pain/abdominal distension.

4 Stool Quantity; small quantity

5 Stool Frequency; If increased frequency was associated with the other features of Vataja such as watery, small quantity and painful defecation, included in VatajaAtisara.

6 Associated with Mucous and blood; VatajaAtisara is not associated with mucous and blood.

7 Other features associated with VatajAtisara; It is associated withPain in abdomen, Gargling sound but not associated with fever, vomiting and reduced appetite. It can be associated with upper respiratory tract infection but fever should not be associated.

Pittaja Atisara

1. Stool color; In PittajaAtisara stool color is mainly yellow color andthat is also age dependent e.g. during infantile period normal stool color is yellow [golden yellow color in breast feeder infants]. Green color of stool is usually considered under PittajaAtisara but the root cause of this feature is VataDosha because exaggerated Vata can enhances the intestinal motility which results in passage of bile salt in turn infant pass greenish colored stool. Therefore, if green color stool is associated with other features of Pittaja, is considered as Pittaja features and if not associated with Pittaja but has associated with Vataja like sound, frothy, pain etc is considered as Vataja features. However, the management requires correction of both Dosha.

2. Stool smell; This feature is considered as Pittaja feature when it is associated with fever, a specific feature of PittajaDosha.

3. Stool consistency; Due to *Dravatva* and *Saratva*, stool may be watery or semi-liquid but this feature should also be associated with other features of Pittaja such as fever, yellow/green color, slimy but not due to presence of visible mucus

4. Stool Quantity; Not specific

5. Stool frequency; Forcefully and frequently

6. Associated with Mucous and blood; Not associated with mucous but can be associated with blood.

7. Other features associated with PittajaAtisara; Pittajaatisara is associated with fever but not associated with cough, reduced appetite and vomiting.

KaphajaAtisara

1. *Stool color;* White
2. *Stool smell;* foul smell is considered as a KaphajaDosha when it is not associated with fever but is associated with mucus/white color stool/ semi solid in combination.
3. *Stool consistency;* Semisolid feature is usually present in KaphajaAtisara, usually this feature is associated with other features of KaphaDosha such as presence of mucus, nausea etc
4. *Stool Quantity;* Alpa [small quantity]is a feature of two type of Doshajaatisara i.e. Vataja and Kaphaja when this feature was associated with increased frequency, considered under VataDosha and if it was associated with mucus, nausea or relatively reduced appetite, considered as a feature of KaphajaDosha.
5. *Stool frequency;* Increase Frequency of stool can be consider as a features of KaphaajAtisara when associated with mucus [Shleshma], Picchilata [viscus or sticky].
6. *Associated with Mucous and blood;* This is Classical feature of Kaphajaatisara.
7. *Other features associated with KaphajAtisara;* Kaphajaatisara is associated with vomiting and reduced appetite but not associated with fever and pain in abdomen.

Pathogenesis and manifestation of disease

When etiological factors and constitutional factors are antagonistic to each other, disease is not produced. When these factors are synergistic only in few respects, complete manifestation doesn't occur and mild or latent type of disease is produced. When the permutation of these factors takes prolonged time, the disease also takes prolonged course to manifest. When their combination is synergistic to each other in all respects, the disease is manifested fully with all its clinical features.

Management of diseases according to Prakriti(constitution)

Ultimate goal of Ayurveda is to ensure complete and comprehensive health and all literature is all about maintenance of the status of equilibrium of body tissues.Plan of use of medication varies from patients to patient due to variations in their strength. For instance, if powerful or strong medication be used in debilitated patient, detrimental consequences may be obtained and if weak drugs be used in powerfully built patient or in patient suffering from severe disease, no effect will be achieved. Thus treatment may fail if patient is wrongly assessed [23,24]. Prakriti(constitution) assessment is the chief factor for analysis of strength of patient. It is also emphasized that while suffering from similar disease patients do not respond to similar treatment modality because of variation in their constitution This stresses the fact that strategy of treatment modalities is different in diverging patients [25]. Universal management principle of disease also lays emphasis on role of Prakriti(constitution) i.e. if those drugs are used which are antagonistic to Prakriti(constitution), the disease is cured [26]. In the description of DehaPrakriti(body constitution), it has been stated that particular doshicPrakriti(constitution) persons are prone to develop that type of doshajvikaras[27].Acharyashave also described measures for avoiding occurrence of these diseases by modifications in diet and lifestyle.In Sannipatikatisara first we treat Vata after that pitta and kapha.

Prognosis of diseases according to Prakriti(constitution)

While describing Sadhya-Asadhyata(curable & incurable diseases), Acharyahave enumerated Prakriti(constitution) of patient as one of the factors required to categorize the disease as Sukhasadhaya(one that can be cured easily), Kricchrasadhya(one that can be cured with some difficulty),Yapya (one which is palliable), and Asadhya(one which is absolutely irreversible). When etiological factor and Prakriti(constitution) is not of same type the disease is Sukhsadhaya(one that can be cured easily), when some similarity exists between the two, disease is Kricchrasadhaya(one that can be cured with some difficulty)[28].Acharyashave also appraised that some of the diseases are Yapya(one which is palliable) by their Prakriti(constitution)[29]. AcharyaCharakahas specified an example of incurability of santatatype of jvara, saying that when doshasare homologous with the kala, dhatuand bodily constitution, incurable santatajvara(remittantfever) is produced[30]. In Sannipatikatisara specific type of stool appearance are present (*varahsnehamansaambu like)*and in this condition Atisara is Kricchrasadhaya*(*one that can be cured with some difficulty.)

Summary and conclusion

Prakriti is considered better than Tridosaja or Sam-Prakriti, because of imbalance between some negative and positive characteristics in Eka-DosajaPrakriti . For example, if an infant has VatajaPrakriti then this infant will be more prone to develop Vataja disorders and the disease will be stronger than the other Dosa - dominant inducing disease. Prakritihas a role in selection of drug, dose ,anupana (vehicle) and samskara (processing).In specific Prakriti some drugs or procedures are indicated (Ghritafor vata and pitta Prakriti) or contraindicated (svedana for pitta prakriti).Prakriti of an individual illustrates numerous physiological functions as Agni (digestive and metabolic capacity), koshtha (digestive and excretory functions), Bala (strength of tissues) and life span are specific for each prakriti.

Source of support- Nil

Conflict of interest- None Declared

References

[1]*CharakaSamhita* – CharakaChandrika Hindi commentary vol-1 by DrBrahamanandTripathi sutra sthan 7/41, published by ChaukhambasubharatiPrakashan; 2009. p. 181.

[2]*IbidemCharakaSamhita* (1), Vimansthana 6/16. p. 707.

[3]*IbidemCharakaSamhita* (1), Sutra sthana 10/11. p. 220.

[4]*AstangaHridayam-Vidyotini Hindi Commentary,* by KavirajaAtrideva Gupta, edited by Vaidya Yadunandana Upadhyay, Sutra sthana 1/10, published by ChaukhambaPrakashan; 2009.

[5]*IbidemCharakaSamhita* (1), Vimansthana 8/95. p. 758.

[6]Monier Williams, Sanskrit English dictionary, MotilalBanarasidas Publication; 2002. p. 654.

[7]*IbidemCharakaSamhita* (1), Vimansthana 8/101.

[8]Monier Williams, Sanskrit English dictionary, MotilalBanarasidas Publication; 2002. p. 954.

[9]*IbidemCharakaSamhita* (1), Sutra sthana 7/39-40. p. 763.

[10]*IbidemCharakaSamhita* (1), Sutra sthana 10/11-13. p. 220.

[11]*IbidemCharakaSamhita* (1), Sutra sthana 7/41-44. p. 181.

[12]Patwardhan B. Bodeker G. Ayurvedic genomics: establishing a genetic babsis for mind body typologies. J Altern Complement Med 2008; 14:571-6.

[13]Dahanukar SA,Thatte UM. Current status of ayuveda in phytomedicine. Phytomedicine 1997;4:359-68.

[14]Acharya Yadavaji Trikamji. CharakaSamhitaChikitsasthan 19. ChaukhambhaSanskritaSansthan Varanasi 1997.

[15]Shastri Ambika Datta. SusrutaSamhitaUttaratantra 3. ChaukhambhaSanskritaSansthan Varanasi 1997.

[16]Gupta Kaviraja Atrideva, AstangHrdayamNidansthan 8. ChaukhambhaSanskritaSansthan Varanasi 1997.

[17]Gupta Kaviraja Atrideva, AstangHrdayamChikitsasthan 9. ChaukhambhaSanskritaSansthan Varanasi 1997.

[18]Shastri Ambika Datta. SusrutaSamhitaUttaratantra (40/3-5). ChaukhambhaSanskritaSansthan Varanasi 1997.

[19]Gupta Kaviraja Atrideva, AstangHrdayamUttaratantra (9/1-3). ChaukhambhaSanskritaSansthan Varanasi 1997.

[20]*IbidemCharakaSamhita* (1), chikitsasthana 19/5-6-7.

[21]Shastri Ambika Datta. SusrutaSamhitaUttaratantra 40/11. ChaukhambhaSanskritaSansthan Varanasi 1997.

[22]*Madhava-Nidana 3/6 with the 'Madhukosa' Sanskrit commentary* by Srivijayaraksita and Srikanthadatta with the 'Vidyotini' Hindi commentary by ShriSudarsanaSastri,., Chaukhambha Sanskrit Sansthan, Varanasi (India).

[23]*CharakaSamhita(text with English Dipika).* Edited by Sharma RK, Bhagwan Dash. Chaukhambha Sanskrit Series Office. Vol II VimanaSthana 8/94 p 261. Varanasi: Reprint 2009.

[24]*SushrutaSamhita, NibandhaSangrahaCommentry* by Dalhana,edited by AcharyaYadavajiTrikamji, Published by ChaukhambhaOrientalia, Varanasi, 1994. ,SutraSthana 39/10,p 411.

[25]*CharakaSamhita(text with English Dipika).* Edited by Sharma RK, Bhagwan Dash. Chaukhambha Sanskrit Series Office. Vol I Sutra Sthana 1/123,13/77 p 197,198.. Varanasi: Reprint 2009.

[26]*CharakaSamhita(text with English Dipika).* Edited by Sharma RK, Bhagwan Dash. Chaukhambha Sanskrit Series Office. Vol I Sutra Sthana 1/62 p 44.. Varanasi: Reprint 2009.

[27]*CharakaSamhita(text with English Dipika).* Edited by Sharma RK, Bhagwan Dash. Chaukhambha Sanskrit Series Office. Vol II VimanaSthana 6/15 p 192. Varanasi: Reprint 2009.

[28]*CharakaSamhita(text with English Dipika).* Edited by Sharma RK, Bhagwan Dash. Chaukhambha Sanskrit Series Office. Vol I Sutra Sthana 10/9,10 p 197,198.. Varanasi: Reprint 2009.

[29]*BhaisajyaRatnavali, 3/6 'Vidyotini' Hindi commentary* by ShriAmbikadattaShastri, Chaukhambha Sanskrit Sansthan, Varanasi-221001 (India), 2005 .

[30]*CharakaSamhita(text with English Dipika).* Edited by Sharma RK, Bhagwan Dash. Chaukhambha Sanskrit Series Office. Vol I Sutra Sthana 10/11 p 197,198.. Varanasi: Reprint 2009.

Letter No.V-34564,Reg.533/2007-2008 INDIAN JOURNAL OF RESEARCH(2015)**9,7-13**
ANVIKSHIKI ISSN 0973-9777 Advance Access publication 20 August 2014

EFFICACY OF PLACENTAL EXTRACT IN ORAL SUBMUCOUS FIBROSIS: A CLINICAL STUDY

Dr. Amber Kesarwani* AND Dr. Rajesh Kumar**

Declaration

The Declaration of the authors for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: We, *Amber Kesarwani and Rajesh Kumar* the authors of the research paper entitled EFFICACY OF PLACENTAL EXTRACT IN ORAL SUBMUCOUS FIBROSIS: A CLINICAL STUDY declare that , We take the responsibility of the content and material of our paper as We ourself have written it and also have read the manuscript of our paper carefully. Also, We hereby give our consent to publish our paper in Anvikshiki journal , This research paper is our original work and no part of it or it's similar version is published or has been sent for publication anywhere else.We authorise the Editorial Board of the Journal to modify and edit the manuscript. We also give our consent to the Editor of Anvikshiki Journal to own the copyright of our research paper.

Abstract

Aims: Oral submucous fibrosis (OSMF) is well known potentially malignant condition of unknown aetiology mostly seen in people of Asian descent. This clinical trial was done to evaluate the effectiveness of Placental extract in OSMF and study of its side effects.

Materials and Methodology: This clinical trial was done in Department of E.N.T., I.M.S.-B.H.U. on 60 patients which were divided in two groups. Group I consists of 30 patients who were given Inj. Placental extract 2ml.weekly for 10 weeks while Group II included 30 patients which served as Control group (age and sex matched) who were given multivitamins. All the patients were asked to quit substance abuse and were taught jaw dilator exercises. Follow up record was done monthly up to 6 months of beginning of treatment.

Observations and Results: Significant improvement in patients receiving Inj. Placental extract was observed. Total improvement in symptoms score is 88.8% after 6 months of treatment in Group I while in Group II it was just 47.7% ($p<0.05$). The trismus improved by 6.7 mm in group I and 1.6 mm in group II ($p<0.05$).

Conclusion: Placental extract is quite effective in alleviating symptoms and signs of OSMF from the preliminary data. No significant side effects were noted. A follow up study is required to assess long term outcome of this therapy.

Keywords: Oral Submucous Fibrosis, Placental extract, Trismus

Source of Support: None

Conflict of Interest: None

*Postgraduate Resident, Department of ENT [IMS] BHU, Varanasi (U.P.) India. e-Mail : dramber.kesar@gmail.com
**Associate Professor, Department of ENT [IMS] BHU, Varanasi (U.P.) India.

Introduction

Oral submucous fibrosis (OSMF) is a chronic and potentially malignant condition of the oral cavity. It is characterized by a juxtaepithelial inflammatory reaction followed by fibroelastic changes in the lamina propria and associated epithelial atrophy.[1] The disease affects most part of the oral cavity as well as the upper third of the oesophagus [2]. The pathogenesis of OSMF is not well established, but is believed to be multifactorial. The chewing of betel quid (containing areca nut, tobacco and slaked lime) has been recognized as one of the most important risk factors for OSMF. It was predominantly seen in people of Asian descent, but as a result of globalization it has become major health concern in Western countries as well.

Clinically, OSMF is characterized by burning sensation in mouth on eating spicy food, blisters, recurrent stomatitis, defective gustatory sensation and dryness of mouth initially. Late symptoms include stiffness of oral mucosa and difficulty in mouth opening. However, the most disturbing part of the disease process is its malignant transformation rate. The possible pre malignant nature of OSMF was 1st mentioned by Paymaster [3]**.** According to a long-term follow-up study, a malignant transformation rate of 7.6% over a period of 17 years has been reported [4].

Many treatment options are tried till date for this potentially malignant disease including intralesional injection of steroids, hyaluronidase, human placenta extracts and collagenase. A range of oral medication like iron and multivitamin supplements, lycopene -an extract of tomato, Pentoxifylline and chymotrypsin etc. But no effective therapy is formulated till date. Laser ablation and surgery, including cutting of the fibrous bands of the jaw muscles and temporomandibular joint, has been used for more extreme cases [5].

Keeping in view the increasing prevalence of the disease in this region of Varanasi and nearby areas and lack of effective therapy, a randomized clinical trial was planned to assess the usefulness of Placental extract in the treatment of OSMF in respect to placebo.

Materials and Methodology

This randomised clinical trial was conducted in Department of Otolaryngology, Sir Sunder Lal Hospital, IMS, BHU on patients attending Otolaryngology outpatient department from January 2013 to December 2013. Institutional ethical committee approval was obtained prior to starting the trial. The study was undertaken with the understanding and written consent of each subject. Patients with 18 years of age and older, were enrolled in the study and written consent was obtained. Patients who had difficulty in chewing, had restricted mouth opening with the presence of fibrous bands and clinically diagnosed OSMF were included. Patients with medical problems (Uncontrolled diabetes, Severe Hypertension, Cardiac disease, Gastric or duodenal ulcer etc.) or dental appliances such as orthodontic or other fixed prostheses that could potentially interfere with the examination were not included in the study. 68 patients were enrolled in the study and out of these 60 patients came for regular follow up and took regular treatment, thus 8 patients were excluded. All patients were examined with a conventional overhead examination light and then divided randomly into two groups: Group I (n=30) receiving Inj. Placental extract 2ml.weekly for 10 weeks and Group II (n=30) receiving placebo in form of multivitamins.

Detailed clinical examination was performed on each patient to assess the site/size of the oral mucosal lesions and this was recorded on a standard form. All routine investigations were done. Pre-treatment biopsy was done in patients to rule out malignancy in case of suspicion. Information regarding the patients' name, age, sex, occupation, background, dietary habits, dental hygiene, personal habits and present complaints was gathered. Emphasis was given to addictions like areca nut, tobacco and alcohol.

Clinical assessment of maximal jaw opening was carried out monthly and outcomes were expressed by measured change in the inter-incisor distance. Staging of the patients were done according to More CB et al. We had formulated a newer scoring system in which each symptom/sign and of OSMF were given a particular score, before and after completion of therapy. Scoring of symptoms like intolerance to spices, burning sensation in mouth, oral pain, heaviness in throat and repeated vesicles or ulcer formation was done according to verbal complaint rating scale of 0-10 points, where 0 means no symptom and 10 means severe most symptom as perceived by the patient subjectively and signs were scored from 0 to 8 points according to a new criteria. Trismus was scored as 0 means no trismus where inter-incisor distance was 5 cm or more in males and 4.75 cm or more in females, scored as 1 or grade I where inter -incisor distance was more than 3.5 cm but less than normal, scored as 3 or grade II where inter- incisor distance was between 2.5-3.5 cm and scored as 5 or Grade III where inter- incisor distance was between 1.5-2.5 cm and scored as 8 where inter-incisor gap was less than 1.5 cm. Ankyloglossia was scored as 0 when protrusion of tongue was normal (24 .8 mm- 25 mm in both sexes) measured between lower central incisor and tip of the tongue on maximal protrusion, scored as 4 when protrusion of tongue was partial and scored 8 when there was inability to protrude out the tongue. Improvement was noted on the basis of these scores.

Patients were encouraged for habit cessation and jaw dilator exercises were also taught to patients. Clinical follow-up of all the patients was carried out monthly for 6 months of starting the treatment and the findings were compared pre and post-treatment. Side effects of treatment, if any, were also investigated. Statistical methods employed in this study included Arithmetic mean, Standard deviation and the Paired‘t’ test.

Observation and Results

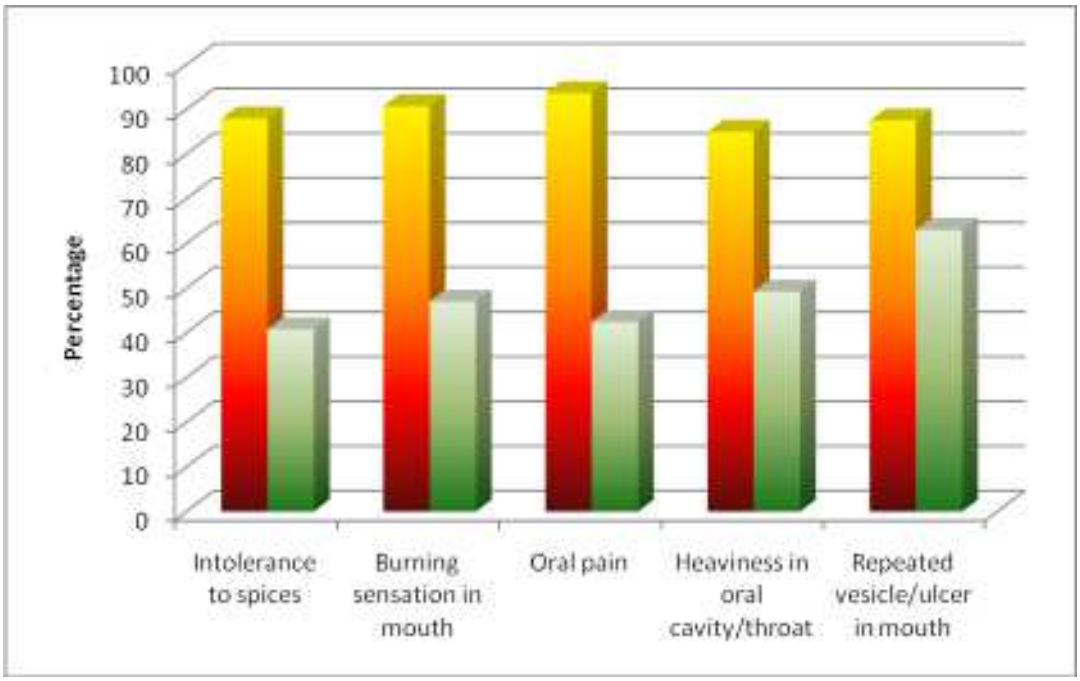
Most of the patients suffering from Oral Submucous Fibrosis were in third decade followed by fourth decade**.** Youngest patient seen was 18 year old and the oldest patient was 65 year old. Male to Female ratio of the patients suffering from Oral Submucous Fibrosis were 4.42:1(p value <0.05). Most of the males were in age group of 21-30 years whereas majority of females were between 41-50 years. 55 Patients (91.67%) presented with the complaint of Intolerance to spices, 44 (73.3%) patients with burning sensation, 20 (33.3%) patients with oral pain, 14 (23.3%) patients with heaviness in throat, 25 (41.67%) patients with repeated vesicles/ulceration and 52 (86.16%) presented with reduced mouth opening. 42 (70%) patients presented within 12 months of onset of symptoms. Most of the patients presented with Grade II trismus 22 (36.6%), 18 (30%) patients with Grade I trismus, 16 (26.7%) patients with Grade III trismus and 4 (6.7%) with Grade IV trismus.

The total symptoms score improved by 88.8% in group I and 47.7% in group II. Intolerance to spicy food improved by 87.86% in group I and 40.77% in group II, burning sensation in mouth improved by 90.7% in group I, 47% in group II, oral pain improved by 93.6% in group I, 42.4% in group II, heaviness in oral cavity/throat improved by 85% in group I, 49.2 % in group II while repeated vesicles and ulcer formation in mouth improved by 87.5% in group I and 63% in group II (p<0.05).

T A B L E 1 *Showing percentage improvement in symptoms*

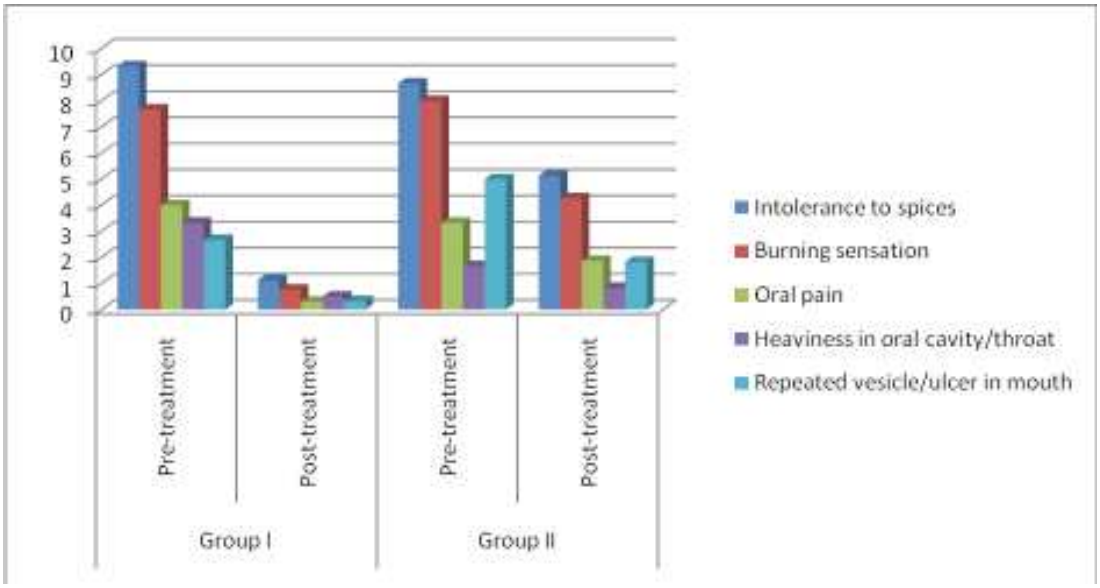
Symptoms	Improvement in percentage	
	Group I	Group II
Intolerance to spices	87.86%	40.77%
Burning sensation	90.7%	47%
Oral pain	93.6%	42.4%

Heaviness in oral cavity/throat	85%	49.2%
Repeated vesicle/ulcer in mouth	87.5%	63%
Total	88.8%	47.7%



T A B L E 2 *Showing Pre treatment and Post treatment score of symptoms*

Clinical Parameters	Mean & Standard Deviation			
	Group I		Group II	
	Pre treatment	Post treatment	Pre treatment	Post treatment
Intolerance to spices	9.33±2.54	1.13±1.31	8.67±3.46	5.13±2.50
Burning sensation	7.67±4.30	0.77±1.36	8.00±4.07	4.27±2.46
Oral pain	4.0±4.98	0.3±0.99	3.33±4.79	1.87±2.71
Heaviness in oral cavity /throat	3.33±4.79	0.5±1.52	1.67±3.79	0.83±2.30
Repeated vesicle/ulcer in mouth	2.67±4.49	0.33±1.83	5.00±5.08	1.83±2.78
p value	<.05		<.05	



Trismus improved by 34.2% in Group I and 3.7% in Group II ($p<0.05$). Ankyloglossia improved by 50% in group I and 0% in group II The trismus improved by 6.7 mm in group I and just 1.6 mm in group II post treatment. ($p<0.01$)

T A B L E 3 *Improvement in inter-incisor gap with the treatment*

	Mean & Std. Deviation			
	Group I		Group II	
	Pre treatment	Post treatment	Pre treatment	Post treatment
Trismus (mm)	27.13±10.33	33.83±9.33	28.70±8.57	30.33±9.08
d (mm)	6.7±5.39		1.63±1.27	
p value	<0.001		<0.001	

Side effects noted among Group I patients receiving Inj. Placental extract 4 patients (13.3%) developed heaviness in oral cavity at the site of the lesion. Among Group II, patients received Placebo no side effects were observed

Discussion

OSMF is a challenging disease to treat, as it does not regress by any of the treatment modality. The treatment thus aims to reduce the symptoms and improvement in mouth opening. Many treatment modalities are tried for this enigmatic disease like steroid injection, hyaluronidase injection, collagenase injection, lycopene etc. but none of them was able to cure this disease. However, steroids injections are used extensively among practitioners. Pathologically, occlusive blood vessels because of the deposition of collagen fibres [6] and hypercoagulability of blood [7] restrict nutrients and therapeutic substances from reaching the affected tissue.

Placentrex is an aqueous extract of human placenta that contains nucleotides, RNA, DNA, enzymes, vitamins, amino acids, and steroids, minerals and trace elements [8]. Thus, it provides nutrients and essential substances to affected tissue. Placental extract acts on biogenic stimulation theory and according to this theory when animal and vegetable tissues are severed from the parent body and exposed to unfavourable conditions, but not mortal to their existence, undergo biogenic readjustment leading to development of substance in the state of their survival to ensure their vitality biogenic stimulators.

Such tissues or their extract when implanted or injected into the body after resistance of pathogenic factors stimulates metabolic or regenerative process thereby favouring recovery [9].

In the present study, we have studied effect of placental extract on various symptoms like intolerance to spices, burning sensation, oral pain, heaviness in oral cavity and repeated vesicle/ulceration and signs like trismus and ankyloglossia. The overall improvement in symptoms is 88.8% while trismus improved by 34.2% and ankyloglossia by 50%. The average increase in inter-incisor gap after completion of study is 6.7 mm.

In our study, we have injected placental extract intra-lesionally in the soft palate and in the fibrous bands formed anterior to anterior pillars and retromolar area (at multiple sites bilaterally). Grading of the patients was done according to More CB et al. [9]. The injections were given every week for 10 weeks

Our findings were in accordance with the studies done by Katharia et al.[10] who also studied effect of Inj. Human placental extract on 22 patients between age 16-37 yrs. and observed significant changes in symptoms. The improvement in mouth opening is highly significant ($p< 0.01$) and the highest improvement was observed in burning sensation. However, there was only slight improvement in protrusion of tongue which was not significant. No side effects were reported in their study and Sudhakar et al.[11] studied the effect of placental extract in 52 patients and reported 88.46% improvement in symptoms after 6 months along with improvement in the average inter-incisor gap from 22 +/- 7mm pre treatment to 32 +/- 8mm after 6 months of proper treatment. No side effects were reported in their study. However, no studies till date to the best of our knowledge have studied the effect of placental extract on various symptoms so extensively. The patients were followed for total duration of six months with excellent results.

Conclusion

Placental extract has shown significant improvement in symptoms and signs of OSMF with no significant side effects. Due to small sample size of our study, the outcome of our regimen needs further standardization by multi-institutional double-blind prospective study. In view of the precancerous nature of this disease, it is essential to follow-up the patients regularly.

References

[1]Pindborg JJ, Odont & Sirsat SM. Oral submucous fibrosis. Oral Surgery, Oral Medicine, Oral Pathology 1966; 22(6): 764-779.

[2]Tilakratne WM, Klinikowski MF, Saku T, Peters TJ, Warnakulasuriya S. Oral submucous fibrosis: Review on aetiology and pathogenesis. Oral Oncol. 2005; 30:30–32.

[3]Paymaster JC. Cancer of the buccal mucosa: a clinical study of 650 cases in Indian patients. Cancer 1956; 9: 431-435.

[4]Cox SC, Walker DM. OSMF, A review. Australian Dental Journal 1996; 41(5): 294-299.

[5]Balabaskaran K et al. Treatment options for Oral Submucous Fibrosis. IOSR Journal of Dental and Medical Sciences. 2013;10 (5):33-35

[6]Rajendran R, Rani V, Shaikh S (2006). Pentoxifylline therapy: A new adjunct in the treatment of oral submucous fibrosis. Indian J Dent Res; 17:190-98

[7]Phatak AG(1984). Hypercoagulation and fibrinolysis in oral submucous fibrosis. Am J Clin Pathol;81:623-628.

[8]Rananjaneyulu P, Prabhakar Rao. Submucous fibrosis new treatment. J. Ind. Dent. Assoc 1980; 52: 379.

[9]Chandramani B. More, Sunanda Das, Hetul Patel, Chhaya Adalja, Vaishnavee Kamatchi, Rashmi Venkatesh. Oral Oncology 2012; 48: 200–202

[10]Katharia SK, Singh SP, Kulshreshtha VK. The effects of placenta extract in management of oral submucous fibrosis. Indian J Pharmacol 1992; 24: 181–183.

[11]Dr. Sudhakar et al: Treatment of oral submucous fibrosis http://www.waent.org/archives/2009/vol.1/submucosal-fibrosis/submucous-fibrosis.htm

Letter No.V-34564,Reg.533/2007-2008 INDIAN JOURNAL OF RESEARCH(2015)**9,14-18**
ANVIKSHIKI ISSN 0973-9777 Advance Access publication 29 August 2014

ROLE OF AMA W.S.R. TO PHYSIOLOGICAL CHANGES IN GUT

Dr. Sarita Mishra*

Declaration

The Declaration of the author for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: I, *Sarita Mishra* the author of the research paper entitled ROLE OF AMA W.S.R. TO PHYSIOLOGICAL CHANGES IN GUT declare that , I take the responsibility of the content and material of my paper as I myself have written it and also have read the manuscript of my paper carefully. Also, I hereby give my consent to publish my paper in Anvikshiki journal , This research paper is my original work and no part of it or it's similar version is published or has been sent for publication anywhere else. I authorise the Editorial Board of the Journal to modify and edit the manuscript. I also give my consent to the Editor of Anvikshiki Journal to own the copyright of my research paper.

Abstract

Ama is considered as rout cause of all diseses in the body. It has tremendous capacity to vitiate the Doshas and disturbing the homeostasis (Dhatusamya).Ama is the resultant of improper digestion or partially digestion of the food particle due to hypofunction of Jatharagni and also due to accumulation of mala in the body. It may be considered as partially or incompletely metabolized Dhatu .

Key word: Ama, Doshas, Jatharagni, Dhatu

Literary review; Agni that is present in body, termed as *kayagni* is divided into three as[1]
Jatharagni; which look after digestion and absorption of food.
Bhootagni; it converts all *vijateeya panchabhautic dravyas* to *sajateeya dravyas.*
Dhatvagni; for the purpose of synthesis and breakdown of tissues.

Function of Jatharagi include[2]

- Digestion of food
- *Saarakitta vibhajana* (Absorption)

After function of *jatharagni ahara rasa* get form, then *bhootagni and dhat*vagni comes into play so *vijateeya ahara rasa* get converted into *sajateeya* to different *mahabhutas* of body and after functioning of *dhatu paka* gives nourishment to body tissue.

*S.R & PhD scholar, Department of Prasuti Tantra [Faculty of Ayurveda] IMS, BHU Varanasi (U.P.) India.

But when proper functioning of *agni* get disturbed*, ama* get formed at various level in body that leads to different pathological conditions.

- *Apakva ahara in amashaya*
- *Apakva ahara rasa in amashaya*
- *Ama at dhatu level*.

When food gets properly digested it forms *sara and kitta bhaga. Sara bhaga* get absorb and after digestion with *dhatvagni forms sthayi and asthayi poshaka dhatu. sthayi poshaka dhatus* gives nutrition to permanent *dhatu* i.e*. sthayi* rasa *dhatu* gives nutrition to *rasa dhatu* proper and *asthayi rasa dhatu* after functioning of *raktagni* forms *sthayi* and *asthayi rakta dhatus*, in the same manner other *dhatus* get form and get their nutrition from their previous *dhatus*.

Disturbance in function of *agni* at any level i.e. *jatharagni, bhutagni and dhatuvagni* leads to formation of *ama* that is causative factor of different pathological conditions. But gross digestion takes place in *amashaya,* that's why *acharya* has described formation of *ama*, primarly in *amashaya*.

Due to disfunctioning of *agni*, food remain undigested and form *ama* which is foul in smell, very slimy and vitiates *doshas* and *dhatus* when get absorbed.[3]

Symptoms of Ama[4]

Srotarodha – obstruction – this can occur in any large, small or minute channel, when it is indicated by stagnation and disturbance in transport and metabolism in gross as well as at cellular level.

Weakness or reduced working power in any part of body or organ is due to obstruction in their nutrition caused by Ama.

Heaviness and lethargy

Coated tongue

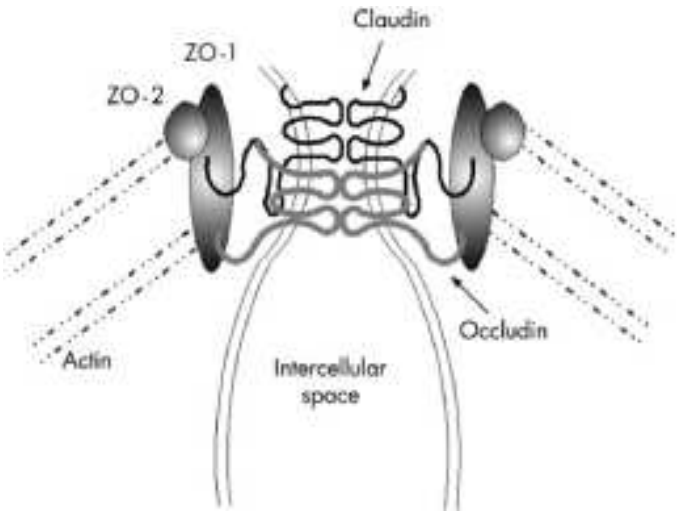
Improper digestion and *evacuation*

This Ama is responsible for vitiation of all the *doshas* and *dhatus*[5].

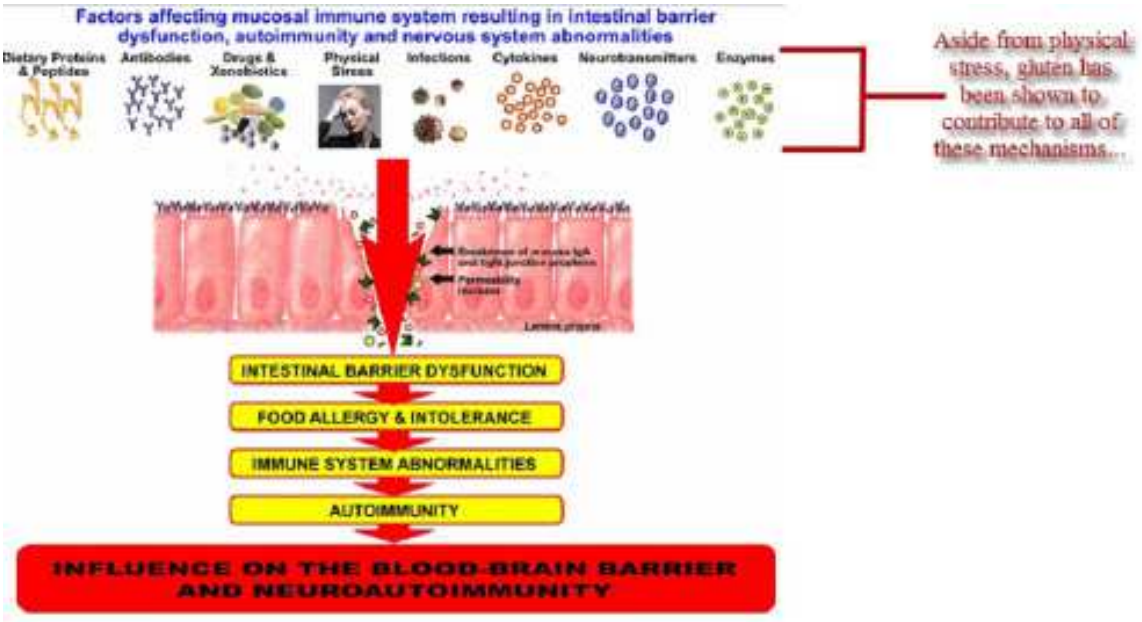
Concept of *agni* is very different concept then that of modern concept of digestion. In modern gastroenterology digestion takes place in body by the help of various type of enzymes. There is no direct evidence about the longevity, health, cheerfulness, plumpness, luster vitality etc. having relation with proper digestion as *Ayurvedic* concept about function of *agni* is.

But new researches has shown and giving glimpse that has been well elaborated in *samhitas* in relation to concept of *agni* and *ama*. According to modern science enzymes and gut flora plays major role in digestion. Along with this, intact epithelial lining of digestive tract is also important for proper absorption of food along with it, it also prevent access of external agent that can initiate or perpituat mucosal inflammation by secreting immunoglobilin, mucous, difencine and antimicrobial products.

Tight junction present in between epithelial cells of digestive tract are major regulator of permeability, they experessing different level of tightness, based on variety of stimuli i.e. dietary stimuli, hormonal and neuronal signal, inflammatory medietor. Fibrinil filament that is present in vicinity of junction is made up of occludine and number of claudin filament family. Claudin family members are important in determining the physiological properly of tight junction and during disease expression relative abundance of claudin can change by upto 1000 fold[67].



That means permeability of intestine varies time to time in response to various type of stimulation. Such as infection, toxic, stress, age etc. There are variety of humen diseases in which abnormal intestinal permeability plays major part in their pathogenesis, these diseases are diabetes, crohn's disease, autoimmune diseases, irritable bowel syndromes, atopic dermatitis, ankylosing spondylosis. Prior to development of proper diseases caused by abnormal gut permeability various type of symptoms are developed that are combindly called as *leaky gut syndrome*[8,9,10,11,12,].



Once these tight junction get broken apart, things like toxins, microbes and undigested food particle can escapes from intestine and reach in blood stream and acting as antigen and giving symptom like

Digestive issue such as gas, bloating, diarrhoea
Seasonal allergies as asthma
Hormonal imbalance such as PMS, PCOS
Auto immune disease such as rheumatoid arthritis
Diagnosis of chronic fatigue as fibromyalgia
Mood and mind issues such as depression, anxiety

Skin issues such as acne, eczyma
Food allergen as food intolerance[13],[14]

Discussion

These concepts ama is very scientific concept, The food that is consumed considering all these rules and regulation get property digested and giving *dhatu poshana*. It is very clear concept by *Ayurvedic* veiw. Consumption of food after digestion of previous meal and giving consideration to rules of *ahara vidhi visheshayatan* and *ahara vidhi vidhan* may have their specific neuro hormonal effect by which enzymatic secretions and gut permeability can be regulated and controlled.

It has been prooven now that nuro hormonal secreations and permeability of tight junction alters according to age, metal status and diet. This is beuty of *Ayurvedic* physiology that choice of diet has been advised depending on nature of place, time, food article and the person who is consuming it and not only depending on caloric value of food item on generalise basis.

State of *agni* is also very peculiar concept, only properly digested food gives proper nutrition to body, so choice of food should be according to status of *agni* because if *agni* is not proper, food which is consumed will not give optimal result.

Ama forms due to improper function of *agni* in different level of digestion but it primarly forms in *amashaya* and *pakvashaya* level. *Ama* in rout cause of all most all disease.

In modern physiology new concept i.e. gut *permeability* (increased gut permeability leads to leaky gut syndrome) is new area of research in maintaining health and initiation of disease process if intestinal permeability get disturbed which also disturbes gut flora which results various pathological condition like depression, anxiety, mood swing, psychological disorder, autoimmune diseases, obesity, cancer,decrease immunity can occur.

Normal state of *agni* is responsible for maintenance of local environment of gut, because properly digested food get properly absorbed and it will help to maintain population of good gut flora in gut and the food that is not taken at proper time, during anxiety or contaminated with various antigen will not digest properly and will alter absorption and opening of tight junction and form immune complex that causes various type of allergies, autoimmunity and inflammation. These concepts are very similar concept like *ama.* So to prevent and treat these conditions, concept of treatment of *ama* and *agni* are very important.

Conclusion

Summing up above explanation it can be conclude that main factor concerned in the formation of *Ama* is *Mandagni* (Hypo function of digestive faculty of body). Dietetic indiscretion and emotional stresses contribute to the formation *Ama*. This may be impaired the effective functioning of the neuro-humoral mechanism responsible for proper secretion of digestive juices. *Ama* is produces also due to accumulation of byproduct of metabolism as well as metabolic waste not properly eliminated or utilized in the body. Here it is noteworthy that whenever there will be improper metabolism due to impaired functioning of *Agni* then only *Ama* will be formed.

New researches based on gut microbiota and gut permeability in field of maitainance of health and pathogenesis of various disease will be much easy and fruitful *agni* and ama will take under consideration. Concept of *agni* and *ama* are very basic concept of *Ayurveda* that covers similar but much wider area of function than gut microbiota and increase gut permiabiltiy.

That is why *agni* has been considered as cause of life and body (*deha dharan*) and *ama* as rout cause of all disease (*sarva dosha prakopana*).

So by giving consideration to concepts releated to *agni* and *ama* in researches related to instestinal permeability, pathogenesis and mode of disease management can be better understand and will help humanity .

Footnotes

[1]*Ch.Ch.*15/8,13,16

[2]

[4]*A.H.Su* 13/23,24

[6]Fasano A, Natoro JP,Adv Drug Rev 2004 Apr 19; 56 (6):785-807

[7]Tsukita S, Furuse M. The structure and function of claudins, cell adhesion molecules at tight junctions. Ann N Y Acad Sci 2000. 915129–135.135.[PubMed]

[8]Madsen K L, Malfair D, Gray D.*et al* Interleukin 10 genedeficient mice develop a primary intestinal permeability defect in response to enteric microflora. Inflamm Bowel Dis 1999.5262–270.270.[PubMed]

[9]78.Duerksen D R, Wilhelm Boyles C, Parry D M. Intestinal permeability in long term follow up of patients with celiac disease on a gluten free diet. Dig Dis Sci 2005. 50785–790.790.[PubMed]

[10]Rosenfeldt V, Benfeldt E, Valerius N H.*et al* Effect of probiotics on gastrointestinal symptoms and small intestinal permeability in children with atopic dermatitis. J Pediatr 2004.145612–616.616.[PubMed]

[11]Vaile J H, Meddings J B, Yacyshyn B R. *et al* Bowel permeability and CD45RO expression on circulating CD20+ B cells in patients with ankylosing spondylitis and their relatives. J Rheumatol 1999.26128–135.135.[PubMed]

[12]Barau E, Dupont C. Modifications of intestinal permeability during food provocation procedures in pediatric irritable bowel syndrome. J Pediatr Gastroenterol Nutr 1990.1172–77.77.[PubMed]

[13]Dawson,Loren.Patch Up Your Leaky Gut Alive;Candian Journal of Health and Nutrition, Nov 2000 Issue 217 Pg 34

[14]Yoohey,L; The Nutritional Connection To The ‘ Leaky Gut ‘ The American Chisopractor.2002,Vol 24 (4),Pg 18-20

Letter No.V-34564,Reg.533/2007-2008 INDIAN JOURNAL OF RESEARCH(2015)**9,19-23**
ANVIKSHIKI ISSN 0973-9777 Advance Access publication 20 October 2014

GLOBAL COMPLEMENTARY SYSTEM FOR HEALTHCARE IF AYURVEDA COMBINE WITH MODERN MEDICINE

Dr Amit Kumar Singh*

Declaration

The Declaration of the authors for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: We, *Amit Kumar Singh* the authors of the research paper entitled GLOBAL COMPLEMENTARY SYSTEM FOR HEALTHCARE IF AYURVEDA COMBINE WITH MODERN MEDICINE declare that , We take the responsibility of the content and material of our paper as We ourself have written it and also have read the manuscript of our paper carefully. Also, We hereby give our consent to publish our paper in Anvikshiki journal , This research paper is our original work and no part of it or it's similar version is published or has been sent for publication anywhere else.We authorise the Editorial Board of the Journal to modify and edit the manuscript. We also give our consent to the Editor of Anvikshiki Journal to own the copyright of our research paper.

Abstract

Ayurveda, the science of life, is a part of the ageless Vedic heritage of India. Ayurveda prescribes life style changes with emphasis on tranquility of mind that is filled with universal compassion, as an insurance against an occasional illness. In this system disease is only accident. Immune boosting methods are the mainstay of Ayurveda therapeutics.

With advances in modern science and technology one cannot ignore the benefits of using modern hitech methods of emergency care. A judicious combination of modern medicine and ayurveda would be an ideal training for a family doctor. More skilled specialists in either system could be used only at the referral point. This would bring down the top heavy cost of modern medical care remarkably.

More than eighty per cent of the illnesses are either minor or self-correcting. They could easily be helped using ayurvedic methods and a placebo doctor. In addition, Ayurveda could help chronic debilitating diseases to a great extent, at a very small cost to the taxpayer. Ayurveda would not be of much use in an emergency. About ten per cent of the time modern medicine becomes the mandatory. Roughly ninety per cent of the unnecessary cost could be reduced for the benefit of all without detriment to public health. Rather most of the iatrogenic problems could thus be avoided.

Introduction

Ayurveda, the science of life, (Ayu=life;vid=science) is part of the ageless Vedic heritage of India. Speculations about its origin go back thousands of years before Christ. Extensive literature on this subject, dating back to the fourth century BC, has one thing in common that the essence of Ayurveda is to preserve good health, which is very human being's birthright. Ayurveda prescribes life style changes

*Postgraduate Resident, Department of ENT [IMS] BHU, Varanasi (U.P.) India. e-Mail : dramber.kesar@gmail.com
**Associate Professor, Department of ENT [IMS] BHU, Varanasi (U.P.) India.

with emphasis on tranquility of mind that is filled with universal compassion, as an insurance against an occasional illness. In this system disease is only an accident. just as road accidents are rare if one follow the life style prescribed in Ayurveda, which is not hard to comply with.

Human body has an inbuilt powerful immune system that could correct most, if not all, ills that man is heir to. In the unlikely event of this mechanism failing, and only then, should doctors interfere to help the system, when possible. In fact, the concept of immune deficiency syndromes had been prevalent there. Immune boosting methods are the mainstay of Ayurvedic therapeutics, the panchakarmas, and the five modalities.

Swasthasya swastha rakshitham
(Keep the well healthy as long as possible is the motto)

This motto would be a great help to modern medicine where a stage has come, what with the an array of scopes and scanners, coupled with our inability to define normality precisely, we end up with having no normal healthy human beings at all. Among the many methods of preserving health in Ayurveda, the one that stands out is Sage Patanjali's Yoga Shashtra, the science of Yoga. Unlike that is sold by the new age gurus, original Yoga had eight wings: rules for the day today living including diet, the art and ethics of living, regular exercise menu, the all important breathing method-pranayaama detached outlook towards life, yogic postures for constant ease to enable one to practice the next steps of dhyaana-concetration, tranquility of mind, and the ultimate realization of the impermanence of life to make man fearless even in the face of death. Thus defined, Yoga becomes a way of life and not just a few contortions of the body for an hour or so daily. Yoga, in its true form, is a way of life.

Another distinct philosophy in Ayurveda is that every disease begins in our thoughts (consciousness) and grows in the body. Genetic contributions are very clearly understood, in addition. The concept is holistic and never reductionist. Man is a part of the Universal consciousness, the environment and even the stars are supposed to have a role to play. Modern medicine is just trying to grapple with the role played by the mind in serious illnesses. Science, especially quantum physic, seems to be going into the new realm of human consciousness. Werner Heisenberg's Uncertainty principal and Ervin Schrodinger's Cat Hypothesis point is that direction. Recent studies of patients revived after cardiac arrest and those undergoing brain surgeries have pointed to the possibility of human consciousness (mind) out with the brain in every single human cell. This all-pervasive consciousness has been the hallmark of Ayurvedic thinking.

Ayurveda

Opinions differ as to how old is the Ayurvedic system of medicine, practiced and used by millions of people, particularly in the Sub-continent of India. Estimates range of from 3000 years to 5000 years. Even though this system of medicine had its origin in the ancient Vedas the Rig, Sama, Yajur and Atharva and have been reportedly mentioned in the over 10572 slokas (hymns) in Rigveda, documentary evidence in the form of some of the ancient texts, the Charakasamhita, the Sushrutasamhita and Ashtangahridaya expounding the finer details of the practice of this system dates back to the late Pre-Christian era. Between these treatises, practically all disciplines of medicine, as we know today are described, including diagnosis and therapy as well as the basis sciences of pathology, physiology and anatomy of the human being. Many of the description are all encompassing including the first principal of massage using marma point which parallel the Chinese systems of Acupressure and Acupuncture.

That the system was well-entrenched even before the Christian era is obvious from the reported use of this texts in the ancient Universities of Takshashila and Nalanda.

As a system of medicine, Ayurveda has a holistic view of life involving the union of body, sense, mind and soul. Thus health or sickness depends on the presence or absence of a balanced state of the total body matrix consisting of all the above components. Restoration of health, in turn, depends on factors other than treatment, namely, correcting life-routine and behavior, resorting to certain interventions including panchakarma and rasayana therapy (immunomodulation). Described as the 'Science of Life', positive health according to Ayurveda is not absence of disease, but is also related to mental, social and spiritual welfare of human beings. It is interesting that these principals expect the spiritual well-being has been independently echoed in the definition of Health as in the Alma Ata Declaration on 'Health For All' of the World Health Assembly in 1977.

Is Ayurveda an alternative or complementary system of medicine?

Even though ancient Ayurvedic texts claim that Ayurveda as practiced in ancient times was considered a complete system by itself ., including preventive, diagnostic, therapeutic and surgical modalities, over a period of time, the scope of the system has been reduced to limited application, particularly restricted to chronic conditions or those for which modern medicine has no appropriate remedies. Combined with prescribed disciplined life-style and diet, Ayurvedic practices, such as Panchakarma and therapies using drugs and rejuvenative medicines including immunomodulators, adaptogens, antioxidants etc, commonly called the Rasayana therapy, are major feature of the system. In theory the concept embodied in all these interventions are considered by experts in modern medicine, even though appropriate medicines have not been discovered in the modern system. the choice of drugs and the final outcomes are determined by the nature of the individual patient or prakriti, which call for customized medicines rather than common remedies for all patients with similar symptoms. This approach has now been endorsed in modern medicine through the emergence of personalized medicines in the wake of development in genomics and proteomics of human beings. The principal of Ayurveda classifies people into three major classes according to their physical and emotional traits, the Vata, Pitta and Kapha which characterise their features, and propensity for diseases of diverse kindes and intensity.

Ayurveda of India

The Government of India has set up a separate Department of Indian System of Medicine and Homeopathy (ISM&H) recently rechristened as the Department of Ayush, to popularise all the Indian System of Medicine. The Department undertakes major project to conduct research and development and validate the claims made by the system with respect to the efficacy and safety of their practices and products. While some of the products are manufactured and marketed by Ayurvedic Companies according to their descriptions in classical texts, the majourity of products are being marketed as modern galenic forms of solid and liquid formulations. The Drugs and Cosmetics Act 1940 and the Drugs and Cosmetics Rules 1945 prescribe standards and quality and regulate and manufacture and marketing of all drugs, including Ayurvedic medicines. Until now, the registration of product described in any of the 56 classical texts of Ayurveda or in the Ayurveda Pharmacopeia could be introduced in the market without additional data generation including safety studies or clinical validation. A new Schedule T under the drugs & Cosmetics Act, which is yet to be fully implemented prescribes the minimum standards of Good ManufacturingPractices (GMP) for Ayurvedic manufacturing units in the country.

Apart of the traditional system of teaching from 'Gurus' to disciples, India has around 200 institutions imparting formal education in Ayurveda and over 5000 qualified Ayurvedic doctors graduate every year from them. While there are over 5000 manufacturing of traditional medicines, of which over 85% manufacture Ayurvedic medicines , over 95% of these are in the Small Scale Sector, catering to local or regional markets.

Around a dozen Companies market proprietary Ayurvedic medicines in the national market. Unlike Traditional Chinese Medicines (TCM), in India, the Ayurvedic or for that matter none of the traditional systems are integrated with the allopathic system of medicine, even though they are approved for National Health Programmes. In fact through a Supreme Court of India order, it is forbidden to prescribes these products by physicians other than those trained in the traditional systems of medicines.

Holistic Concept of Ayurveda

Ayurveda does not look at the human body as a sum total of the organs. The physiology in Ayurveda takes into account every aspect of man's existence, including the planetary influence. There is a whole science of Ayurvedic astrology. The various rhythms of the body like the circadian and ultradian were explained by their mode-locking to the most dominant rhythm of breathing. Breathing could control all the system in the body except the one rhythm that occurs outside twenty-four hour cycle the menstrual cycle that occurs once in twenty-eight days. This, Ayurveda, claimed is under the gravitational pull of the moon stimulating the human brain!

"Kujendu hetu prathimaasaarthavam"
(Because of the moon the women menstruates once a month)

This might have looked very odd but for the fact that recent advance in human physiology have shown that the final stimulus for the endocrine orchestra that maintains the infradien rhythm of menstruation comes, from the gravitational effect of the moon on the cortical cells.

Most of the present day "so-called" Ayurvedic drugs in the market are reductionist in that they are only the extract of the active principle in the plant to conform to the modern medical standards of drugs sales. Dravyaguna, Ayurvedic pharmacodynamics, does not deal with active principles. It deals with the whole plant extract as envisaged in the ancient texts. This takes into effect even the photodynamicity of the plant. Some plants are to be harvested only after sunset lest their properties should change if harvested while the sun is up. Modern medicine now tells us that extracts might have serious side effect in the long run. Vitamin C in large does, over long periods, could encourage cancer growth in the body, but eating tomato daily with lots of vitamin C in it, would not harm the body. There are many unknown chemicals in the whole plant that prevent the active ingredient from harming the patient while, at the same time, potentiating the good effect of the active principal. We will have to standardize the drugs delivery methods to conform to the present standards but on the basis of holism only. In fact, herbal medicines are the least important part of Ayurvedic therapeutics. While yoga, panchakarma and surgery are the main stay, herbal medicines are occasionally used. Ayurvedic surgery was so advanced that the rhinoplasty, Shushruta, is being used by plastic surgeons even today. His anatomy classes lasted more than two years for students and he had devised most of the important emergency surgical methods.

What should an Ayurvedic doctor do?

His main job is so study his patient in great detail with special reference to his surroundings and classify

him. Having done that he should then try and tailor the management strategies. Most of them would need panchakarma methods. Almost all of them would do well with change of mode of living that ayurveda prescribes with special emphasis on diet, yoga, and exercise. Rarely do surgical methods and/or drugs become appropriate. With advances in modern science and technology one cannot ignore the benefits of using modern hi-tech methods for emergency care. This requires the conventional ayurvedic doctor to have a reasonably good knowledge of the modern medicine methods to be able to give proper advice to patient. A judicious combination of modern medicine and ayurveda would be an ideal training for family doctor. More skilled specialists in either system could be used only at the referral point. This would bring down the top-heavy cost of modern medical care remarkably.

More than eighty per cent of the illnesses are either minor or self-correcting. They could easily be helped using ayurvedic methods and a placebo doctor. In addition, Ayurvedic could help chronic debilitating diseases to great extent, at a very small cost to the taxpayer. About ten per cent of the time modern medicine becomes mandatory. Roughly ninety per cent of the unnecessary cost could be reduced fir the benefit at all without detriment to public health. Rather, most of the iatrogenic problems could thus be avoided. Iatrogenesis is usually due to the long-term side effects of modern drugs. The latter form about fifteen per cent of hospital admission. Modern medicals doctor, who do not have an idea of Ayurveda and how it works, could be baffled when confronted with a patient who has probably taken the wrong advice from unscrupulous ayurvedic practitioners. The whole gamut of these intricacies would have to be thrashed out before changing the system of medical education into a complementary holistic system.

Ayurveda would not be of much use in an emergency. for the management of emergencies we have to follow the modern medical methods. But for all the chronic degenerative and ageing problems Ayurveda is a panacea. The cost is very small in comparison. Modern medical drugs and interventions are good for acute emergencies, but in the long run most of them have run into serious problems.

Letter No.V-34564,Reg.533/2007-2008 INDIAN JOURNAL OF RESEARCH(2015)**9,24-29**
ANVIKSHIKI ISSN 0973-9777 Advance Access publication 25 August 2014

RISK FACTOR AND MANAGEMENT OF RECTAL PROLAPSE (GUDBHRAMSA) IN CHILDHOOD PERIOD

VARSHA SAXENA* AND NIRAJ SRIVASTAVA**

Declaration

The Declaration of the authors for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: We, *Varsha Saxena and Niraj Srivastava* the authors of the research paper entitled RISK FACTOR AND MANAGEMENT OF RECTAL PROLAPSE (GUDBHRAMSA) IN CHILDHOOD PERIOD declare that , We take the responsibility of the content and material of our paper as We ourself have written it and also have read the manuscript of our paper carefully. Also, We hereby give our consent to publish our paper in Anvikshiki journal , This research paper is our original work and no part of it or it's similar version is published or has been sent for publication anywhere else.We authorise the Editorial Board of the Journal to modify and edit the manuscript. We also give our consent to the Editor of Anvikshiki Journal to own the copyright of our research paper.

Abstract

Rectal prolapse or procidentia, is a bulging of all layers of the rectal wall through the anal canal to the external environment. It was first described in Ebers Papyrus as early as 1500 BC and is a condition that is most common in children under 2 years and the elderly. In children the condition most often involves only the mucosa and is therefore referred to as partial prolapse, which frequently draws back spontaneously. In children it is associated with a variety of diseases such as diarrheal disease, ulcerative colitis, chronic constipation, malnutrition, Hirschsprung's disease, meningomyelocele, pertussis,rectal polyps,and surgical repair of anorectal anomalies. Treatment of the associated diseases usually resolves the problem. The prognosis generally is good with appropriate treatment. Spontaneous resolution usually occurs in children. Patients with rectal prolapse who are aged 9 months to 3 years, 90% will need only conservative treatment.No optimal or standard procedure for treatment of rectal prolapse in children exists. It is usually managed conservatively by avoiding excessive straining at defaecation, avoidance of squatting position, proper bowel training and eliminating precipitating factors like diarrhea, polyps, constipation etc. In Ayurveda Sushruta has described Gudbhramsa under the heading of Kshudraroga butCaraka has described Gudbhramsa in the chapter of Vamanavirechanavyapat in Siddhi sthana as a complication of samsodhanachikitsa by the name of Vibhramsa. AcharyaVagbhatta has described Gudbhransa in the context of Atisarachikitsa.

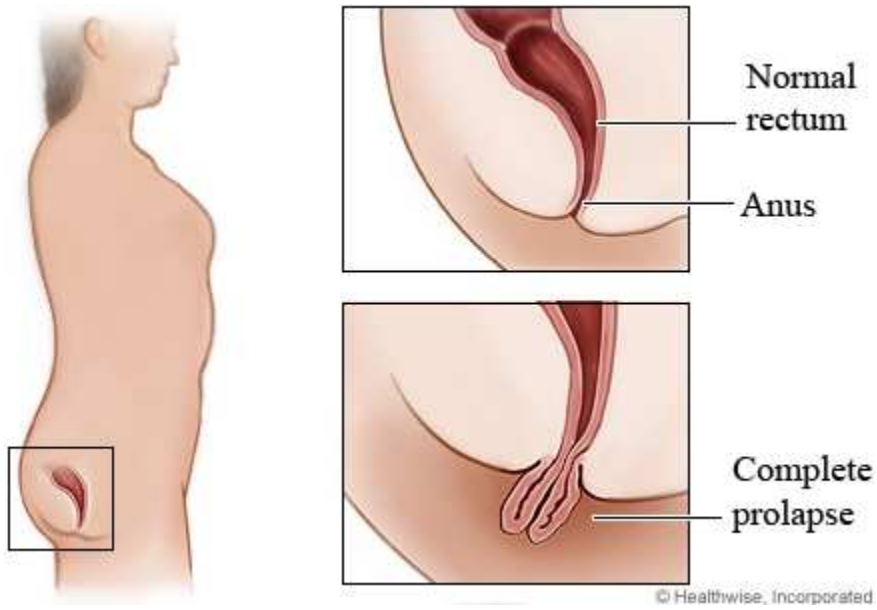
Key words; Rectal prolapse; children; Risk factors; Ayurveda

*Research Scholar, Department of ShalyaTantra, FOAy [IMS] BHU. Varanasi (U.P.) India. e-Mail : nirajimsbhu@gmail.com
**Assistant Professor & Reserch Scholar, Department of Kaumarbhritya/ Balroga [IMS] BHU. Varanasi (U.P.) India. e-Mail : nirajimsbhu@gmail.com

Introduction

Rectal prolapse was described as early as 1500 BC. Rectal prolapse occurs when a mucosal or full-thickness layer of rectal tissue protrudes through the anal orifice.[1] The most common form of rectal prolapse is idiopathic, where no definite cause for prolapse could be found [2]. This condition has a chance to resolve spontaneously as the child grows. The time duration for spontaneous resolution is variable and it may persist for monthsto years [3].Other conditions that predispose to prolapseare myelomeningocele, exstrophy of bladder,parasitic infestation, malnutrition etc.[4] In westerncountries cystic fibrosis is the common cause of rectal prolapse. Rectal prolapse seldom occurs in children who do not have an underlying predisposing condition and usually occurs between infancy and four years of age, with the highest incidence in the first year of life [5,6]. During childhood, rectal prolapse occurs with equal frequency in boys and girls [7,8].

Rectal Prolapse



(Ref:-http://www.webmd.com/digestive-disorders/rectal-prolapse)

Three different clinical entities are often combined under the umbrella term rectal prolapse:

- Full-thickness rectal prolapse
- Mucosal prolapse
- Internal prolapse (internal intussusception)

Terminology

Prolapse refers to “the falling down or slipping of a body part from its usual position or relations”. It is derived from the Latin pro- - “forward” + labi - “to slide”.[9]

Prolapse can refer to many different medical conditions other than rectal prolapse. Procidentia has a similar meaning to prolapse, referring to "a sinking or prolapse of an organ or part". It is derived from the Latin word - "to fall forward".[10] The term prolapse of rectum implies a circumferential descent of the bowel through the anus. If this involves only mucous membrane, the conditional is said to be one of incomplete or mucosal prolapse. If the entire thickness of the rectal wall is extruded the term complete prolapse or procidentia is used.

Ayurveda refers rectal prolapse as 'Gudabhramsa'. Guda means anus / rectum. Bhramsha refers to dislocation or dislodge, moved away from its main site .In Ayurveda Sushruta has described Gudbhramsa under the heading of Kshudra roga but Caraka has described Gudbhramœa in the chapter of Vamanavirechanavyapat in Siddhi sthana as a complication of samsodhanachikitsa by the name of Vibhramsa. AcharyaVagbhatta has described Gudbhramsa in the context of Atisarachikitsa

Epidemiology

Age related demography; Rectal prolapse usually affects children between 1-3 years of age, with the peak incidence in the first year of life a time. During this time period rectal mucosa is loosely attached to the underlying muscularis and flattening of sacrum, which predispose to prolapse. It is also the time of learning to develop continence [11,12]. The incidence of prolapsed rectum in children with cystic fibrosis approaches 20%.

Sex related demography; In the adult population, the male-to-female ratio is 1:6. Although in adults women account for 80-90% of cases, in the pediatric population, incidence of rectal prolapse is evenly distributed between males and females.[13]

Pathophysiology

Two competing theories of rectal prolapse evolved in the twentieth century. Alexis Moschcowitz proposed in 1912 that rectal prolapse was caused by a sliding herniation of the pouch of Douglas through the pelvic floor fascia into the anterior aspect of the rectum. His theory was based on the fact that the pelvic floor of prolapse patients is mobile and unsupported and the observation that other adjacent structures can occasionally be seen alongside the rectal component of the prolapse. With the advent of defecagraphy in 1968, however, Broden and Snellman were able to show convincingly that procidentia is basically a full-thickness rectal intussusception starting approximately three inches above the dentate line and extending beyond the anal verge. Both explanations take into consideration the weakness of the pelvic floor in rectal prolapse cases, the concept of herniation, and the observation that there are abnormal anatomic features that characterize this condition.

Risk factors

The most frequent underlying risk factors are chronic constipation, acute diarrheal disease and cystic fibrosis.Rectal prolapse occur in association with underlying anatomic defects, including meningomyelocele, imperforate anus repair are usually present with one or more of the following: a mass effect, obstructed defecation, fecal incontinence, and hematochezia.[14] Rectal prolapse may be also associated with anatomical abnormalities including loose attachment of the rectum to the sacrum, lax lateral ligaments, redundant sigmoid colon, patulous anus and diastasis of the levatorani muscles. In addition functional defecation disorders and prolonged straining associated with constipation are

noted to be frequent causes for prolapse in children[15] and family history of RP or gastrointestinal (GI) diseaseAs many as 50% of prolapse cases are caused by chronic straining with defecation and constipation.

Other risk factors include the following

- Pregnancy
- Previous surgery
- Benign prostatic hypertrophy
- Chronic obstructive pulmonary disease (COPD)
- Pertussis (ie, whooping cough)
- Pelvic floor dysfunction
- Parasitic infections – Amebiasis, schistosomiasis
- Neurologic disorders - caudaequina syndrome, spinal tumors, multiple sclerosis
- Disordered defecation (eg, stool withholding)

Mucosal prolapse occurs when the connective tissue attachments of the rectal mucosa are loosened and stretched, thus allowing the tissue to prolapse through the anus.

In Ayurveda AcharyaSushruta has mentioned in the context of VatavyadhiNidanam that Apanavayu which remain present in the Pakwashaya is responsible for normal function of Vasti and Guda. This Apanavayu on being vitiated gives rise to various Anorectal diseases [16]. Exact etiology has been explained for the first time by Sushruta. According to Sushruta, Gudbhramsa is a disease in which patient is weak and lustureless and due to excessive diarrhea or straining during defecation, internal part of guda comes out.

Signs & Symptoms of rectal prolapse

Signs and symptoms include:

a) History of a protruding mass.
b) Degrees of fecal incontinence, (50-80% of patients) which may simply present as a mucous discharge.
c) Constipation (20-50% of patients) also described as tenesmus (a sensation of incomplete evacuation of stool) and obstructed defecation.
d) Feeling of bearing down.
e) Rectal bleeding
f) Diarrhea and erratic bowel habits.

Initially, the mass may protrude through the anal canal only during defecation and straining, and spontaneously return afterwards. Later, the mass may have to be pushed back in following defecation. This may progress to a chronically prolapsed and severe condition, defined as spontaneous prolapse that is difficult to keep inside, and occurs with walking, prolonged standing, coughing or sneezing (Valsalva maneuvers). A chronically prolapsed rectal tissue may undergo pathological changes such as thickening, ulceration and bleeding.According to Sushruta clinical features of gudbhramsa (Pravahana, Atisara, weak & emaciated body of person lack of ischiorectal fat) are very similar to rectal prolapse

Management of Rectal prolapse in Modern sciences

Rectal prolapse in children can be managed conservatively in most cases. Non operative management attempts to avoid straining and alter the stool disorder that led to prolapse. The conservative approach

attempts to identify any underlying condition, which is constipation in most cases, and minimize straining at defecation, which is a common precipitating factor for rectal prolapse. In patients with diarrhea and constipation, rectal prolapse resolved when the stool pattern returned to normal. In patients with cystic fibrosis, episodes of rectal prolapse are not seen after the initiation of pancreatic enzyme supplementation[17].Surgery has occasional role in the treatment of rectal prolapse. It varies from sclerotherapy to variety of surgical procedures [18,19]. Usually sclerotherapy with or without combination of Thiersch's ligature is recommended due to its technical simplicity, short hospital stay, rapid healing with no complications [20,21].

Management of Rectal prolapse in Ayurveda

According to Sushruta, Caraka, Vagbhatta, both oral and local treatment was described. Sushruta has advised to reduce prolapse part digitally after local lubrication (snehana) and hot fomentation (swedan). After this Gophanabandha or T-bandage is apply. Much single and compound preparation can be used in rectal prolapse

a) Single herbs used in rectal Prolapse :

1 Changeri(Oxalis corniculata)
2 Lodhra(Symplocosracemosa)
3 Ashoka – (Saracaasoka)
4 Bola - (Commiphora myrrh)

b) Compound preparation indicated in Rectal prolapse:

1 Changerighrita
2 Lodhrasava
3 Bola parpati
4 Aravindasava

Summary and conclusion

Rectal prolapse (prolapse of the rectum) is an uncommon health complaint. But, it is very essential to know the severity, causes and preventive measures of this illness. It may be caused in any stage of life. Most commonly infants and old aged people suffer from this. Ayurveda refers rectal prolapse as 'Gudabhramsa'. Guda means anus / rectum. Bhramsha refers to dislocation or dislodge, moved away from its main site.Constipation or diarrhea are main cause of rectal prolapse so it should be treated immediately. Rectal prolapse in children can be managed conservatively in most cases. Non operative management attempts to avoid straining and alter the stool disorder that led to prolapse. Rectal prolapse have good prognosis.
Source of support- Nil
Conflict of interest- None Declared

References

[1]Gourgiotis S, Baratsis S. Rectal prolapse. Int J Colorectal Dis. Mar 2007;22(3):231-43. [Medline]

[2]Antao B, Bradley V, Roberts JP, Shawis R. Management of rectal prolapse in children.Dis Colon Rectum. 2005;48:1620 -5.

[3]Batool T, Akhtar J, Ahmed S. Management of idiopathic rectal prolapse in children. J Coll Physicians Surg Pak 2005;15:628-30

[4]Stafford OW. Other disorders of the anus and rectum, anorectal function. In: O'Neill JA, Rowe MI, Grosfeld JL, Fonkalsurd EW, Coran AG, (edi). Pediatric surgery. Vol. 2. 5th ed. Louis: Mosby, 1998: 1449 – 60.

[5]Corman ML. Rectal prolapse in children. Dis Colon Rectum 1985; 28:535.

[6]Chan WK, Kay SM, Laberge JM, et al. Injection sclerotherapy in the treatment of rectal prolapse in infants and children. J PediatrSurg 1998; 33:255.

[7]Narasanagi SS. Rectal prolapse in children. J Indian Med Assoc 1974; 62:378.

[8]Dutta BN, Das AK. Treatment of prolapse rectum in children with injections of sclerosing agents. J Indian Med Assoc 1977; 69:275.

[9]*Merriam-Webster Dictionary.*

[10]*"Procidentia on the Free Dictionary".* Farlex Inc. Retrieved 14 October 2012.

[11]Stafford OW. Other disorders of the anus and rectum, anorectal function. In: O'Neill JA, Rowe MI, Grosfeld JL, Fonkalsurd EW, Coran AG, (edi). Pediatric surgery. Vol. 2. 5th ed. Louis: Mosby, 1998: 1449 – 60.

[12]Chino ES, Thomas CG jr. Trans-sacral approach to repair of rectal prolapse in children. Am Surg 1984; 50:70-5.

[13]Hotouras A, Murphy J, Boyle DJ, Allison M, Williams NS, Chan CL. Assessment of female patients with rectal intussusception and prolapse: is this a progressive spectrum of disease?. Dis Colon Rectum. Jun 2013;56(6):780-5.

[14]S.D. Goldstein, P.J. Maxwell 4th. Rectal prolapse , Clin Colon Rectal Surg, 24 (2011), pp. 39–45

[15]A.I. Koivusalo, M.P. Pakarinen, R.I. Rintala, R. Seuri. Dynamic defecography in the diagnosis of paediatric rectal prolapse and related disorders PediatrSurgInt, 28 (2012), pp. 815–820

[16]*Sushruta Samhita* – Dalhana commentary vol-2 edited and translated by P.V Sharma, Nidansthan 1/19-20, published by Chaukhambavisvabharati 2010

[17]Bashir Ahmed Soomro, Roshan Ali Solangi: Management Of Rectal Prolapse In Children, Journal of Surgery Pakistan (International) 14 (3) July - September 2009.

[18]Khainga SO. Graciloplasty" in treatment of recurrent complete rectal prolapse. East Afr Med J 2007; 84:398-400.

[19]Shah A, Parikh D, Jawaheer G, Gornall P. Persistent rectal prolapse in children: Sclerotherapy and surgical treatment. Pediatric SurgInt 2005;21:270-3.

[20]Batool T, Akhtar J, Ahmed S. Management of idiopathic rectal prolapse in children. J Coll Physicians Surg Pak 2005;15:628-30.

[21]Khan D. An experience of management of rectal prolapse in children. J Surg Pak 2008;13:33-5.

Letter No.V-34564,Reg.533/2007-2008 INDIAN JOURNAL OF RESEARCH(2015)**9,30-34**
ANVIKSHIKI ISSN 0973-9777 Advance Access publication 29 August 2014

EFFECT OF LIFE STYLE ON FERTILITY

Dr. Sarita Mishra*

Declaration

The Declaration of the author for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: I, *Sarita Mishra* the author of the research paper entitled EFFECT OF LIFE STYLE ON FERTILITY declare that , I take the responsibility of the content and material of my paper as I myself have written it and also have read the manuscript of my paper carefully. Also, I hereby give my consent to publish my paper in Anvikshiki journal , This research paper is my original work and no part of it or it's similar version is published or has been sent for publication anywhere else. I authorise the Editorial Board of the Journal to modify and edit the manuscript. I also give my consent to the Editor of Anvikshiki Journal to own the copyright of my research paper.

Abstract

Changing life style having effect on various factors i.e. Age of marriage, physiological factor, psychological factor, food habits that have their effect on reproductive system and fertility.

Good reproductive health cannot be attained by a single pathy approach in present era. Now a day's various modern tools and technology are in use to detect any abnormality or diseases related to reproductive health but still in modern medical science there is lacuna about the basic concept i.e. how to promote reproductive health and fertility. There are concepts in Ayurveda, related to maintain and promote fertility and good reproductive healrh of the person, in reference to:Age ,Physical status, Mental Status ,Diet ,Life style.

Key words: Fertility,Reproductive Health, Ayurveda, Life style

Introduction

In present scenario where professionalization in work is the criteria to get success in once field. Everybody wants to become an efficient multi tasker or one can say a perfect professionalist and the person become too busy to get this target, in that situation one cannot able to demarket that this busy life style implies stress to his body. Stress can be helpful and motivating factor to some degree but substantial evidence shows that chronic exposure to high stress prompts the body to release some hormone called stress hormone like glucocorticoids, which can potentially damage several body system including reproductive system.

*S.R & PhD scholar, Department of Prasuti Tantra [Faculty of Ayurveda] IMS, BHU Varanasi (U.P.) India.

Problems of infertility in gaining assess in couples having high professional carrier :

§ One out of six couple have infertility challenge
§ Life style choices may contribute to their infertility
§ Professional attitude about education and carrier leads to postponement of age of marriage and defer child bearing.

Most of person are not aware of about consequences of this busy professional life style on his life and most of health care professionals are also not giving due importance to council people about effect and consequences of life style for their fertility and infertility, they are only focussing on medication.

Ayurveda is a complete life science; its main aim is "to protect health of healthy person and secondarily to cure the person if he becomes ill". Factors that are responsible for maintainence of fertility are very well explained in *Ayurveda*. Proper *garbhadhan* takes place when body is fully prepare to accept embryo, and for that our *Acharyas* have given concept of *Ritu, Kshetra, Beeja* and *Ambu*, when all four factors are in their optimal condition, a good nidation of embryo takes place and give good health to mother as well as foetus[1,2,3,4]. Factors having effect on fertility are very well explained in Ayurveda i.e.

Age[5,6,7]– According to *Ayurveda* male at the age of Twenty five and the female at the age of sixteen are fully mature, hence they should attempt for achievement of conception.

Acharyas have also advised that very young or old woman should not be impregnanated.

Concept behind of age of conception is that body of both partner should be in the state that form *beeja* having good quality.

Modern physiology also explains that as the age advances quality of sperm and ovum get affect. fertility declines due to normal age related changes that occur in ovaries. A woman in born with all the eggs containing follicles in his ovaries that she will ever have. At birth there are about one million follicles, by puberty that number will have dropped to about 300,000. Of the follicle remaining at puberty, only about 300 will be ovulated during the reproductive years.

A woman's best reproductive years are in her 20s. Fertility gradually declines in the 30s, particularly after age of 35. Each month that she tries, a healthy fertile 30 years old woman has a 20% chance of getting pregnant. The women do not remain fertile until menopause. The age related loss of female fertility happens because both quality and quantity of eggs gradually declines.

Unlike the early fertility decline seen in women, a man's decrease in sperm characteristics much later. Sperm quality deteriorates somewhat as men get older.

In mid to late 30s women become less likely to become pregnant and more likely to have miscarriage because egg quality decreases as the number of remaining egg dwindle in number. An important change in egg quality is the frequency of genetic abnormalities called anueploidy (too many or too few chromosomes in the egg), if fertilization occurs, the embryo also have chromosomal abnormalities. Most embryos with chromosomal abnormalities do not result in pregnancy at all or result in miscarriage.

Physiological factors [8,9]

Effect of physical and mental status of couple has been explained very elaborately in *Ayurveda.*

Woman should not be too young or too old, woman should not be too hungry, thirsty or having done over eating.

Woman should not be frightened, avers, sorrow -stricken, angry, loving some one else, having absence as excessive desire for sex.

Woman should not be too fatty or too thin, should not be chronically ill or suffering from gynaecological disorder. obesity as major cause of infertility[10,11].

Women should be well nourished. Metabolic and nutritional disturbances causes physiological stress and have effect an reproductive system. Under nutrition results in a compromised reproductive function. There are several nutritional stress factors i.e.

- § Altered body fat ratio
- § Weight loss
- § Nutrient deficiency
- § Eating disorder
- § The factor which regulate metabolic stress in body are- Decreases GnRH secretion effects pituitary secretion that results- Decreased LH & FSH (ovarian hormone) secretion,Decreased ovarian stimulation,Decreases oestrogens production [12]
- § Stress disrupts pulsatile GnRH secretion
- § Neuro-hormonal axis works to maintain energy balance .Serum glucose and insulin provide feedback to the brain regarding fuel availability.
- § Thyroid axis is responsible for adjusting based metabolic rate[13].
- § The GnRH (hormone that stimulates Gonads) pulse is very sensitive to stress and metabolic factors.
- § GnRH pulse is highly sensitive to insult i.e.Weight loss ,Decreased energy availability ,Altered body fat ratio
- § Another condition that is related to metabolic and psychogenic stress is functional hypothalamic Amenorrhoea (FHA). In FHA women there is no significant change in serum glucose level because elevated cortisol caused other energy sources to be converted into glucose[14].

In FHA women there is reduced secretion of GnRH, LH, FSH & increased secretion of Cortisol, Growth Hormone.

Women suffering from any chronic illness i.e. Hypertension, Diabetes, Thyroid disorder, Gynecological infection have affect on fertility of women. It is very scientific vision of *Ayurveda* that apart from diet and drug psychology of couple has been given first importance[15].

Modern physiology has also started accepting that stress is major cause of infertility and pregnancy related complication.

Stress has its effect on various level in male and females infertility along with effect during preconceptional period, pregnancy period and postpartum period.

Physical and mental stress in expressed in our body in form of oxidative stress. Oxidative stress affects the quality of gamete and the way in which they interact. Free radical such as reactive oxygen species (ROS) influences oocytes, spermatozoa, embryo and their environment. The microenvironment associated with follicular fluid, hydrosalpangeal fluid and peritoneal fluid have a direct bearing on oocytes quality, sperm oocyte interaction, sperm mediated occyte activation, implantation and early embryo development. Free radicals further acts through the modulation of gene expression and transcription factor[16].

Stress and fertility

Expression of endothelial and inducible Nitrous oxide synthase (eNos and iNOS) has been demonstrated in its human endometrium[17] and in endometrial vessels[18]. Endothelial NO synthase, originally identified in vascular endothelial cell, is also distributed in glandular surface epithelial cells in the human endometrium.

Oxidative stress affects both natural and assisted fertility[19]. Oxidative stress biomarker has been found in various site in the female reproductive tract, suggesting their role in various physiological function.

A number of studies have evaluated the role of OS in tubal factor infertility, endometriosis and peritoneal factor infertility[20, 21, 22, 23,24,25 ,26]).

Conclusion

Increasing stress and increasing age of marriage disturbs hormonal balance of body with increase level of oxidative stress, which produces various types of toxins in body that affects fertility in form of- Physiological changes of reproductive organ, Quality of sperm and ovum, Problem related to infertility and pregnancy

In Ayurveda calmness has been considered as best factor for conception .Sceintefic description about physical and mental stress that affects body in the form of infertility is given in Ayurveda.

So by giving proper consideration to point that have effect on fertility and take care of stress one can get good reproductive health and fertility.

References

[1]*Charaka Samhita,* Shashtri Kashinath, Chaturvedi Gorakhanatha Acharya, editor. 1st ed. Varanasi; Choukhabha Bharati Academy; 2005. Sharira Sthana 8/17

[2]*Susruta Samhita.* Jadhavji Trikamji, editor.5th ed. Varanasi; Chaukhambha Orientalia; 1992.Sharirasthana 2/33

[3]*Astanga Sangraha,* Vol I.Gupta Atridev,editor.Ist ed: Varanasi: Oriental Publishers; 1993.Sharirasthana 1/68

[4]Kashyapasamhita. Sharma H, editor. 4th ed. Varanasi Chaukhambha Sanskrit Snsthab;1988. Sharirasthana 5/5

[5]*Charaka Samhita,* Shashtri Kashinath, Chaturvedi Gorakhanatha Acharya, editor. 1st ed. Varanasi; choukhabha Bharati Academy; 2005. Sharira Sthana 8/6

[6]*Susruta Samhita.* Jadhavji Trikamji, editor.5th ed. Varanasi; Chaukhambha Orientalia; 1992. Sutra sthana 35/13.

[7]*Astanga Sangraha,* Vol I. Gupta Atridev, editor. Ist ed: Varanasi: Oriental Publishers; 1993.Sharirasthana 1/4

[8]*Charaka Samhita,* Shashtri Kashinath,Chaturvedi Gorakhanatha Acharya, editor. 1st ed. Varanasi; choukhabha Bharati Academy; 2005. Sharira Sthana 8/6

[9]*Susruta Samhita.* Jadhavji Trikamji, editor. 5th ed. Varanasi; Chaukhambha Orientalia; 1992. Sharirasthana 10/56

[10]*Gesink Law* et al,2007

[11]*Clark* et al., 1995

[12]*Basanta Henny* et al., 2006

[13]*Basanta – Henny* 2006

[14]*Andrico* 2002, Basanta – Henry 2006

[15]*Charaka Samhita,* Shashtri Kashinath,Chaturvedi Gorakhanatha Acharya, editor. 1st ed. Varanasi; Choukhabha Bharati Academy; 2005. Sharira Sthana 8/6

[16]*Harvey* et al., 2002, Dennery, 2004.

[17]*Treng* et al., 1996

[18]*Taguchi* et al., 2000

[19]*Agraval* et al., 2004

[20]*Ho et al.*, 1997
[21]*Murphy* et al., 1994
[22]*Ote et* al, 1998
[23]*Dong* et al., 2001
[24]*Palak* et al., 2001
[25]*Van Langendonckt* et al,2002
[26]*Szezepanska* et al, 2003

Letter No.V-34564,Reg.533/2007-2008 INDIAN JOURNAL OF RESEARCH(2015)**9,35-40**
ANVIKSHIKI ISSN 0973-9777 Advance Access publication 02 July 2015

IMPORTANCE OF *VYAYAMA*FOR HEALTHY LIFE

Dr. Pramod Anand Tiwari*

Declaration

Abstract

Ayurveda is the traditional medical system of India that is primarily a health care system aimed at prevention and cure of illness.There are three doshas(Vata, Pitta and Kapha) are often described as the manifestations of natural forces at work in the body. Two of the five natural elements define each dosha: space, air, fire, water, and earth. Vata *is resides in the spaces of your body, helping to govern the function of the nervous system.* Pitta *is closely associated with the digestive and elimination systems where as* Kapha *refers to the governing the majority of our physical composition. Vyayam should align with one's dosha. Each doshadoes better with certain Vyayams.*

Vyayam principles to establish strength in the body or any bodily activity that enhances or maintains physical fitnessand overall health and wellness. It is performed for various reasons, including strengthening muscles and the cardiovascular system, hone athletic skills, weight loss or maintenance, and merely enjoyment. Frequent and regular physical Vyayam boost the immune system and helps prevent the "diseases of affluence" such as cardiovascular disease, DM type-2, obesity etc. It may also help prevent depression, help to promote or maintain positive self-esteem, and improve mental health.

Introduction

Vyayam[1] (physical Vyayam) principles have to establish strength in the body**.** The mind is the observer of the movement of the body and of the respiration, less active; less fit persons have a greater risk of developing high blood pressure. Studies indicate that physically active people are less likely to develop coronary heart disease than those who are inactive even after the researchers accounted for smoking, alcohol use, and diet. Lack of physical activity can contribute to feelings of anxiety and depression.

*Professor & Head, PG Department of RachnaSharir, B.K.M.C. & Hospital, Daudhar, Moga (Punjab) India.

Physically active overweight or obese people significantly reduced their risk for disease with physical activity. Today, in the era of modernization there is need to check our life style that is very much influence from the western world. Our changing food habits like junk food and fast food are a major cause to produce life style disorders which in turn produces many health hazards like Hypertension, DM & Life style disorders etc. To prevent these hazards Ayurveda provides a unique concept with the theories of *NidanaParivaejana*&*Pathyapathya.*

Ayurvedic review

The Bodily movement, which is meant for producing firmness and strength, is known as physical Vyayam[2]. In Ayurvedic, text says that*dosha*refers to three basic metabolic principles connecting the mind, the body and biological humour.

Sign of proper physical Vyayam: Appearance of perspiration, increased respiration, lightness of the Body felling of obstruction in cardiac region etc[3].

Benefits by physical Vyayam: AcharyaShusruta says that activity which produce exertion to the body are known as *vyayam* after doing it, the entire body should be massaged mildly(comfortably) benefits by physical Vyayam healthy growth, brilliant completion, well manifest division of the body, keen digestive fire(power of digestion), absence of lassitude, stability, feeling of lightness, cleanliness ability to with stand exertion, fatigue, thirst, heat and cold; the best of health all this accrue from physical Vyayam nothing else then it exists which is best to reduce corpulence (obesity), the muscles of the body become stable in the person who does Vyayam daily diseases will not occurs in person who does Vyayam habitually. It makes the body beautiful to look at even of those people who are deficient in age, physique and qualities and *acharyacharaka*says that one gets lightness, capacity to work, firmness tolerance of difficulties, diminution of impurity and stimulation of *Agni* (digestion and metabolism)[4]. Excessive physical Vyayam give rise to fatigue, exhaustion, emaciation, thirst, internal haemorrhage, darkness before eyes, cough ,fever and vomiting according *acharyascharaka* and *Shusruta* says that consumption, thirst, loss of appetite, vomiting bleeding disease dizziness exhaustion, cough, phthisis, fever and dyspnoea are diseases produced by excess of physical Vyayams.

Physical Vyayam should be done in an amount of the level of half of the strength of the person otherwise; it will kill him when *Vayu* residing in the region of the heart comes up through the mouth in other word more upward breathing that is the sign of half the strength of the person. Vyayam should be done in accordance with age, strength, physique, habitat season and nature of food otherwise the person gets affected by diseases[5].

Contraindication for Vyayam

The person who are much emaciated due to excessive sexual indulgence, weight-carrying, travelling on foot and evacuative measures and are victim of anger, grief fear and exertion, the children the old and those having aggravated *vata,* those who speaks too much and loudly; are hungry and thirsty should obtain from physical Vyayam according to *acharyasYogindranath Sen*and*Shusruta*says thatbleeding diseases, emaciation, consumption, dyspnoea, cough, injury in the chest and by the person who has taken meal just then who felling exhausted after meals or copulation who is suffering from thirst and dizziness[6].

These three *doshas* are often described as the manifestations of natural forces at work in the body. *Vata* is the space and air principle and is embodied by ether. It resides in the spaces of your body, filling

empty airspaces and channels, helping to govern the function of the nervous system. *Pitta* is the fire and water principle and exists within your body mainly as bile and acid, and is most closely associated with the digestive and elimination systems. *Kapha* refers to the water and earth principle, relating to the respiratory system and mucous membranes, governing the majority of our physical composition.

Vyayam for vata

Vata personalities excel in sports that require quick bursts of speed and agility. As *Vata, it* tends to get worn out; having a low reserve of energy. The worst thing folks with the *Vatadosha* can do is to physically overextend them. *Vata* have relatively flexible, loving Vyayam like *Yoga* and Pilates, where we can stretch and warm our muscles. *Vata*also like Vyayam where they can have fun, because they tends to get bored easily; anything new and interesting gets their attention. Best Vyayam for *Vata:* Low-impact activities like Yoga, Pilates, Walking, Dancing, Weights/strength training, Ballet-inspired and bar classes. Vata personalities should avoid anything too cardio intensive will increase the already swift motion in their mind-body and will stiffen muscles and joints.

Vyayam for Pitta

Pitta personalities excel in individual competition which requires strength, speed and stamina. The thing about *pitas* is that they are naturally muscular and pretty good athletes so they actually seek out physical activity. They really like the physicality of Vyayam so a *Pitta* doesn't need a whole lot of motivation to get moving. However, they need to stay cool and stay away from anything too competitive, stressful, or too hot. *Pitas* will do best with a combo of cardio (they love to sweat), like cycling or swimming and a consistent yoga practice is very helpful to distress. Cool air and cool water will make *Pitta* feel like they've had an awesome workout but will not overheat them. Best Vyayam for *Pitta*: Competitive or team sports, Softball, Tennis, Baseball, Cooling sports like Swimming diving and other water sports.

Vyayam for Kapha

Kapha personalities excel in endurance and mind-body skills; *Kaphas*do well under pressure because of their stable and easy-going nature. *Kaphas* have a lot of stored-up energy, allowing them the ability to thrive during strenuous Vyayam—actually, need to move and sweat to burn off that energy so that it doesn't turn to bulk. Best Vyayam for*Kapha* like as Stimulating, regular Vyayam, Bodybuilding, Running, Treadmill. Cardio is best for *kapha*. Cardio can range from run-walking, power walking, elliptical trainer, or anything aerobic.

Season and Vyayam

During summer and rainy season, there is increase of *Vata* and *PittaDosha* respectively. Hence during these periods, it is best to resort to mild to moderate form of Vyayam whereas during winter, we can go for full range of workout, to keep *Kapha* in balance. It is most beneficial for these people especially during cold and spring season Vyayam should be done daily; in all season by mean who desire their own wellbeing[7].

Modern review

Physical activity is the term used to describe any kind of everyday activity where the body's movement burns calories such as walking the dog, vacuuming, and walking upstairs. Vyayam usually describes a pre-planned physical activity that involves a series of repetitive movements that are performed to strengthen or develop a particular part of the body, including the cardiovascular system. Examples of Vyayam would be playing tennis, running, cycling, walking, swimming or rowing. Physical activity includes Vyayam as well as other activities which involve bodily movement and are done as part of playing, working, active transportation, house chores and recreational activities. Regular physical activity and sport, especially during childhood and adolescence, promotes proper growth and development, maintains health and counteracts negative risk factors such as cigarette smoking, obesity, type 2 diabetes, osteoporosis, hypertension, coronary heart disease and other ailments.

The beneficial effects on particular organ are as follows[8]:

Brain: Vyayam has been shown to ease anxiety, improve mood and fight depression. It promotes the release of a mood-lifting brain chemical called serotonin and the release of endorphins, natural feel-good painkilling substances.

Skin: Moderate Vyayam stimulates circulation and so brings oxygen and nutrients to the skin. Sweating, which is increased by Vyayam, allows the body to excrete wastes via the surface of the skin.

Lungs: Regular Vyayam increases lung capacity.

Heart: Regular Vyayam strengthens and builds the heart muscle so it pumps more effectively and also Regular physical activity or Vyayam reduces your chance of getting heart disease.

Immune system: Moderate Vyayam boosts the immune system.

Blood pressure: Regular physical activity can significantly reduce the risk of developing high blood pressure and can help to lower blood pressure in those who already have high blood pressure and improve lipid profile.

Bones: Weight-bearing Vyayam (e.g. walking, weightlifting) helps preserve bone mass and thus protects against osteoporosis.

Muscles: Vyayam builds and strengthens muscles, which can protect the bones from injury, and support and protect joints affected by arthritis. Strong muscles also give stability and improve balance and coordination.

Joints: Vyayam lubricates the joints, and reduces joint pain and stiffness. It also helps people with arthritis by increasing flexibility and muscle strength.

The *"Global Recommendations on Physical Activity for Health of WHO"*[9]address three age groups: 5–17 years old, 18–64 years old and 65 years old and above. These age groups were selected taking into consideration the nature and availability of the scientific evidence relevant to the prevention of non-communicable diseases through physical activity

Recommended levels of physical activity for children aged 5–17years:

- Children and youth aged 5–17 should accumulate at least 60 minutes of moderate- to vigorous-intensity physical activity daily.
- Amounts of physical activity greater than 60 minutes provide additional health benefits.
- Most of the daily physical activity should be aerobic. Vigorous-intensity activities should be incorporated, including those that strengthen muscle and bone*, at least 3 times per week.

*For this age group, bone-loading activities can be performed as part of playing

Recommended levels of physical activity for adults aged 18–64years:

- Adults aged 18–64 should do at least 150 minutes of moderate-intensity aerobic physical activity throughout the week or do at least 75 minutes of vigorous-intensity aerobic physical activity throughout the week or an equivalent combination of moderate- and vigorous-intensity activity.
- Aerobic activity should be performed in bouts of at least 10 minutes duration.
- For additional health benefits, adults should increase their moderate-intensity aerobic physical activity to 300 minutes per week, or engage in 150 minutes of vigorous-intensity aerobic physical activity per week, or an equivalent combination of moderate and vigorous-intensity activity. Muscle-strengthening activities should be done involving major muscle groups on 2 or more days a week.

Recommended levels of physical activity for adults aged 65 and above

- Older adults should do at least 150 minutes of moderate-intensity aerobic physical activity throughout the week or do at least 75 minutes of vigorous-intensity aerobic physical activity throughout the week or an equivalent combination of moderate- and vigorous-intensity activity.
- Aerobic activity should be performed in bouts of at least 10 minutes duration.
- For additional health benefits, older adults should increase their moderate-intensity aerobic physical activity to 300 minutes per week, or engage in 150 minutes of vigorous-intensity aerobic physical activity per week, or an equivalent combination of moderate-and vigorous-intensity activity.
- Older adults, with poor mobility, should perform physical activity to enhance balance and prevent falls on 3 or more days per week.
- Muscle-strengthening activities, involving major muscle groups, should be done on 2 or more days a week.

When older adults cannot do the recommended amounts of physical activity due to health conditions, they should be as physically active as their abilities and conditions allow.

Discussion

Ayurveda is a science and art of living. As such, it is not only concerned with the treatment and cure of the diseases but also aims to relieve one from all categories of suffering i.e. Physical, Mental, Social and Spiritual. So, ayurveda is not just a system of medicine but also deals with all aspects of life. Vyayam is essential to good health and quality of life. Physical activity and Vyayam exerts a positive influence on muscular-skeletal, cardiovascular, respiratory, hormonal-immunological, hematological, neuro-sensory and gastrointestinal systems.There are three age groups for recommendation of Vyayam. There are three *doshas*(*Vata, Pitta and Kapha*) are often described as the manifestations of natural forces at work in the body. There are various Vyayam for three *doshas.* Excessive physical Vyayam give rise to fatigue, exhaustion, emaciation, thirst, internal haemorrhage, cough, fever and vomiting. Vyayam and physical activity are a great way to feel better, gain health benefits. As a general goal, aim for at least 30 minutes of physical activity every day. If you want to lose weight or meet specific fitness goals, you may need to Vyayam more. Remember to check with your doctor before starting a new Vyayam program, especially if you have not Vyayam for a long time, have chronic health problems, such as heart disease, diabetes or arthritis etc.

Conclusion

Ayurveda incorporate several principles that can be effectively used for improving health. Physical Vyayam is a form of physical activity. There is a strong relationship between Vyayam and health. Frequent and regular physical Vyayam boost the immune system and helps prevent the various diseases. Vyayam should be done in accordance with age, strength, physique, habitat season and nature of food or *doshas* otherwise the person gets affected by diseases.

References

[1]*CharakSamhita of AgniveshVidyotinihindi commentary* by pt.KashinathSastri and Dr. Gorakhnath Chaturvedi Chukhmba, Bharti Academy reprint2005 part 1 page no. 161

[2]*CharakSamhita* by Prof. Priyavrat Sharma English commentary,ChukhambaOrientalish reprint 2011 vol-1 page no. 50.

[3]*CharakSamhita of AgniveshVidyotiniHindi commentary* by Pt.KashinathSastri and Dr. Gorakhnath ChaturvediChukhmba, Bharti academy reprint2005 part 1 page no. 162 by Acharya Yogindranath Sen.

[4]*Susrut Samhita* by Prof. K.R. shrikantha Murthy English commentary ChukhambaOrientalish reprint 2012 page no. 227.

[5]*Susrut Samhita* by Prof.Shrikantha Murthy English commentary ChukhambaOrientalish reprint 2012 page no. 228.

[6]*SusrutSamhita* by Prof. K.R.Shrikantha Murthy English commentary ChukhambaOrientalish reprint 2012 page no. 228.

[7]*Susrut Samhita* by Prof. K.R. Shrikantha Murthy English commentary ChukhambaOrientalish reprint 2012 page no. 227.

[8]*http//www.mydr.com.*au/sport-fittnes.

[9]*http//www.who.int*/dietphysicalactivity/pa/en.

Letter No.V-34564,Reg.533/2007-2008 INDIAN JOURNAL OF RESEARCH(2015)**9,41-49**
ANVIKSHIKI ISSN 0973-9777 Advance Access publication 10 July 2015

ROLE OF ADIPOSE TISSUE IN DIABETES MELLITUS

RAGINI SRIVASTAVA*, RENU KUMARI** AND PHANI BHUSHAN SINGH***

Declaration

The Declaration of the authors for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: We, *Ragini Srivastava, Renu Kumari and Phani Bhushan Singh* the authors of the research paper entitled ROLE OF ADIPOSE TISSUE IN DIABETES MELLITUS declare that , We take the responsibility of the content and material of our paper as We ourself have written it and also have read the manuscript of our paper carefully. Also, We hereby give our consent to publish our paper in Anvikshiki journal , This research paper is our original work and no part of it or it's similar version is published or has been sent for publication anywhere else.We authorise the Editorial Board of the Journal to modify and edit the manuscript. We also give our consent to the Editor of Anvikshiki Journal to own the copyright of our research paper.

Abstract

The rapid rise in obesity is one of the major concerns in present developed world. Obesity as such is associated with a number of diseases. Recently a strong correlation of obesity with diabetes mellitus has been found. It is found that a large section of people having diabetes mellitus are obese or having long-term obesity. Adipose tissue is one of the major organ for fat storage. The classical perception of adipose tissue as a storage place of fatty acids has been replaced over the last few years by the notion that adipose tissue has a central role in lipid and glucose metabolism and produces a large number of hormones and cytokines e.g. leptin, adiponectin, resistin, tumor necrosis factor-α interleukin-6, plasminogen activator inhibitor and angiotensinogen. These adipokines play a major role in developing insulin resistance; inhibit hepatic glucose production and increases fatty acid oxidation in both liver and muscle. Similarly other factors also influence insulin function and lead to the development of diabetes mellitus.

Introduction

The rapid rise in the rate of obesity is a critically important health issue for the developed world. Obesity is associated with a number of health problems that are often summarized together as the metabolic syndrome and involves the development of insulin resistance, type2 diabetes, cardiovascular disease and fatty liver disease. Both obesity and type2 diabetes are usually linked through their association with the development of insulin resistance. Obesity is characterized by increased storage of fatty acids in an expanded adipose tissue mass and is closely associated with the development of insulin resistance

*Assistant Professor, Department of Biochemistry [Institute of Medical Sciences] Banaras Hindu University, Varanasi (U.P.) India.
**Junior Resident, Department of Biochemistry [Institute of Medical Sciences] Banaras Hindu University, Varanasi (U.P.) India.
***Senior Resident, Department of Physiology [Institute of Medical Sciences] Banaras Hindu University, Varanasi, (U.P.) India.

in peripheral tissues such as skeletal muscle and the liver. Adipose tissue plays a crucial role in the regulation of whole-body fatty acid homeostasis.[1]

Adipocytes are the only cells that are specialized and perfectly adapted to store lipids without compromising their functional integrity. They have the enzymatic machinery necessary to synthesize fatty acids (a process known as lipogenesis) and to store TAG during periods of abundant energy supply and to mobilize them via lipolysis when there is a calorie deficit.The central nervous system takes part in regulation of these two processes by means of direct or indirect neural activity (for example, initiating behavior to seek and consume nutrition). Other regulatory systems (digestive and endocrine) participate by means of nutrients and hormones depending on requirements at any given moment.[2]

In mammals, there are two types of Adipose Tissue (AT): brown adipose tissue (BAT) andwhite adipose tissue (WAT). These adipocytes exhibit important differences.

Brown adipose tissue; The BAT is specialized in heat production (thermogenesis) and is practically absent in adult humans, but is found in fetuses and newborn infants. These adipocytes are on average 30-40 μm in diameter, smaller than those of white tissue (average diameter of 60-100 μm). They have many cytoplasmic lipid droplets of varying sizes, relatively abundant cytoplasm, spherical and mildly eccentric nuclei and many mitochondria, which release heat via oxidation of fatty acids [3]. The high concentration of cytochrome oxidase in these mitochondria contributes to their darker color [4].

White adipose tissue; While its participation in thermogenesis is negligible, its functional capacity is of much wider scope. It has a generalized distribution throughout the body, surrounding, or even infiltrating, throughout the subcutaneous region, hollow visceral organs of the abdominal cavity or mediastinum and a range of muscle groups where it offers mechanical protection, softening impacts and allowing muscle fiber bundles to slide over each other sufficiently, without compromising their functional integrity. Since it is an excellent thermal insulator and due to its wider distribution, including the dermis and subcutaneous tissues, it has an important role in conservation of body temperature. Due to its capacity to store energy (around 200,000-300,000 Kcal in adults who are not obese) and provide it when necessary, it is the most important buffer system for energy balance. Mature white adipocytes store TAG in a single large lipid droplet that occupies the center of the cell, accounts for 85-90% of the mass of the cell and dislocates the cytoplasm, nucleus and other organelles to the circumference, where they remain within a thin layer of cytosol. Curiously, during their development, young adipocytes contain multiple small lipid droplets, which coalesce to form a single lipid inclusion as the cell matures and some of the adipocytes gets deposited just below the skin are known as subcutaneous fat and those which accumulate around the viscera are called as visceral fat. Although they have variable volume, mature white adipocytes are large cells, hundreds to thousands times larger than red blood cells, fibroblasts and immune system cells and their size can change greatly depending on the quantity of TAG accumulated [5].

The classical perception of adipose tissue as a storage place of fatty acids has been replaced over the last few years by the notion that adipose tissue has a central role in lipid and glucose metabolism and produces a large number of hormones and cytokines, e.g. angiotensinogen, tumor necrosis factor-a (TNF-a), interleukin-6 (IL-6), adiponectin, leptin, and plasminogen activator inhibitor-1 (PAI-1)[6-8].

Adipose Tissue as an Endocrine Organ

One of the insights that have changed our appreciation of the role of adipocytes so dramatically over recent years has been the discovery of their hormonal role in the regulation of metabolism, energy

intake, and fat storage. Adipose tissue is currently known to secrete a large number of proteins termed adipokines that act in an autocrine, paracrine, or endocrine fashion to control various metabolic functions. Although 50 adipokines have been identified with diverse functional roles, adiponectin and leptin have been most closely studied [9]. Here we present an overview of the endocrine functions of adipose tissue. These functions fall into two broad categories: 1) secreted proteins that have metabolic effects on distant cells or tissues, and 2) enzymes involved in the metabolism of steroid hormones [10].

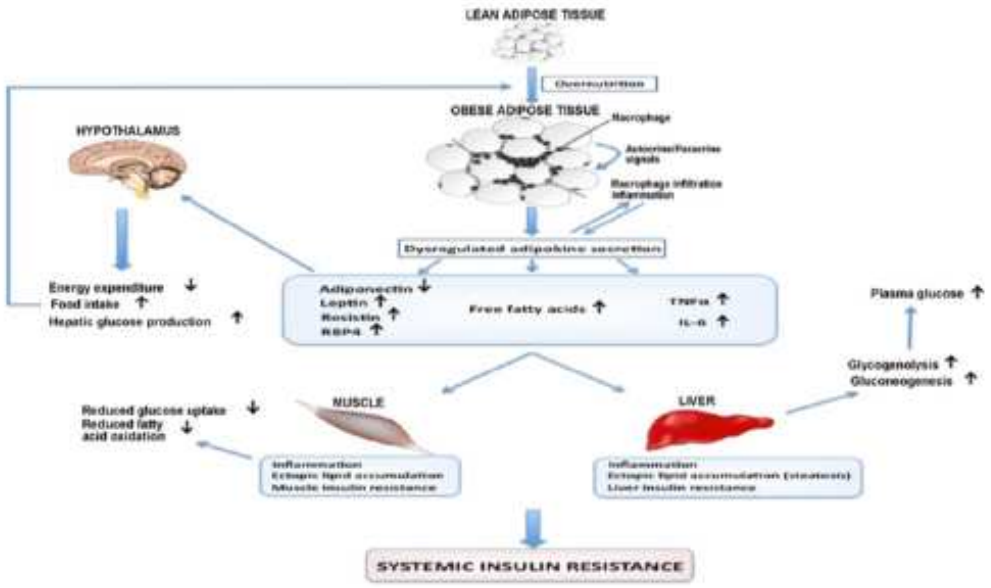


Fig. 1. Obesity-induced changes in adipokine secretion and the development of insulin resistance. Expansion of adipose tissue in obesity leads to increased macrophage infiltration and inflammation with enhanced production of pro-inflammatory cytokines such as TNFα and IL-6. This is accompanied by an increased release of free fatty acids and dysregulated secretion of leptin, adiponectin, resistin and retinol binding protein-4 (RBP4). Together, these adipocyte- and macrophage-derived substances can act in a paracrine or autocrine fashion to further exacerbate adipose tissue inflammation. On the systemic level, altered adipokine secretion can lead to increased food intake and reduced energy expenditure through actions in the hypothalamus and to decreased muscle and liver insulin sensitivity through enhanced ectopic lipid deposition and inflammation.

ref -: Adipose tissue as an endocrine organ Sandra Galic, Jon S. Oakhill, Gregory R. Steinberg, Molecular and Cellular Endocrinology 316 (2010) 129–139)

Adipose Tissue-secreted Proteins

Leptin; Leptin (a Greek word leptos, meaning thin)is secreted by adipose tissue, which helps to regulate bodyenergy balance.Adipocytes secrete leptin in direct proportion to adipose tissue mass of the body althoughsubcutaneous adiposetissue secretes moreleptin than visceral adipose tissue [11,12].Leptin have both central and peripheral effects on metabolism and energy balance. Plasma leptin level is highly related to BMI [15]. In 1996, Schwartz et al. found that higher amount of leptin was found in persons with high BMI and higher percentage of total body fat. In addition to this after release from adipose tissue plasma leptincrosses the blood- brain barrier (BBB), and cerebral spinal fluid (CSF) and directly act on hypothalamus, giving information about body energy store and this results in decrease or increase in food intake and decrease or increase in energy expenditure to maintain the size of the body fat stores [13-14]. Leptin act through a receptor that is members of the cytokine receptor class I superfamily and are expressed in both the CNS and periphery tissues.Peripheral action is mediated by increase in fat oxidation by enzyme AMP-activated protein kinase (AMPK), which also

increases glucose transport in muscle[16,17]. Interestingly, exercise activates AMPK, which also increases fat oxidation and reduces insulin resistance [18]. Thus, the adipocyte hormones and exercise act via a similar signal transduction pathway to increase fat oxidation and promote insulin sensitivity.

TNFα; Tumor necrosis factor (TNF)is a cytokine and is expressed by adipocytes and stromovascular cells [9]. Majority of the TNF α secreted by subcutaneous tissue and their receptor is expressed in both as membrane bound and soluble forms. TNF's shows metabolic effects by several mechanisms. Firstly, TNF α influences gene expression in tissues such as adipose tissue and liver [19]. In adipose tissue, TNF α activates genes involved in uptake and storage of non-essential fatty acids (NEFAs) and glucose. It suppresses adipogenesis and lipogenesis by inhibiting their transcription factors, which turn leads to the change in expression of several adipocyte secreted factors like adiponectin and IL-6 [19]. In liver, TNF α increases the expression of genes involved in de novo synthesis of cholesterol and fatty acids andsuppresses genes involved in glucose uptake and fatty acid oxidation[19]. TNF α also affects insulin signaling by activating serine kinases that increase serine phosphorylation of insulin receptor substrates, making them poor substrates for insulin receptor kinases and increasing their degradation [20]. TNF α also impairs insulin signaling indirectly by increasing serum NEFAs, which have independently been shown to induce insulin resistance in multiple tissues [21].

IL-6; It is a cytokine, expression and circulation is associated with insulin resistance and obesity and impaired glucose tolerance [22]. It circulates in glycosylated form. IL6 and its receptor are expressed in adipocytes and adipose tissue matrix. Its receptor exist in both membrane bound and soluble form.Expression and secretion of IL-6 are 2 to 3 times more in visceral adipose tissue as compared to subcutaneous adipose tissue. Furthermore, plasma IL-6 concentrations predict the development of type2 diabetes and cardiovascular disease [22]. IL-6 decreases insulin signaling in peripheral tissues by reducing expression of insulin receptor signaling components and inducing suppressor of cytokine signaling 3, a negative regulator of both leptin and insulin signaling [23]. IL-6 also inhibits adipogenesis and decreases adiponectin secretion [37]. It has a negative correlated with fat mass, suggesting central IL6 deficiency in obesity.

Macrophages and monocyte chemo attractant protein (MCP)-1; Obesity is associated with increased adipose tissue infiltration by macrophages[24, 25, 26].Activated macrophages secrete inflammatory markers TNFα and IL-6 that contribute to insulin resistance. These macrophages are activated by globular adenonectin (gAd), which is formed by breakdown of circulating adiponectin by macrophage enzyme elastase. MCP-1, a chemokine that recruits monocytes to sites of inflammation, is expressed and secreted by adipose tissue (24). In obesity circulating and adipose tissue expression of MCP-1 is increased, suggesting that MCP-1- mediated metabolic abnormalities in obesity and leading to insulin resistance[27, 38]. MCP-1 has local as well as endocrine effects. Incubation of cultured adipocytes with MCP-1 decreases insulin-stimulated glucose uptake and insulin-induced insulin receptor tyrosine phosphorylation, suggesting that MCP-1 directly contributes to adipose tissue insulin resistance[27, 28]. MCP-1 also inhibits adipocyte growth and differentiation by decreasing the expression of a number of adipogenic genes[27, 28].

Plasminogen activator inhibitor (PAI)-1; PAI-1 is a member of the serine protease inhibitor family expressed by adipocytes[9].And its expression and secretion is more in visceral as compared to subcutaneous adipose tissue[11, 12]. It inhibits fibrinolysis by inactivating urokinase and tissue type plasminogen activator. PAI-1 also shows proangiogenesis and atherogenesis. Plasma PAI-1 levels are elevated in obesity and insulin resistance, are positively correlated with features of the metabolic syndrome, and future risk for type2 diabetes and cardiovascular disease[29, 30]. Plasma PAI-1 levels are strongly associated with visceral adiposity, which is independent of other variables including insulin sensitivity, total adipose tissue mass, or age[12,29].

Adiponectin; Adiponectin is highly and specifically expressed in adipocytes and circulates at high levels in the bloodstream [31]. Adiponectin expression is higher in subcutaneous adipose tissue than visceral adipose tissue [11].Several mechanisms for metabolic effects have been described[31, 32]. In the liver, adiponectin enhances insulin sensitivity, decreases influx of NEFAs, increases fatty acid oxidation, and reduces hepatic glucose output. In muscle, adiponectin stimulates glucose use and fatty acid oxidation. Within the vascular wall, adiponectin inhibits monocyte adhesion by decreasing expression of adhesion molecules. It inhibits macrophage transformation to foam cells by inhibiting expression of scavenger receptors, and decreases proliferation of smooth muscle cells in response to growth factors. In addition, it stimulates angiogenesis by increasing nitric oxide production in endothelial cells. All these effects are mediated by increased phosphorylation of the insulin receptor[31, 32]. Taken together, these studies suggest that adiponectin is a unique adipocyte-derived hormone with antidiabetic, anti inflammatory, and anti atherogenic effects.

Resistin; It is a unique family of cysteine-rich C-terminal domain proteins called resistin-like molecules, which are identical to the found in inflammatory markers. Resistin expression is 15 times more in visceral as compared to subcutaneous adipose tissue in rodents [33]. Initial studies suggested that resistin had significant effects on insulin action, and hence associated with obesity and insulin resistance [33]. Treatment of cultured adipocytes with recombinant resistin impairs insulin-stimulated glucose up-take whereas antiresistin antibodies prevent this effect [34]. Similarly, in vivo treatment with recombinant resistin in rodents induces insulin resistance, whereas immune neutralization of resistin has the opposite effect [34]. Serum resistin is also elevated in rodent obesity [34].

Proteins of the renin angiotensin system (RAS)

Several RAS proteins are also produced in adipose tissue. These include renin, angiotensinogen (AGT), angiotensin I, angiotensin II, angiotensin receptors type I (AT1) and type 2 (AT2), angiotensin-converting enzyme (ACE)[35,36]. Expression of AGT, ACE, and AT1 receptors is higher in visceral compared as compared to subcutaneous adipose tissue[35,36]. Angiotensin II mediates many of the well-documented effects of the RAS including increasing vascular tone, aldosterone secretion from the adrenal gland, and sodium and water reabsorption from the kidney, all of which contribute to blood pressure regulation. Thus, the adipose tissue RAS is a potential link between obesity and hypertension. In addition to its well-known effects on blood pressure, the RAS also controls adipose tissue development. Components of the RAS such as AGT and angiotensin II are induced during adipogenesis [35]. Angiotensin II promotes adipocyte growth and differentiation, both directly and indirectly by lipogenesis and prostaglandin synthesis [35]. Angiotensin II from mature adipocytes, however, may inhibit further recruitment of preadipocytes [35]. Angiotensin II binds to the receptors on adipocytes, stromovascular cells and nerve terminals, thus affecting adipose tissue blood flow and nerve cell activity [35]. Angiotensin II inhibits lipolysis, promotes lipogenesis. It decreases insulin-dependent glucose uptake, and increases hepatic gluconeogenesis and glycogenolysis [35]. RAS regulates the expression of adipose tissue-derived endocrine factors including prostacyclin, nitric oxide, PAI-1, and leptin[35, 36].

Adipose Tissue Dysfunction And Diabetes

In obesity enlarged adipocytes secrete large quantities of FFAs and TNFá, which play a prominent role in the development of insulin resistance [40]. Levels of cAMP are elevated in larger adipocytes, resulting in increased PKA–HSL activation and lipolysis.So, the increased FFAs in obesity have inhibitory effecton

insulin sensitivity, which results inenhanced lipolysis in adipocytes. This effect is further augmented by increased hydrolysis of triglyceride by TNFα in adipose tissue. TNFα further contributes to insulin resistance by inhibiting the expression of genes for insulin signaling and adipocyte differentiation[39]. On the other hand Adiponectin activates5'AMP-activated protein kinase , which inhibits hepatic glucose production and increases fatty acid oxidation in both liver and muscle [41].Increased FFAs are known to promote insulin resistance in tissues such as muscle [42]. One important cause for the increased release of FFAs is alterations in perilipin expression. Perilipins are phosphoproteins found in adipocytes on the surface of triacylglycerol droplets which act as gatekeepers and prevent lipases from hydrolyzing triacylglycerol to release of FFAs [43]. Obese individuals have a deficiency of perilipins even though their fat cells are larger [44].

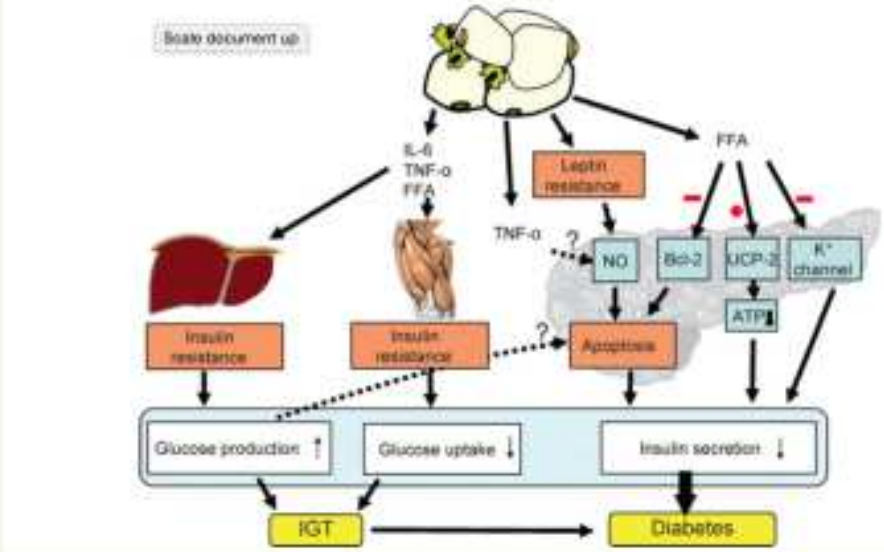


Figure 4 Adipocyte dysfunction leads to type 2 diabetes: chronically elevated free fatty acid (FFA) levels inhibit insulin secretion.[73] *In vitro*, long-chain fatty-acyl-CoA and FFA can open β-cell potassium channels which diminish insulin secretion. FFAs enhance expression of uncoupling protein 2 (UCP-2), which diminishes adenosine triphosphate production necessary for insulin secretion. FFAs can also induce β-cell apoptosis via an endoplasmic stress response[73] and by inhibiting expression of the anti-apoptotic factor Bcl-2. Leptin has been shown to have anti-apoptotic effects in β-cells, which may also be diminished in the (obese) leptin-resistant state. Anti-apoptotic effects of leptin include inhibition of nitric oxide (NO) production via reduction of triglyceride content. NO has been proposed to induce apoptosis via depletion of calcium stores in the endoplasmic reticulum (ER) leading to the ER stress response.[73] By inhibiting insulin signalling in the β-cell and by induction of NO synthesis, tumour necrosis factor-α (TNF-α) may reduce insulin secretion *in vitro*. At the same time NO may cause deoxyribonucleic acid (DNA) damage enhancing β-cell apoptosis.[74]

(*ref-:*Adipose tissue dysfunction in obesity, diabetes, and vascular diseases Gideon R. Hajer, Timon W. van Haeften, and Frank L.J. Visseren, European Heart Journal (2008) 29, 2959–2971)

Type2 diabetes is a combined effect of insulin resistance and diminished insulin secretory function of pancreatic β-cells. β-cell dysfunction represents the most important risk factor for diabetes[46, 70] In obese individuals there is enlargement of β cell mass, which result in increased uptake of nutrients (e.g-glucose and FFAs). When insulin resistance increases there is increased insulin secretion by pancrease, but if this adaption fails diabetes will ensue. Most studies low adiponectin and elevated levels of other adipocytokines (e.g. leptin, TNF-a, IL-6) are associated with an increased risk of diabetes. This presumably relates not only to their effects on insulin sensitivity but also to their effects in the pancreas leading to β-cells failure[60,71, 72]

Although FFAs acutely raise insulin secretion but chronically elevated plasma FFA levels as seen in obesity inhibit secretion [50]. In the presence of hyperglycaemia oxidation of FFA is inhibited, resulting in

accumulation of long-chain fatty-acyl-coA[50, 51] Long-chain fatty- acyl-CoA and FFA can open β-cells potassium channels, which diminishes insulin secretion [50].FFAs also enhance expression of uncoupling protein 2, which would diminish ATP production necessary for insulin secretion. In addition, FFA can induce β-cells apoptosis via an endoplasmic stress response [50] and by inhibiting expression of the anti-apoptotic factor Bcl-2. Since leptin has a important effect on normal insulin secretion by the pancreas, it has been found that in obesity leptin resistance might occur in b-cells, thus adding to hyperinsulinaemia observed in obese person.

References

[1]Sandra Galic, Jon S. Oakhill, Gregory R. Steinberg. Adipose tissue as an endocrine organ. 316 (2010) 129–139

[2]Ahima RS, Flier JS. Adipose tissue as an endocrine organ. Trends EndocrinolMetab. 2000; 11:327-332.

[3]Cannon B, Nedergaard J. Brown adipose tissue: function and physiological significance. Physiol Rev. 2004; 84:277-359.

[4]Curi R, Pompéia C, Miyasaka CK, Procópio J. Entendendo a gordura: osácidosgraxos. São Paulo: Manole; 2002

[5]Pond C. Ecology of storage and allocation of resources: animals. In: Encyclopedia of Life Sciences. Chichester, UK: John Wiley & Sons; 2001. p. 1-5.

[6]Engeli S, Gorzelniak K, Kreutz R, Runkel N, Distler A, Sharma AM. Co-expression of renin-angiotensin system genes in human adipose tissue. J Hypertens 1999; 17:555–560.

[7]Scherer PE, Williams S, Fogliano M, Baldini G, Lodish HF. A novel serum protein similar to C1q, produced exclusively in adipocytes. J BiolChem 1995; 270: 26746 – 26749.

[8]Winkler G, Kiss S, Keszthelyi L, Sa ìpi Z, Ory I, Salamon F, Kova ìcs M, Vargha P, Szekeres O, Speer G, Kara ìdi I, Sikter M, Kasza ìs E, Dworak O, Gero G, Cseh K. Expression of tumor necrosis factor (TNF)-alpha protein in the subcu- taneous and visceral adipose tissue in correlation with adipocyte cell volume, serum TNF-alpha, soluble serum TNF-receptor-2 concentrations and C-peptide level. Eur J Endocrinol 2003; 149:129 – 135.

[9]Andrew S Greenberg & Martin S Obin. Obesity and the role of adipose tissue in inflammation and metabolism. Am J ClinNutr2006;83(suppl):461S–5S.

[10]*Adipose Tissue as an Endocrine Organ ERIN E. KERSHAW AND JEFFREY S. FLIER,* Adipose Tissue as an Endocrine Organ The Journal of Clinical Endocrinology & Metabolism 89(6):2548–2556

[11]Fain JN, Madan AK, Hiler ML, Cheema P, Bahouth SW (2004) Comparison of the release of adipokines by adipose tissue, adipose tissue matrix, and adi- pocytes from visceral and subcutaneous abdominal adipose tissues of obese humans. Endocrinology 145:2273–2282

[12]Wajchenberg BL (2000) Subcutaneous and visceral adipose tissue: their relation (to the metabolic syndrome. Endocr Rev 21:697–738

[13]Halaas JL, Gajiwala KS, Maffei M, et al. Weight-reducing effects of the plasma protein encoded by the obese gene. Science 1995;269:543– 6.

[14]Lee GH, Proenca R, Montez JM, et al. Abnormal splicing of the leptin receptor in diabetic mice. Nature 1996;379:632–5.

[15]Maffei M, Halaas J, Ravussin E,etal. Leptinlevelsinhumanandrodent: measurement of plasma leptin and ob RNA in obese and weight-reduced subjects. Nat Med 1995;1:1155– 61.

[16]Yamauchi T, Kamon J, Minokoshi Y, et al. Adiponectin stimulates glucose utilization and fatty-acid oxidation by activating AMP-activated protein kinase. Nat Med 2002;8:1288 –95.

[17]Minokoshi Y, Kahn BB. RoleofAMP-activatedproteinkinaseinleptin- induced fatty acid oxidation in muscle. BiochemSoc Trans 2003;31: 196 –201.

[18]Ruderman N, Prentki M. AMP kinase and malonyl-CoA: targets for therapy of the metabolic syndrome. Nat Rev Drug Discov 2004;3:340 – 51

[19]Ruan H, Miles PD, Ladd CM, Ross K, Golub TR, Olefsky JM, Lodish HF (2002) Profiling gene transcription in vivo reveals adipose tissue as an immediate target of tumor necrosis factor-: implications for insulin resistance. Diabetes 51:3176 –3188

[20]Hotamisligil GS (2003) Inflammatory pathways and insulin action. Int J Obes RelatMetabDisord 27(Suppl 3):S53–S55

[21]Ruan H, Lodish HF (2003) Insulin resistance in adipose tissue: direct and indirect effects of tumor necrosis factor. Cytokine Growth Factor Rev 14: 447– 455

[22]Fernandez-Real JM, Ricart W (2003) Insulin resistance and chronic cardiovascular inflammatory syndrome. Endocr Rev 24:278 –301

[23]Senn JJ, Klover PJ, Nowak IA, Zimmers TA, Koniaris LG, Furlanetto RW, Mooney RA (2003) Suppressor of cytokine signaling-3 (SOCS-3), a potential mediator of interleukin-6-dependent insulin resistance in hepatocytes. J BiolChem 278:13740 –13746

[24]Wellen KE, Hotamisligil GS (2003) Obesity-induced inflammatory changes in adipose tissue. J Clin Invest 112:1785–1788

[25]Weisberg SP, McCann D, Desai M, Rosenbaum M, Leibel RL, Ferrante Jr AW (2003) Obesity is associated with macrophage accumulation in adipose tissue. J Clin Invest 112:1796–1808

[26]Xu H, Barnes GT, Yang Q, Tan G, Yang D, Chou CJ, Sole J, Nichols A, Ross JS, Tartaglia LA, Chen H (2003) Chronic inflammation in fat plays a crucial role in the development of obesity-related insulin resistance. J Clin Invest 112: 1821–1830

[27]Sartipy P, Loskutoff DJ (2003) Monocyte chemoattractant protein 1 in obesity and insulin resistance. ProcNatlAcadSci USA 100:7265–7270

[28]Gerhardt CC, Romero IA, Cancello R, Camoin L, Strosberg AD (2001) Che- mokines control fat accumulation and leptin secretion by cultured human adipocytes. Mol Cell Endocrinol 175:81–92

[29]Mertens I, Van Gaal LF (2002) Obesity, haemostasis and the fibrinolytic system. Obes Rev 3:85–101

[30]Juhan-Vague I, Alessi MC, Mavri A, Morange PE (2003) Plasminogen activator inhibitor-1, inflammation, obesity, insulin resistance and vascular risk. J ThrombHaemost 1:1575–1579

[31]Chandran M, Phillips SA, Ciaraldi T, Henry RR (2003) Adiponectin: more than just another fat cell hormone? Diabetes Care 26:2442–2450

[32]Diez JJ, Iglesias P (2003) The role of the novel adipocyte-derived hormone adiponectin in human disease. Eur J Endocrinol 148:293–300

[33]Banerjee RR, Lazar MA (2003) Resistin: molecular history and prognosis. J Mol Med 81:218 –226

[34]Steppan CM, Bailey ST, Bhat S, Brown EJ, Banerjee RR, Wright CM, Patel HR, Ahima RS, Lazar MA (2001) The hormone resistin links obesity to diabetes. Nature 409:307–312

[35]Engeli S, Schling P, Gorzelniak K, Boschmann M, Janke J, Ailhaud G, Teboul M, Massiera F, Sharma AM (2003) The adipose-tissue renin-angiotensin-aldosterone system: role in the metabolic syndrome? Int J Biochem Cell Biol 35:807– 825

[36]Goossens GH, Blaak EE, Van Baak MA (2003) Possible involvement of the adipose tissue renin-angiotensin system in the pathophysiology of obesity and obesity-related disorders. Obes Rev 4:43–55

[37]Fernandez-Real JM, Ricart W (2003) Insulin resistance and chronic cardiovascular inflammatory syndrome. Endocr Rev 24:278 –301.

[38]Takahashi K, Mizuarai S, Araki H, Mashiko S, Ishihara A, Kanatani A, Itadani H, Kotani H (2003) Adiposity elevates plasma MCP-1 levels leading to the increased CD11b-positive monocytes in mice. J BiolChem 278:46654 – 46660

[39]Ruan H, Hacohen N, Golub TR, Van Parijs L, Lodish HF. Tumor necrosis factor- alpha suppresses adipocyte-specific genes and activates expression of preadipocyte genes in 3T3-L1 adipocytes: nuclear factor-kappaB activation by TNF-alpha is obligatory. Diabetes 2002;51:1319 – 1336.

[40]Hotamisligil GS, Arner P, Caro JF, Atkinson RL, Spiegelman BM. Increased adipose tissue expression of tumor necrosis factor-alpha in human obesity and insulin resistance. J Clin Invest 1995;95:2409–2415.

[41]Goldstein BJ, Scalia R. Adiponectin: A novel adipokine linking adipocytes and vascular function. J Clin-EndocrinolMetab 2004;89:2563–2568.

[42]Shulman GI. Cellular mechanisms of insulin resistance. J Clin Invest 2000;106:171– 6.

[43]Zhang HH, Souza SC, Muliro KV, Kraemer FB, Obin MS, Greenberg AS. Lipase-selective functional domains of perilipin A differentially regulate constitutive and protein kinase A-stimulated lipolysis. J BiolChem 2003;278:51535– 42.

[44]Wang Y, Sullivan S, Trujillo M, et al. Perilipin expression in human adipose tissues: effects of severe obesity, gender, and depot. Obes Res 2003;11:930 – 6.

[45]Baskin DG, Figlewicz LD, Seeley RJ, Woods SC, Porte D Jr, Schwartz MW. Insulin and leptin: dual adiposity signals to the brain for the regulation of food intake and body weight. Brain Res 1999;848:114–123.

[46]9. Lillioja S, Mott DM, Spraul M, Ferraro R, Foley JE, Ravussin E, Knowler WC, Bennett PH, Bogardus C. Insulin resistance and insulin secretory dysfunction as precursors of non-insulin-dependent diabetes mellitus. Prospective studies of Pima Indians. N Engl J Med 1993;329:1988 – 1992.

[47]70. Weyer C, Bogardus C, Mott DM, Pratley RE. The natural history of insulin secretory dysfunction and insulin resistance in the pathogenesis of type 2 dia- betes mellitus. J Clin Invest 1999;104:787 – 794.

[48]71. Morioka T, Asilmaz E, Hu J, Dishinger JF, Kurpad AJ, Elias CF, Li H, Elmquist JK, Kennedy RT, Kulkarni RN. Disruption of leptin receptor expression in the pan- creas directly affects beta cell growth and function in mice. J Clin Invest 2007;117: 2860 – 2868.

[49]Rakatzi I, Mueller H, Ritzeler O, Tennagels N, Eckel J. Adiponectin counteracts cytokine- and fatty acid-induced apoptosis in the pancreatic beta-cell line INS-1. Diabetologia 2004;47:249 – 258.

[50]Zhao YF, Feng DD, Chen C. Contribution of adipocyte-derived factors to beta-cell dysfunction in diabetes. Int J Biochem Cell Biol 2006;38:804 – 819.

[51]Nolan CJ, Madiraju MS, Delghingaro-Augusto V, Peyot ML, Prentki M. Fatty acid signaling in the beta-cell and insulin secretion. Diabetes 2006;55(Suppl. 2): S16 – S23. (

Letter No.V-34564,Reg.533/2007-2008 INDIAN JOURNAL OF RESEARCH(2015)**9,50-54**
ANVIKSHIKI ISSN 0973-9777 Advance Access publication 22 August 2015

INSIGHT INTO THE MANAGEMENT OF NON-APPENDICULAR PERFORATION PERITONITIS IN A PERIPHERAL TEACHING HOSPITAL

SHARADENDU BALI* AND MEHTA SUDHIR KUMAR**

Declaration

The Declaration of the authors for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: We, *Sharadendu Bali and Mehta Sudhir Kumar* the authors of the research paper entitled INSIGHT INTO THE MANAGEMENT OF NON-APPENDICULAR PERFORATION PERITONITIS IN A PERIPHERAL TEACHING HOSPITAL declare that , We take the responsibility of the content and material of our paper as We ourself have written it and also have read the manuscript of our paper carefully. Also, We hereby give our consent to publish our paper in Anvikshiki journal , This research paper is our original work and no part of it or it's similar version is published or has been sent for publication anywhere else.We authorise the Editorial Board of the Journal to modify and edit the manuscript. We also give our consent to the Editor of Anvikshiki Journal to own the copyright of our research paper.

Abstract

Objective : To survey the spectrum of non-appendicular perforation peritonitis and the management outcome in a peripheral teaching hospital.

Study design : Retrospective descriptive,interventional.

Setting : Department of Surgery, MMIMSR, Mullana, Ambala**.**

*Study period :*February 2014 to June 2015.

*Results and conclusion :*Total 120 patients with peritonitis secondary to GIT perforation were included ,and excluding appendicular and traumatic gut perforations. All age groups and sex were included, and all patients were operated. Perforated duodenal ulcer was commonest cause accounting for 42%, followed by enteric perforations in 18%. Prompt diagnosis was eased with immediate ultrasonography.Mortality was 9%, with septicemia and MODS being the main cause for death. Early presentation within 48 hrs of onset of symptoms resulted in better recovery and reduced mortality.

Introduction

Gastrointestinal perforation is a serious surgical problem in developing countries, and is one of the most common causes of emergency operation[1]. Bowel perforations have been known to mankind since ancient times, and mention is made regarding closure of gut perforations in ancient Indian medical texts like the Sushrut Samhita[2]. Perforation is said to occur once a pathology which extends through the

*Professor, Department of General Surgery, MMIMS, Mullana, Ambala (Haryana) India.
**Associate Professor, Department of General Surgery, MMIMSR, Mullana (Haryana) India.

full thickness of the hollow viscus leading to peritoneal contamination with intraluminal contents. Perforation can occur anywhere in the GIT starting from oesophagus upto rectum.

Despite advances in surgical techniques, antimicrobial therapy and intensive care support, peritonitis remains a potentially fatal condition. Severe bacterial peritonitis following GIT perforation carries high morbidity and mortality. The diagnosis is often delayed or even missed(at first consultation with village practitioner), so that many patients have deteriorated and developed multi system organ failure by the time they reach the teaching hospital. Successful management of peritonitis aims at timely intervention to control or to eliminate the source of the intra-abdominal contamination. Various surgical interventions are done at laparotomy depending on the source of infection, the severity of peritoneal contamination and inflammation and the degree of septic deterioration [3,4].

The spectrum of aetiology of perforation peritonitis continues to be different from that of developed nations [5]. Our study was designed to highlight the spectrum of non-appendicular perforation peritonitis with reference to aetiology , surgical interventions and outcome as encountered by us at Maharishi Markandeshwar Institute of Medical Sciences and Research, Mullana, Ambala.

Materials and Methods

This is a retrospective, descriptive, interventional study conducted during the period February 2014 to June 2015 at Department of Surgery, MMIMSR, Ambala, Haryana. MMIMSR is a teaching hospital affiliated to MM University. Surgery Department has 180 beds, including both male and female surgery wards. Patients of all age groups and gender with signs and symptoms of acute peritonitis were included in the study. Patient profile, presenting symptoms and clinical signs were recorded. Diagnosis of perforation peritonitis was made on basis of clinical findings, plain X-ray abdomen(erect), and Ultrasound abdomen.

Patients were resuscitated with intravenous fluids, nasogastric aspiration and broad spectrum antibiotics, usually Cefuroxime, Amikacin and Metrogyl. Blood was sent for hematological investigations, renal functions , triple antigen(HbSAg, HCV and HIV), blood grouping and matching, blood glucose estimation and liver function where mandated. Resuscitation was monitored clinically with improvements in vital signs and urine output. Exploratory laparotomy was performed in all patients through midline incision. Samples of pus / free peritoneal fluid were taken in syringe and sent for bacterial culture and sensitivity. Cause of peritonitis was noted and appropriate surgical intervention carried out. Patients with peritonitis secondary to perforated appendix and traumatic perforations were excluded from the study. Post-operative course was observed in recovery area and surgery ward, and any complications were recorded. Data was recorded on a proforma and results were formulated, analysed and compared with both national and international literature.

Results

A total of 120 patients with peritonitis of all age groups and sex were included in the study during the period of study. Out of total 120 patients, 86 were male and 34 were female.Oldest patient was 76 years male while youngest was 14 year old girl who presented with enteric perforation. Most of the patients were from 20 to 50 years of age. Mean age was 40 yrs.

Age group	Number of patients	%age
1 to 10 years	-	-
11 to 20 years	07	06%

21 to 30 yrs	26	22%
31 to 40 yrs	39	32%
41 to 50 yrs	16	13%
51 to 60 yrs	12	10%
61 to 70 yrs	18	15%
➢ 70 yrs	02	02%

The most common cause of peritonitis was perforated duodenal ulcer, which was found in 51 patients (42.5%), followed by enteric (typhoid)perforation in 22 patients(18%). Perforation due to intestinal tuberculosis was found to be the third commonest cause, being observed in 21 patients (17%). Break up is given in table below.

All the 120 patients were subjected to exploratory laparotomy after adequate resuscitation. Primary repair of perforated duodenal ulcer with omental patch was carried out in all cases of PDU. Gut stoma in the form of ileostomy/colostomy was performed in 22 cases. Primary repair of small gut was done in 18 cases. Break up of surgical procedure performed is given in table.

Pathology	No. of patients	%age
Perforated duodenal ulcer	51	42%
Enteric perforation	22	18%
Intestinal Tuberculosis	21	17%
Perforation proximal to adhesion	13	11%
Perforated Gall bladder	04	03%
Carcinoma Colon	03	02%
Perforated Meckel's	02	02%
Perforated gastric ulcer	02	02%
Mesenteric ischaemia	02	02%

Surgical Procedure	Number
Primary repair of PDU + omental patch	51
Stoma (ileostomy/ colostomy)	22
Primary repair if small gut	18
Adhesiolysis + repair	06
Stricturoplasty	08
Resection & anastomosis (total)	11
Cholecystectomy	04

Post operatively, chest infection was the most frequently observed complication in this series of patients. 40 out of 120 patients had chest problems , followed by superficial wound infection in 27 cases, and burst abdomen in 11 cases. Mortality occurred in 9 out of 120 cases, as a result of multi organ failure due to sepsis. Break up of complications is given below .

Complication	Number	%age
Chest infection	40	33%
Superficial wound infection	27	22%
Burst Abdomen	11	09%
Faecal fistula	04	03%
Death	09	07%

Discussion

Perforation peritonitis is amongst the commonest surgical emergencies encountered in surgical practice in tropical developing countries. This condition warrants early surgical intervention[6] , but in majority of cases the presentation to hospital is delayed. Morbidity and mortality are hence high[7]. A successful

outcome depends on efficient resuscitation ,early surgical intervention , control of contamination and thorough peritoneal lavage.

The clinical presentation is typical and depends to some degree upon the site of perforation .Patients of duodenal perforation present with a short history of pain in upper abdomen alongwith generalized tenderness and guarding[6,8]. Appendicular perforations have a characteristic pain pattern, originating in the peri-umbilical area and migrating to the right iliac fossa, alongwith vomiting and fever[9]. Ileal perforations are usually preceded by a history of fever or abdominal discomfort for few days, followed by sudden onset of lower abdominal pain ,vomiting, generalized abdominal guarding and distension[10].

Plain X-ray abdomen (Erect) and ultrasonography play a vital role in the diagnosis of bowel perforations. The presence of air under the diaphragm on plain skigram is a clincher for the diagnosis of bowel perforation. Such air is usually not found in Appendicular perforations. On ultrasound imaging, the finding of free fluid immediately points towards a diagnosis of gut perforation. The two modalities combined provide an almost irrefutable diagnosis of the condition. The need for diagnostic paracentesis is almost totally obviated, and is seldom practiced now.

In our study, male patients predominated over female patients, in a ratio of 2.5 :1. This corresponds to previous studies[11,12]. The mean age in our series was 40 yrs., which is comparable to previous studies in developing countries, but is lower than the mean age of 45-60 yrs in the West.

The most common cause of perforation in our series was duodenal ulcer seen in 42% cases. Another study conducted by Sajid Aziz showed same result[13]. Same observation was also reported by Gupta and Kaushik[14]. These data are in contrast to studies from developed countries where perforation of distal GIT is more common, as in diverticulitis[15]. Malignancy is a rare cause of gut perforation which was seen in 3 cases ; this is comparable to studies from tropical regions. Etiological factors of acute peritonitis also show a wide geographical variation. Infections and infestations , mainly those due to typhoid, tuberculosis and amoebiasis, are more prevalent causes of perforation in the third world, while trauma and appendicitis are more common in developed countries. Traumatic and appendicular perforations were not included in our study.

Duodenal ulcer perforations are adequately managed by simple closure with omental patch, even in relatively large perforations. In typhoid and tuberculosis, the procedure has to be chosen between primary repair, resection-anastomosis , exteriorization of perforation, and proximal ileostomy/jejunostomy. In the absence of gross peritoneal contamination the former two procedures may be carried out, while ostomies are usually considered for delayed cases.

Post-operatively, morbidity remains high in cases of gut perforations. Chest complications in form of pneumonia, atelectasis and ARDS accounted for 33% of the morbidity, followed by wound infection and wound dehiscence. Faecal fistulas required prolonged parenteral nutrition, pushing up costs significantly. Morbidity is reportedly less in the west, being in the range of 25-40%. Incidence of burst abdomen remains around 10% , in both developed and developing countries. Wound infections in our series is considerably higher at 22% , as compared to reports from the West[16].

Mortality resulting from septicemia and MODS also remains high in cases of emergency laparotomy carried out for intestinal perforations. Reported incidence of mortality ranges from 6% to 10% in different studies[17]. In the present study, mortality was around 7%. Good quality ICU care was probably an important determinant for the acceptable mortality rate at our hospital. Morbidity and mortality were found to be lower in cases which gave a shorter history , of less than 48 hours.

Conclusions

Perforation peritonitis continues to be a common cause of presentation to emergency departments in both developing and developed countries, though the spectrum of the aetiology is different. Gut perforations are highly exacting in terms of resources required for management , and the promptness entailed in reaching to a quick diagnosis and operative intervention. Perforation of the viscera is a common complication of acid peptic disease, typhoid and tuberculosis in our region. Proper control of APD through judicious use of NSAIDS and eradication of H.Pylori may result in reduction of peptic perforations in general population. Ditto for typhoid , where timely diagnosis and treatment would result in vastly decreased incidence of enteric perforations, as has occurred in the West. Where such an event has occurred, timely presentation at hospital and prompt intervention can greatly reduce mortality and morbidity **.**

References

[1]Jain BK, Arora H, et al. Insight into the management of non-traumatic perforation of the small intestine. J Infect Dev Ctries 2010; 4(10) : 650-654.

[2]Kaviraj Kunjalal Bhishagratna. An English translation of the Sushrut Samhita. Varanasi, 3 vols,1963, 11, pg.272.

[3]Schein M. Management of severe intra-abdominal infections. Surg Ann 1992; 24: 47-48.

[4]Wittmann DH, Schein M, Condon RE. Management of secondary peritonitis. Ann Surg 1996; 224: 10-18.

[5]Dorairajan LN, Gupta S, Deo SVS, Chumber L. Peritonitis in India—A decades experience. Tropical Gastroenterology 1995, 16(1) : 33-38.

[6]Dean A, Clark C, Sinclair A. The late prognosis of perforated duodenal ulcer. Gut 1962 ; 3:60-64.

[7]Bohen J, Boulanger M, Meakins JL. Prognosis in generalized peritonitis : relation to cause and risk factors. Arch Surg 1983; 118: 285-290.

[8]Gupta S, Kaushik R, Sharma. The management of large perforations of duodenal ulcer. BioMed Central Surgery 2005; 5: 1-9.

[9]Mandava N, Kumar S, Walter F. Perforated Colorectal carcinoma. Am J Surg 1996; 172:236-38.

[10]Agrawal CS, Niranjan M, Adhikari S. Quality assurance in the management of peritonitis: A prospective study. Nepal Med Coll J 2009; 11(2): 83-87.

[11]Krenzien J, Roding H. Prognosis of perforated peptic ulcer — stratification of risk factors and validation of scoring system in predicting the post-operative outcome. Theoretical Surgery 1990; 5 : 26-32.

[12]Metzger J, Styger S, Sieber C et al. Prevalence of Helicobacter pylori infection in peptic ulcer perforation. Swiss Med 2001; 131: 99-103.

[13]Sajid A, Shazia J. Non Appendicular perforation peritonitis: spectrum and management outcome. Experience at peripheral teaching hospital. Professional Medical Journal; 2004, Vol 21, Issue 4, pg 613.

[14]Agarwal N, Saha S, Srivastava A, Chumber S. Peritonitis 10 years' experience in a single surgical unit. Trop Gastroentrol 2007; 28(3) : 117-20.

[15]Di Venere B, Teatini M, Minello S. Rectal perforations: Personal experience and literature review. Minerva Chir 2002; 57(3) : 377-62.

[16]Crawford E, Ellis H. Generalized peritonitis- The changing spectrum. A report of 100 consecutive cases. Br J Clin Pract 1985; 5: 177-78.

[17]Bohen J, Boulanger M, Meakins L. Prognosis in generalized peritonitis. Arch Surg 1983; 118:285.

Letter No.V-34564,Reg.533/2007-2008 INDIAN JOURNAL OF RESEARCH(2015)**9,55-58**
ANVIKSHIKI ISSN 0973-9777 Advance Access publication 20 August 2015

MANAGEMENT OF PARKINSON'S DISEASE THROUGH PANCHAKARMA: A SUCCESS STORY

IMLIKUMBA*, B.A LOHITH**, ASHUTOSH CHATURVEDI***, NIRUPAM BHATTACHARYYA****, RAHUL GUPTA***** AND MAHESH PARAPPAGOUDRA******

Declaration

The Declaration of the authors for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: We, *Imlikumba, B.A Lohith, Ashutosh Chaturvedi, Nirupam Bhattacharyya, Rahul Gupta and Mahesh Parappagoudra* the authors of the research paper entitled MANAGEMENT OF PARKINSON'S DISEASE THROUGH PANCHAKARMA: A SUCCESS STORY declare that , We take the responsibility of the content and material of our paper as We ourself have written it and also have read the manuscript of our paper carefully. Also, We hereby give our consent to publish our paper in Anvikshiki journal , This research paper is our original work and no part of it or it's similar version is published or has been sent for publication anywhere else.We authorise the Editorial Board of the Journal to modify and edit the manuscript. We also give our consent to the Editor of Anvikshiki Journal to own the copyright of our research paper.

Abstract

Parkinson's disease having degenerative pathology in Substantia Nigra (a part of brain) and usually affects after the age of 50 years. In spite of advancements in the field of medicine, treatment of Parkinson's disease remained highly symptomatic. No curative treatment is available. This instils a need for ayurvedic management of Kampavata (Parkinson's disease) is needed.Line of treatment of Kampavata is SnehanSwedanShodhan and Shaman BastiShirobasti and Virechana i.e.Brimhan line of treatment is followed. in the following case study all above issues are considered and thus success was achieved

Keywords: Kampavata, Ayurveda, Panchakarma, Parkinson's disease, YapanaBasti

Introduction

'*Parkinson's disease'* is the second most common neurodegenerative disorder after Alzheimer's disease. The prevalence of PD is about 0.3% of the whole population in industrialized countries. PD is more common in the elderly and prevalence rises from 1% in those over 60 years of age to 4% of the population over 80. The mean age of onset is around 60 years. Some studies have proposed that it is more common in men than women, but others failed to detect any differences between the two sexes. Sex incidence is

*(Corresponding author) PG Scholar, Department of Panchakarma, SDM College of Ayurveda & Hospital, Hassan, Karnataka India. e-mail :imlikumba @gmail.com
**Associate Professor &HOD ,Department of Panchakarma, SDM College of Ayurveda & Hospital, Hassan, Karnataka India.
***PG Scholar,Department of Panchakarma, SDM College of Ayurveda & Hospital, Hassan, Karnataka India.
****PG Scholar,Department of Panchakarma, SDM College of Ayurveda & Hospital, Hassan, Karnataka India.
*****PG Scholar, Department of Rachana Shareera, SDM College of Ayurveda & Hospital, Hassan, Karnataka India.
**********PG Scholar,Department of Panchakarma, SDM College of Ayurveda & Hospital, Hassan, Karnataka India.

about equal. Prevalence varies greatly throughout the world ranging from 14/100000 in China to 328/100000 in India. Morbidity rate of Parkinson's in India is about 328.3/1000000.[1] The incidence of PD is between 8 and 18 per 100,000 person–years.

In idiopathic Parkinson's disease, pathologic examination shows loss of pigmentation and cells in the substantia nigra and other brainstem centres and the presence of filamentous eosinophilic intraneural inclusion granules (Lewy bodies), in the basal ganglia, brainstem, spinal cord, and sympathetic ganglia.

Idiopathic Parkinson's disease is characterized by bradykinasia, rigidity, shuffling gait, postural instability, tremor & loss of automatic movement. There is currently no treatment to cure Parkinson's disease. Several therapies are available to delay the onset of motor symptoms and to ameliorate motor symptoms. All of these therapies are designed to increase the amount of dopamine in the brain either by replacing dopamine, mimicking dopamine, or prolonging the effect of dopamine by inhibiting its breakdown. Studies have shown that early therapy in the non-motor stage can delay the onset of motor symptoms, thereby extending quality of life.

Modern treatments are effective at managing the early motor symptoms of the disease, once activities of daily living start getting affected, use of dopamine agonists or levodopa is recommended. *The golden rule for all antiparkinsonian drugs is "start low and go slow".* As the disease progresses and dopamine neurons continue to be lost, a point eventually arrives at which these drugs become ineffective at treating the symptoms and at the same time produce a complication called dyskinesia, marked by involuntary writhing movements. Diet and some forms of rehabilitation have shown some effectiveness at alleviating symptoms. Surgery and deep brain stimulation have been used to reduce motor symptoms as a last resort in severe cases where drugs are ineffective. Research directions include a search of new animal models of the disease and investigations of the potential usefulness of gene therapy, stem cell transplants and neuroprotective agents. There is currently no treatment to cure Parkinson's disease. Many studies are looking at treatment that might improve some of the symptoms of Parkinson's disease.

Understanding of Parkinson's disease in terms of Ayurveda can be done under the vatavyadhi, to be specific, caused due to the Avarana of vata. Hence it may be compared to Kaphaavruta vyana,[2] Pranaavruta samana,[3] Vepathu,[4] Where in Avarana is present in relation with Marma, Asthi, Sandhi is involved directly/indirectly, as it is vatavyadhi, the line of treatment for the above said revolves around Yapana basti/Rasayana chikitsa in the form of Panchakarma. Current study shows the improvement in the signs and symptoms of the Parkinson's disease.

Case Details

A 66 year male came to physician with complain of shaking movement in left forearm. Difficulty in doing daily activities, reduced strength in the left hand since 2 yrs. Associated complaints of pain in the low back. The patient was apparently healthy 2 years back.Then he gradually noticed reduced strength in the left hand.So he went to Mysore and took medications for six months but didn't have any improvement. Later on went to hospital at Bangalore and took treatment for 6 months but condition remained same. Afterwards he went to homeopathic hospital and took treatment for 3 months but patient didn'tobserved any change.

Nidan Panchaka:

Nidana	-	Abhighatha, ruksha ahara.
Poorvaroopa	-	weakness,decreased strength & giddiness.
Roopa	-	Tremors,slurred speech, rigidity.

Samprapti Ghatakas:

Dosha	:	Vyana Vata.
Dushya	:	Sira, Mamsa, Kandara, Asthi, Snayu.
Srotas	:	Mamsavaha, Asthivaha.
SrotoDushti	:	Atipravritti.
Roga Marga	:	Madhyama.
UdbhavaSthana	:	Pakwashaya.
VyaktaSthana	:	Sarvashareera.
SancharaSthana	:	Sarvashareera.
VyadhiSwabhava	:	Chirakari.
Sadhyaasadhyata	:	Yapya

Chikitsa sutra[5]*; वायुंवेपथुनानानांस्वेदअभ्यंगअनुवासनैः । उपाचरेत्निरूहैश्चशिरोबस्तिविरेचनं ।।* **(**Vangsena.60/155**)**

Acc to Vangsena Vata Vyadhies/155, its mentioned for Sweda, Abhyanga, AnuvasanaBasti, NiruhaBasti,Sirobasti and Virechana. Brumhana line of treatment.

Chikitsa Karma

On admission treatment was advised for 13 days

Poorvakarma- Pachana Deepana with Panchakola Phanta 50 ml thrice daily and Chitrakadi vati 2 tablets thrice daily with Shadanga Paneeya. The whole procedure was done for three days. Fourth day massage was done to whole body with Ksheera Bala Taila followed with Swedana by bhaspa Sweda then Shastika Shali Pinda Sweda .Along with Shastika Shali Pinda Sweda and Bashpa Sweda,

Pradhana Karma- modified kala Vasti (schedule of fifteen Vasti'smodified to 9 days) was followed.

Mustadiyapana basti[6]*;* Anuvasana:BrihatChaghaladi Ghrita[7]-120gm, Niruha: Honey-120gm, Saindhava Lavana:12 gm, Brihat Chaghaladi Ghrita-60ml, Maha Masha Taila[8]-60ml, Kalka: Aswagandha, Bala and Kappikachu[9] 15 gms each, Kashaya: Mustadi kashay-350, Avapa:Mamsa rasa[10]-100ml.

T A B L E *Vasti Schedule*

1st day	2nd day	3rd day	4th day	5th day	6th day	7th day	8th day	9th day
A	N	N	N	N	N	N	A	A
	A	A	A	A	A	A		

A- Anuvasana Vasti

N – Niruha Vasti

Kala Vasti schedule contains fifteen Vasti's (nine Anuvasana Vasti's and six Niruha Vasti's modified to nine days). Kala Vasti schedule starts with Anuvasana Vasti followed by twelve Vasti's (six Niruha Vasti's and six Anuvasana Vasti's alternatively) and ends with two Anuvasana Vasti's. At the time of discharge patient was happy as he was able to do his regular activities without pain and support and trembling in hand reduced with slight increase in strength of left hand.

At the time of discharge On 14/3/15 patient took medicine for 1 month Zandopa granules 2-0-2 tsf with warm milk A/F Tab Myostal fort 1-1-1 A/F Tab Kumarabharana 0-1-0 K.B taila for E/A wereprescribed as internal medicines.

Patient again came for admission on 12/4/15 treatment advised for 8 days Vanarikalpa 3-0-3 teaspoon with warm milk. Tab Kumarabharana 1-0-1 A/F. Shirodhara with ksheerabala taila. Sarvanga Abhyanga with Prabhanjana Vimardhana Taila. Matra Basti with BrihatChaghaladiGhrita 80ml.

Patient was able to climb the stairs without support at the time of discharge. The treatment protocol followed in the present case was unique. The recovery was promising and worth documenting.

Conclusion

The compound used for Kampavata is based on Yukthi of physician which has seen success. This can be used by all Ayurvedic physicians for successful treatment of Kampavata. As preventive remedy MatraBasti with Brihat Chaghaladi Ghrita this has to be repeated at least twice in a year for a month after assessing the Agni of the patient to avoid reoccurrence. All the procedures as explained above should be done without skipping any. The whole procedure should be carried under strict supervision by expert. Monitoring of aseptic precautions, proper guidance to the patient in every step should be done. Patient response may be different in different cases. Physician assessing Roga Bala sensitivity etc can alter the dosage. Pathyapathya was followed strictly Shaman Aushadhi was asked to continue for one week.

After the course of three months, there was 60% relief in tremors, Gait of the patient was improved 40%, and Rigidity was reduced 50% along with improvement in other symptoms as well.

References

[1]Meldrum, Dara, et al. *"Effectiveness of conventional versus virtual reality based vestibular rehabilitation in the treatment of dizziness, gait and balance impairment in adults with unilateral peripheral vestibular loss: a randomised controlled trial."* BMC Ear, Nose and Throat Disorders 12.1 (2012): 3.

[2]*Sushrita, Sushurata samhita.* Edited by vaidya Jadvji Trikamji acharya. Reprint 2010.Chaukhamba Sanskrit sansthan Varanasi. PP: 824 Page no: 263

[3]*Agnivesha. Charaka Samhita,* edited by Jadavji Trikamji Acharya, Chaukamba Prkashan, Reprint 2009. Varanasi PP :738 page no:625

[4]*Madhavakara.Madhava nidanam.* Edited by Dr.brahmananda tripathi. Chaukhamba subharthi prakashana. Reprint 2008 Varanasi vol 1 PP:658 page no: 551

[5]*Acharya Vangasena. Vangasena Samhita Chapter 60 155,* Vaidya Shankarlalji Jain,editor.Vatavyadhi chapter. Mumbai: Khemraj Sri KrishnadasPublication; 1996. p. 335

[6]*Agnivesha. Charaka Samhita, Commentary* by Chakrapanidatta'Ayurveda Dipika'. Vaidya JadhavjiTrikamji Acharya, editor. 5thed. Siddhi Chapter 12 14(1). Varanasi: Chowkambha publication;2001 p. 686.

[7]Bramhashankara Mishra. BhaishajyaRatnavali, Sri RajeshwaraDattaShastri, editors. 2nd ed. Vatavyadhi chapter. Varanasi: Chowkambha publication; 1961. p. 390, 412- 414.

[8]Bramhashankara Mishra. BhaishajyaRatnavali, Sri RajeshwaraDattaShastri, editors. 2nd ed. Vatavyadhi chapter. Varanasi: Chowkambha publication; 1961. p. 420 , 453- 454.

[9]Dr. JLN Shastry. Study of Essential Medicinal Plants in Ayurveda,Dravyaguna Vignana.2nd ed. Kapikacchu chapter. Varanasi:Chowkambha publication; 2005 p. 175-178.

[10]Bramhashankara Mishra. BhaishajyaRatnavali, Sri RajeshwaraDattaShastri, editors. 2nd ed. Vatavyadhi chapter. Varanasi: Chowkambha publication; 1961. p. 120, 48- 50.

Letter No.V-34564,Reg.533/2007-2008 INDIAN JOURNAL OF RESEARCH(2015)**9,59-65**
ANVIKSHIKI ISSN 0973-9777 Advance Access publication 27 August 2015

DENTAL EROSION IN GASTROESOPHAGEAL REFLUX DISEASE: A SYSTEMATIC REVIEW

Dr Rajul Vivek* AND Dr Romesh Soni**

Declaration

Abstract

Chronic regurgitation of gastric acids in patients with gastroesophageal reflux disease may cause dental erosion, which can lead in combination with attrition or bruxism to extensive loss of coronal tooth tissue. Dental erosion is a prevalent condition that occurs worldwide. It is the result of exposure of the enamel and dentin to nonbac-terial acids of extrinsic and intrinsic origin, whereby mineral loss occurs from the surface of the tooth. Effective prevention of dental erosion includes measures that can avoid or reduce direct contact with acids, increase acid resistance of dental hard tissues and minimize tooth brushing abrasion.

Key words - Gastroesophageal reflux disease, tooth erosion, Prevention

Introduction

Gastroesophageal reflux disease (GERD) is definite as involuntary muscle relaxing of the upper esophageal sphincter, which allows refluxed acid to move upward through the esophagus into the oral cavity.[1] Dental erosion has been reported with varying prevalences in the population and may be as high as 42% .[2] In adults, GERD is a highly prevalent disease with rates ranging from 21% to 56% in different countries .[3] It was reported that GERD was diagnosed by endoscopy, where visual identification of mucosal inflammation and oseophagitis was used to identify the existence of GERD.[4]

The degree of erosion will depend upon how long the disease has been present and the frequency and quantity of regurgitation. Other causes of erosion such as dietary acids should also be considered .[5]

*PhD Research scholar, faculty of dental sciences [IMS] BHU, Varanasi (U.P.) India.
**(Corresponding Author) Assistant professor, Department of Prosthodontics, faculty of dental sciences [IMS] BHU, Varanasi (U.P.) India.

Several factors are known to contribute to enamel erosion. It occurs at a pH of approximately 5.5, which is on the acidic side of the neutral point, and may vary depending on the concentrations of calcium and phosphate ions with the saliva .[6] Erosion from dietary or gastric acids forms smooth lesions which typically appear as cupped occlusal/incisal and concave buccal/facial surfaces. When erosion is the dominant factor, the buccal and lingual surfaces of the upper incisors appear smooth and shiny with a generalised loss of anatomy.

The tooth surface continually changes as the acid partially dissolves the outer layer of enamel or dentine which then becomes more susceptible to abrasion or attrition .[7] It is recognized that refluxed acid attacks the palatal surfaces of the upper incisor teeth first, later, if the condition continues, erosion of the occlusal surfaces of the posterior teeth in both arches and the labial or buccal surfaces results from an extended period of acid reflux. [8, 9] The association of gastroesophageal reflux disease (GERD) with dental erosion has been established in a number of studies in adults. [10,11,12,13,14] GERD is a common condition, estimated to affect 7% of the adult population on a daily basis and 36% at least one time a month.[15] In this condition gastric contents pass involuntarily into the esophagus and can escape up into the mouth. This is caused by increased abdominal pressure, inappropriate relaxation of the lower esophageal sphincter or increased acid production by the stomach.[16]

Oral Symptom Associayted with Gerd Associated Tooth Erosion

Oral symptoms associated with GERD are burning mouth syndrome, dental sensitivity, loss of vertical dimension, and aesthetic problems. [17]Tooth wear is a multifactorial process. The impact of wear is usually progressive but can be slow. The wear result in shortened clinical crowns and in conjunction with alveolar compensation complicates treatment. [18] The presence of hypertrophic masseter muscles is another warning sign of the impact of bruxism. Erosion from dietary or gastric acids forms smooth lesions which typically appear as cupped occlusal/incisal and concave buccal/facial surfaces. When erosion is the dominant factor, the buccal and lingual surfaces of the upper incisors appear smooth and shiny with a generalised loss of anatomy. The tooth surface continually changes as the acid partially dissolves the outer layer of enamel or dentine which then becomes more susceptible to abrasion or attrition .[18]

Prevalence

Dental erosion is a common condition, and its prevalence seems to be trending higher in recent decades.[19] It is difficult to accurately assess the prevalence of dental erosion from published literature, for there is not a universally accepted standard for clinical evaluation of this condition. Dental ero-sion is almost always complicated by other forms of tooth wear. The reported prevalence of dental erosion varies greatly in the literature, which can be partially explained by age, country and different evaluation standards. The median prevalence of den-tal erosion is 34.1 percent of children (interquartile range 27.4) and 31.8 percent of adults (interquartile range 18.7). In stud-ies that reported prevalence of dental erosion in different age groups, there is a clear trend of increasing prevalence with age in children and adults.2-6 Dental erosion has been considered a common condition limited to developed countries.[19]

Extrinsic acids

1. Acidic beverages; Soft drinks, including carbonated beverages, fruit juices and sport drinks, are almost exclusively acidic (pH<4.0) in nature in order to maintain a fresh and fizzy mouthfeel (carbonated beverages) and to prevent rapid growth of bacteria.

The effects of these beverages on dental hard tissues have been extensively studied in recent years. Numerous experimen-tal and clinical investigations have shown that dental erosion in the form of enamel and dentin tissue loss can be caused by carbonated soft drinks[20, 21] fruit juices[22, 23], sport drinks[24, 25] and wines.[26, 27] Erosion starts with enamel surface softening in the early stage, and enamel tissue loss develops progressively with continued erosive challenges. Softened enamel is susceptible to abrasive wear. Brushing after erosive challenges will accelerate enamel tissue loss.[28, 29]Individual eating habits may be the most important factor af-fecting the erosive potential of acidic foods. Frequent consump-tion of citrus fruits could significantly increase the risk for dental erosion. Persons with a diet with more fruits and acidic berries may also have higher frequencies of dental erosion.

Other sources of extrinsic acids; Acidic medications such as those containing vitamin C[30, 31] and aspirin[32, 33] may cause erosion when used in a manner resulting in sustained contact between tooth surfaces and the medication. Habitual use of mood-enhancing drugs such as ecstasy may also increase the risk for erosive tooth wear.[34, 35] Environmental and occupational factors may contribute to dental erosion in selected populations, including swimmers[36, 37] workers in an environment with acidic industrial vapors[38, 39] and professional wine tasters[40, 41]

Intrinsic acids; The source of intrinsic acids in the oral cavity is mostly from the backflow of the gastric contents through the esophageal tract. Gastric juice consists mainly of hydrochloric acid, produced by the parietal cells in the stomach. The presence of the highly acidic gastric juice (PH 1.0-3.0) in the oral cavity may lead to dental erosion. Gastro-esophageal reflux disease (GERD), bu-limia and rumination are the main conditions associated with the backflow of gastric juice to the mouth.

Diagnosis

Accurate diagnosis of erosion and erosive tooth wear begins with an in-depth assessment of risk factors for erosion and of medical and dental histories. Visual inspection of tooth surfaces and wear patterns provides direct evidence of dental erosion. Since dental hard tissue loss associated with erosion is not reversible, and a severely worn dentition represents a great challenge to dentists and patients, it is imperative to recognize the risk factors early, preferably before any sign of erosive tooth wear is present, to facilitate early intervention.

Risk factor assessment; As described earlier, extrinsic and intrinsic acids are the pre-dominant etiological factors for dental erosion. Therefore, erosion risk assessment mainly involves identification of these factors in a specific patient and an evaluation of their roles in the development of dental erosion.

Clinical evaluation; Though dental erosion often coexists with attrition and abra-sion, it has some distinctive characteristics in location, ap-pearance and morphology. The most frequently affected areas are the palatal surface of maxillary incisors and the occlusal surface of the mandibular first molars in adolescents.Lussi et al described that erosion of facial surfaces was commonly seen on maxillary and mandibular canines and premolars, occlusal erosion was seen on maxillary and mandibular premolars and molars, and palatal erosion was seen on maxillary incisors and canines.

Early signs of erosion often include smooth and flat facets on facial or palatal surfaces, and shallow and localized dimpling on occlusal surfaces.

Prevention and Management

If no effective intervention occurs at an early stage, the eventual outcome of dental erosion is severe loss of dental hard tissues that adversely affects function and aesthetics. In patients with extensive dentin exposure, transient and persistent pain due to dentin sensitivity and pulp pathology may further reduce quality of life. Severe erosive tooth wear can be managed restor-atively. Composite resins and ceramics can be used for partial and full coverage restorations to restore the aesthetics and func-tion of the teeth. However, if the restored teeth continue to be subjected to severe erosive challenges, the restorations may fail in due course following marginal deterioration and continued loss of surrounding dental hard tissues. Therefore, preventive measures for dental erosion are not only essential for early in-tervention and primary prevention of erosive tooth wear, but they are also important for secondary prevention of erosion around the restorations.

Strategy #1: Avoid or reduce direct contact with acids;

Behavioural interventions:

1. Reduce frequency of dietary intake of acidic beverages and foods
2. Adopt drinks habits that limit contact time with teeth: Using a straw will reduce contact time between teeth and acidic drinks.
3. Avoid misuse of acidic medications, including vitamin C: Chewing this type of medication or using such pills as lozenges increases risk for dental erosion.

Clinical interventions:

1. Apply fluoride varnish to tooth surfaces susceptible to erosion: A protective film containing fluoride will reduce direct contact between tooth surfaces and acids and deliver fluoride to strengthen the enamel surfaces.
2. Treat underlying diseases associated with the presence of intrinsic acids intraorally.
3. Treat conditions causing salivary hypofunction: When low saliva flow rate is established as a factor for erosion in a specific patient, measures should be taken to improve saliva flow, where possible.

Strategy #2: Increase acid resistance through fluoride therapy; It has been shown that fluoride could minimize the erosive effects of soft drinks when applied as a varnish[42, 43] a mouth-wash44 a topical gel[45, 46] or a dentifrice[47, 48]. A dose-response effect has been observed when using fluoride dentifrices for treatment of enamel erosion in an in situ study.[49] Enamel samples treated by dentifrices with higher fluoride con-centrations was significantly more resistant to erosive chal-lenges than were those with lower fluoride concentrations. Frequent application of high concentrations of fluoride has been considered the regimen of choice for the prevention and treatment of dental erosion.[50]

Strategy #3: Increase resistance to acid dissolution using calcium and phosphate; The addition of calcium and phosphate to acidic bever-ages could significantly reduce their erosive potential.[51,-54] It was shown that the addition of 40 mmol/l calcium and 30mmol/l phosphate could significantly diminish the ero-sive potential of orange juice.[55] Supplementation of soft drinks with calcium was more effective in reducing ero-sion than with phosphate and fluoride.[56] The addition of 0.5-1.5mmol/l calcium has been found to be effective in reducing the erosive potential of citric acid.

Strategy #4: Minimize tooth brushing abrasion of eroded enamel; It has been shown that the timing of brushing, toothbrush bristle stiffness and abrasivity of toothpastes can all affect erosive-abrasive tooth loss.[57] For patients at risk of den-tal erosion, toothpastes with low abrasivity should be used with a soft toothbrush. Tooth brushing should be performed before an erosive challenge and avoided after consumption of erosive drinks or an erosive episode such as vomiting.

Conclusion

Dental erosion is a common condition in children and adults in all regions of the world. Prolonged contact between extrinsic or intrinsic acids with tooth surfaces will result in softening and dissolution of surface minerals. If not recognized and treated early, erosive challenges may cause severe loss of dental hard tissues that adversely affects aesthetics and function of the mouth. Contemporary dentistry offers many treatment options, from conservative to invasive for tooth loss: direct resin composite restorations, laboratory-made adhesive restorations (resin composite, all-ceramic and metal alloys), laboratory-made full crown restorations (metal, metal-ceramics and all ceramics). An acidic environment affects the solubility of dental hard tissue. Gastric contents may have acidity below pH 1; regurgitation therefore can have a severe demineralising effect on tooth structure and restorative materials.

References

[1]Bartlett DW, Evans DF, Smith BG: Oral regurgitation after reflux Provoking meals: a possible cause of dental erosion? J Oral Rehabil 1997, 24:102-108.

[2]Gregory-Head BL, Curtis DA, Kim L, Cello J: Evaluation of dental erosion in patients with gastroesophageal reflux disease. J Prosthet Dent 2000, 83:675-680.

[3]Broliato GA, Volcato DB, Reston EG, Kramer PF, Marquezan M, Ruzzarin F: Esthetic and functional dental rehabilitation in a Patient with gastroesophageal reflux. Quint Int 2008, 39:131-137.

[4]Jarvinen V, Meurman JH, Hyvarinen H, Rytomma I, Murtomaa H: Dental erosion and upper gastrointestinal disorders. Oral Surg Oral Med Oral Pathol 1988, 65:298-303.

[5]Bartlett DW, Evans DF, Anggiansah A, Smith BGN: A study of the association between gastro-esophageal reflux disease and palatal dental erosion. Br Dent J 1996, 181:125-132.

[6]Gudmundsson K, Kristleifsson G, Theodors A, Holbrook WP: Tooth erosion, gastroesophageal reflux, and salivary buffer capacity. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 1995, 79:185-189

[7]Bartlett DW: The role of erosion in tooth wear: aetiology, prevention and management. Int Dent J 2005, 55:277-284.

[8]Bartlett DW, Evans DF, Smith BG: The relationship between gastro-esophageal reflux disease and dental erosion. J Oral Rehabil 1996, 23:289-297.

[9]Spigset O: Oral symptoms in bulimia nervosa. Asurvey of 34 cases. Acta Odontol Scand 1991, 49:335-339.

[10]Jarvinen V, Meurman JH, Hyvarinen H, et al. Dental erosion and upper gastrointestinal disorders. Oral Surg Oral Med Oral Pathol 1988; 65:298-303.

[11]Meurman JF, Toskala J, Nuutinen P, et al. Oral and dental manifestations in gastroesophageal reflux disease. Oral Surg Oral Med Oral Pathol 1994; 78:583-589.

[12]Gudmundsson K, Kristleifsson G, Theodors A, et al. Tooth erosion, gastroesophageal reflux, and salivary buffer capacity. Oral Surg Oral Med Oral Pathol 1995;79:185-189.

[13]Schroeder PL, Filler SJ, Ramirez B, et al. Dental erosion and acid reflux disease. Ann Intern Med 1995;122:809- 815.

[14]Bartlett DW, Evans DF, Anggiansah A, et al. A study of the association between gastro-oesophageal reflux and palatal dental erosion. Br Dent J 1996; 181:125-131.

[15]Nebel OT, Fornes, MF & Castell DO. Symptomatic gastroesophageal reflux: incidence and precipitating factors. Am J Dig Dis 1976; 21:953-956.

[16]Gaynor MD. Otolaryngologic manifestations of gastroesophageal reflux. Am J Gast 1991;86:801-808.

[17]Ali DA, Brown RS, Rodriguez LO, Moody EL, Nasr MF: Dental erosion caused by silent gastroesophageal reflux disease. J Am Dent Assoc 2002, 133:734-737.

[18]Jaeggi T, Lussi A. Prevalence, incidence and distribution of erosion. Monographs in Oral Sci. 2006; 20:44-65.

[19]Dugmore CR, Rock WP. The progression of tooth erosion in a cohort of adolescents of mixed ethnicity. Int J Paediatr Dent. 2003 Sep;13(5):295-303.

[20]El Aidi H, Bronkhorst EM, Truin GJ. A longitudinal study of tooth erosion in adolescents. J Dent Res. 2008 Aug;87(8):731-5.

[21]Lussi A, Schaffner M. Progression of and risk factors for dental erosion and wedge-shaped defects over a 6-year period. Caries Res. 2000 Mar- Apr;34(2):182-7.

[22]Lussi A, Schaffner M, Hotz P, Suter P. Dental erosion in a population of Swiss adults. Comm Dent Oral Epidemiol. 1991 Oct;19(5):286-90.

[23]Van Rijkom HM, Truin GJ, Frencken JEFM, Konig KG, Van 'T Hof MA, Bronkhorst EM, et al. Prevalence, distribution and background variables of smooth-bordered tooth wear in teenagers in The Hague, The Netherlands. Caries Res. 2002 Mar-Apr;36(2):147-54.

[24]Kitchens M, Owens BM. Effect of carbonated beverages, coffee, sports andhigh energy drinks, and bottled water on the in vitro erosion characteristics of dental enamel. J Clin Pediatr Dent. 2007;31(3):153-9.

[25]Devlin H, Bassiouny MA, Boston D. Hardness of enamel exposed to Coca- Cola and artificial saliva. J Oral Rehabil. 2006 Jan;33(1):26-30.

[25]Moazzez R, Smith BG, Bartlett DW. Oral pH and drinking habit during ingestion of a carbonated drink in a group of adolescents with dental erosion. J Dent. 2000 Aug;28(6):395-7.

[27]Maupome G, Diez-De-Bonilla J, Torres-Villasenor G, Andrade-Delgado LC, Castano VM. In vitro quantitative assessment of enamel microhardness after exposure to eroding immersion in a cola drink. Caries Res. 1998;32(2):148- 53.

[28]Ren Y-F, Amin A, Malmstrom H. Effects of tooth whitening and orange juice on surface properties of dental enamel. J Dent. 2009 Jun;37(6):424-31.

[29]Zandim DL, Correa FOB, Rossa Junior C, Sampaio JEC. In vitro evaluation of the effect of natural orange juices on dentin morphology. Braz Oral Res. 2008 Apr-Jun;22(2):176-83.

[30]Willershausen B, Callaway A, Azrak B, Duschner H. Influence of apple juice on human enamel surfaces of the first and second dentition - an in vitro study. Eur J Med Res. 2008 Jul 28;13(7):349-54.

[31]West NX, Maxwell A, Hughes JA, Parker DM, Newcombe RG, Addy M. A method to measure clinical erosion: the effect of orange juice consumption on erosion of enamel. J Dent. 1998 May;26(4):329-35.

[32]Lussi A, Jaeggi T, Jaeggi-Scharer S. Prediction of the erosive potential of some beverages. Caries Res. 1995;29(5):349-54.

[33]Coombes JS. Sports drinks and dental erosion. Am J Dent. 2005 Apr;18(2):101- 4.

[34]Milosevic A. Sports drinks hazard to teeth. Brit J Sports Med. 1997 Mar;31(1):28- 30.

[35]Rees J, Loyn T, Mcandrew R. The acidic and erosive potential of five sports drinks. Eur J Pros Restor Dent. 2005 Dec;13(4):186-90.

[36]Chehal HK, Pate DH, Cohen DM, Bhattacharyya I. Dental erosion due to excessive wine consumption. Gen Dent. 2009 Sep-Oct;57(5):519-23.

[37]Mandel L. Dental erosion due to wine consumption. J Am Dent Assoc. 2005 Jan;136(1):71-5.

[38]Rees J, Hughes J, Innes C. An in vitro assessment of the erosive potential of some white wines. Eur J Pros Restor Dent. 2002 Mar;10(1):37-42.

[23]Yu H, Wegehaupt FJ, Wiegand A, Roos M, Attin T, Buchalla W. Erosion and abrasion of tooth-colored restorative materials and human enamel. J Dent. 2009 Dec;37(12):913-22.

[39]Wiegand A, Egert S, Attin T. Toothbrushing before or after an acidic challenge to minimize tooth wear? An in situ/ex vivo study. Am J Dent. 2008 Feb;21(1):13- 6.

[40]Ganss C, Schlueter N, Friedrich D, Klimek J. Efficacy of waiting periods and topical fluoride treatment on toothbrush abrasion of eroded enamel in situ. Caries Res. 2007;41(2):146-51.

[41]Correr GM, Alonso RCB, Consani S, Puppin-Rontani RM, Ferracane JL. In vitro wear of primary and permanent enamel. Simultaneous erosion and abrasion. Am J Dent. 2007 Dec;20(6):394-9.

[42]Vieira A, Overweg E, Ruben JL, Huysmans MCDNJM. Toothbrush abrasion, simulated tongue friction and attrition of eroded bovine enamel in vitro. J Dent. 2006 May;34(5):336-42.

[43]Giunta JL. Dental erosion resulting from chewable vitamin C tablets. J Am Dent Assoc. 1983 Aug;107 (2):253-6.

[44]Hays GL, Bullock Q, Lazzari EP, Puente ES. Salivary pH while dissolving vitamin C-containing tablets. Am J Dent. 1992 Oct;5(5):269-71.

[45]Dawes C, Boroditsky CL. Rapid and severe tooth erosion from swimming in an improperly chlorinated pool: case report. J Can Dent Assoc. 2008 May;74(4):359- 61.

[46]Geurtsen W. Rapid general dental erosion by gas-chlorinated swimming pool water. Review of the literature and case report. Am J of Dent. 2000 Dec;13(6):291- 3.

[47]Amin WM, Al-Omoush SA, Hattab FN. Oral health status of workers exposed to acid fumes in phosphate and battery industries in Jordan. Int Dent J. 2001 Jun;51(3):169-74.

[48]Johansson A-K, Johansson A, Stan V, Ohlson C-G. Silicone sealers, acetic acid vapours and dental erosion: a work-related risk? Swed Dent J.

[49]Kim H-D, Hong Y-C, Koh D-H, Paik D-I. Occupational exposure to acidic chemicals and occupational dental erosion. J Pub Health Dent. 2006;66(3):205- 8.

[50]Chikte UME, Naidoo S, Kolze TJvW, Grobler SR. Patterns of tooth surface loss among winemakers. SADJ 2005 Oct;60(9):370-4.

[51]Piekarz C, Ranjitkar S, Hunt D, Mcintyre J. An in vitro assessment of the role of Tooth Mousse in preventing wine erosion. Austral Dent J. 2008 Mar;53(1):22-5

[52]Murakami C, Bonecker M, Correa MSNP, Mendes FM, Rodrigues CRMD. Effect of fluoride varnish and gel on dental erosion in primary and permanent teeth. Arch Oral Biol. 2009 Nov;54(11):997-1001.

[53]Sorvari R, Meurman JH, Alakuijala P, Frank RM. Effect of fluoride varnish and solution on enamel erosion in vitro. Caries Res.1994;28(4):227-32.

[54]Vieira A, Ruben JL, Huysmans MCDNJM. Effect of titanium tetrafluoride, amine fluoride and fluoride varnish on enamel erosion in vitro. Caries Res. 2005 Sep-Oct;39(5):371-9.

[55]Schlueter N, Klimek J, Ganss C. In vitro efficacy of experimental tin- and fluoride-containing mouth rinses as anti-erosive agents in enamel. J Dent. 2009 Dec;37(12):944-8.

[56]Lagerweij MD, Buchalla W, Kohnke S, Becker K, Lennon AM, Attin T. Prevention of erosion and abrasion by a high fluoride concentration gel applied at high frequencies. Caries Res. 2006;40(2):148-53.

[57]Jones L, Lekkas D, Hunt D, Mcintyre J, Rafir W. Studies on dental erosion: An in vivo-in vitro model of endogenous dental erosion - its application to testing protection by fluoride gel application. Austral Dent J. 2002 Dec;47(4):304-8.

Letter No.V-34564,Reg.533/2007-2008 INDIAN JOURNAL OF RESEARCH(2015)**9,73-77**
ANVIKSHIKI ISSN 0973-9777 Advance Access publication 10 September 2014

RISK FACTORS RELATED TO NON-OBSERVANCE OF *RITUCHARYA* IN MIGRAINE (*PITTAJASIRAHSULA* AND *ARDHAVABHEDAKA*)

R. JAISWAL*

Declaration

The Declaration of the author for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: I, *R. Jaiswal* the author of the research paper entitled RISK FACTORS RELATED TO NON-OBSERVANCE OF *RITUCHARYA* IN MIGRAINE (*PITTAJASIRAHSULA* AND *ARDHAVABHEDAKA*) declare that , I take the responsibility of the content and material of my paper as I myself have written it and also have read the manuscript of my paper carefully. Also, I hereby give my consent to publish my paper in Anvikshiki journal , This research paper is my original work and no part of it or it's similar version is published or has been sent for publication anywhere else. I authorise the Editorial Board of the Journal to modify and edit the manuscript. I also give my consent to the Editor of Anvikshiki Journal to own the copyright of my research paper.

Abstract

Migraine, second most common cause of headache, afflicts approximately 15% of women and 6% of men. Migraine can often be recognized by its activators, referred to as triggers factors. The brain of migraineur is particularly sensitive to environmental and sensory stimuli. Knowledge of a patient's susceptibility to specific triggerscan be usefulin management strategies involving lifestyle modifications.Ritucharya, is one of the best lifestyle modification with the changes provide by natural cycle of seasons.Therefore this study was planned to assess the variations in the prevalence of Migraine(PittajaSirahsula and Ardhavabhedaka)with seasonal variation and to find out the observance and non-observance factors of Ritucharyaof different season in respect of Migraine(PittajaSirahsula and Ardhavabhedaka)disease and to assess the role of non- observance factors (risk factors) in the prevalence of Migraine(PittajaSirahsula and Ardhavabhedaka). Total 54 (32males and 22 females) Migrainecases between age 20-60 were included in the study. Assessment of observance and non- observance was done on the basis of a specific Ritucharyabased proforma. On evaluation of these survey studies, significant seasonal variations in the prevalence of migrainewere observed. Migraineshowed higher prevalence in Varsa, SaradandVasanta seasons. No intake of ghee and milk; excess intake of spicy food items, tea and fried food items; excess intake of cold items in cold season and hard working life style are the major risk factors.

Key Words: Ritucharya, Migraine,*PittajaSirahsula,Ardhavabhedaka*

Introduction

Modern lifestyle hard on people's health. Urbanization, industrialization and globalization are the main determinants of the changes in life-style. As it provide opportunities to get success but in the dark

*(corresponding author) Assistant Professor Department of *Swasthyavritta* and Yoga, Dayanand Ayurvedic PG Medical College and Hospital Siwan (Bihar) India. e-Mail : vaidyarahuljaiswal02@gmail.com

shadow of these lots of stress, depression and diseases are also coming in the society and the rising incidence of migraine in the last two decades is the sin of modern lifestyle.Migraine is an inherited tendency to headache; shows sensitivity to light, sound, movement, hunger, excess stress, physical exertion, hormonal fluctuations, lack of sleep, or alcohol[1]. Migraine headache cannot be eradicated as mentioned in Harrison' Principle of Internal Medicine, it can only be modified and controlled by lifestyle adjustments and medications[2].*Ayurveda* is a key for the world, to open the door of the right path in the journey of healthy life. It gives more concern to the health with reference to maintenance and promotion of health.*Ritucharya*isone of the preventive principles of *Ayurveda*. Observance balances the equilibrium of *Dosa* and *Dhatu* of the body and brings about strength, complexion, happiness and longevity[3]thus helps in decreasing the prevalence of various diseases and hence decreases the health care cost and morbidity.

Material and Methods

The study was conducted in *Svasthyarakshana* Clinic and in the OPD of *Kayachikitsa* of Sir SundarLal Hospital, IMS, BHU, Varanasi.

Selection of sample: Patients of different age group, gender and socio-economic status was registered on the basis of following criteria.Cases of migraine based on clinical sign and symptoms of age group between 20-60 years were selected for study.Age below 20 years and above 60 years, cases with associated other diseases and complications and accidental cases were excluded in the sampling process.

Plan of study: The case suffering from migraine was registered and survey was done on the basis of a specific *Ritucharya* based proforma. To enquire the dietary habits and physical activities (*Aahara* and *Vihara*) followed by the patients in different seasons. To assess the relationship between different seasons and prevalence of migraine, the cases was registered in six seasons. The registered cases of both rural and urban habitat were assessed for observance or non-observance of *Ritucharya*on the basis of frequency and pattern of the use of food articles and behavior observed in six seasons. To assess the impact of non-observance of *Ritucharya*(risk factors) these factors was categorized under six seasons.

Statistical method of assessment: The collected data was tabulated in the master chart. For finding the results the data was analyzed on the basis of percentage. Relation between seasonal variation and prevalence of migraine disease was tested on the basis of Chi-square test.

Result

Registration of 100 cases had been put out as a target for the study, out of 100 only 54 cases had been registered. Out of 54, 22 cases of female and 32 cases of male were registered.

T A B L E 1 *Showing Age Distribution of cases*[4]

Season	Migraine (54)	
Age Group	No.	%
21-30	27	50
31-40	18	33.33
41-50	06	11.11
51-60	03	5.55

It was evident from the table 1 thatmaximum prevalence of cases of migraine(50%) were in 21-30 years age-group whereas minimum(6%) cases were in 51-60 years age-group.

T A B L E 2 *Showing the prevalence of migraine in different seasons*[5]

Disease	Migraine (54)	
Season	No.	%
Hemanta	05	9.25
Sisira	06	11.11
Vasanta	10	18.51
Grisma	03	05.55
Varsa	16	29.63
Sarad	14	25.92
χ^2 *test*	$\chi^2 = 15.11$	
p value	$p < .01$	

It was evident from the table-2 that prevalence of migraine shows highly significant ($p < .001$) relation with the seasonal variation. Maximum prevalence of migrainewas observed in *VarsaRitu* (30%) followed by in *SaradRitu*(26%) and minimum in *Grisma*(5%).

T A B L E 3 Risk factors related to Non-observance of *Ritucharya*in Migraine (*PittajaSirahsula* and *Ardhavabhedaka*) cases[6]

Seasons	***Hemanta* (05)**		***Sisira* (06)**		***Vasanta* (10)**		***Grisma* (03)**		***Varsa* (16)**		***Sarad* (14)**	
Risk factors	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Exposure to cold, (Cold air, cooler, A.C., fan)	03	60.00	02	33.33	02	20	01	33.33	05	31.25	07	50
Exposure to humidity, fog	03	60.00	04	66.66	01	10	00	00	03	18.75	00	
Exposure to sunlight (excessive and bright)	00		00		03	30	01	33.33	04	25	02	14.28
Physical activity	0								03	18.75	02	14.28
Sedentary	01	20.00	01	16.66	02	20	00					
Hard working	03	60.00	04	66.66	06	60	03	100	09	56.25	09	64.28
Remain empty stomach for long duration	02	40.00	04	66.66	05	50	00		07	43.75	03	21.42
Day time sleeping	02	40.0	01	16.66	06	60	00		09	56.25	05	35.71
Intake of fried items	03	60.00	03	50.00	06	60	02	66.66	09	56.25	08	57.14
Intake of spicy items	04	80.00	02	33.33	07	70	03	100	11	68.75	09	64.28
Intake of Alcohol	01	20.0	01	16.66	02	20	00		01	06.25	02	14.28
Intake of Tea (> 4/day)	03	60.00	04	66.66	06	60	01	33.33	09	56.25	09	64.28
Intake of cold items	02	40.00	00		07	70	03	100	12	75.00	07	50.00
No intake of milk	04	80.00	04	66.66	07	70	03	100	11	68.75	09	64.28
No intake of ghee	05	100	05	83.33	09	90	03	100	14	87.50	12	85.71

It is evident from the above table that maximum numbers of cases (16) ofMigraine (*PittajaSirahsula* and *Ardhavabhedaka*)were found in *Varsa* season then followed by in Sarad season (14). No intake of ghee and milk; medium to high spicy food habit; hard working life-style; excessive intake of tea (> 4 times in a day); and exposure to cold and humidity were the major risk factors observed in cases of Migraine (*PittajaSirahsula* and *Ardhavabhedaka*). The major risk factors followed by them in *Varsa*and*Sarad* season were: no intake of ghee (81%); intake of cold items (75%) medium to high spicy food habit (68%); no intake of milk (68%) hard working lifestyles (56%); excessive intake of tea (> 4 times / day) intake of fried items (56%); and day time sleeping (56%).

Discussion

SeasonalVariation; In this study we observed a relationship between seasonal variation andmigraine in parlance of ancient science of Ayurveda. It was observed that prevalence of migraine(p value <.01) showed significant relation with the seasonal variation. During the period of *Varsa*and*Sarad* the percentage of their prevalence was highest, 30% and 26% respectively.

According to *Ayurveda*, vitiation of *Agni* occurs naturally in *Varsa* season and due to minimum *Bala* of the person, accumulation of *Pitta* (*Samapitta*) occur. This accumulated *Pitta* gets vitiated in the *Sarad* season. Hence disorders of vitiated *Agni* and *Pitta* like *Amlapitta*, *Raktapitta*, *Jvara,PittajaSirahsula* and other *Aamasayotthavyadhi* are likely to show more prevalence in *Varsa* and *Sarad* seasons. Migraine (*Ardhavabhedaka*type) also showed higher percentage of its prevalence in *Vasant* (18%) support the involvement of *Kaphadosa* in Migraine[7].

The Impact of Non-observance of Ritucharyaon the Migraine; According to *Ayurveda*, *Ardhavabhedaka*is *Vataja* or *Vata-Kaphaja* disorder. In case of *Vataja*, *Dhatuchaya* is the principal pathogenesis of the diseases. The factors like intake of *Ruksha* diet; cold item; exposure to cold; hard working; and *Varsa* season are the factors responsible for vitiation of *Vata*. In *Varsa* season, *Agni* has *Alpabala* and *Sarad* is the vitiating season of *Pitta,* both in turn play role in *Pittaja Sirahsula*[8]. According to Harrison's Principle of Internal Medicine, the headache of migraines can be initiated or amplified by various triggers, including glare, bright lights, sounds, or other afferent stimulation; hunger; excess stress; physical exertion; stormy weather; or barometric pressure changes; hormonal fluctuation during menses; lack of or excess sleep; and alcohol or other chemical stimulant[9]. Tea is known as anti-nutritional agent by preventing absorption of iron and protein due to presence of tannins. Thus the above mentioned facts support the finding of risk factors in cases of Migraine in this study.

Conclusion

Migraine of *PittajaSirahsula* origin shows higher prevalence in *Varsa* and *Sarad* seasons whereas Migraine of *Ardhavabhedaka* origin shows higher prevalence in *Vasant* season. No intake of ghee and milk; excess intake of spicy food items, tea and fried food items; excess intake of cold items in cold season and hard working life style are the major risk factors.

Reference

[1]Fauci, Braunwald, Kasper, Hauser, Longo, Jameson, Loscalzo: Harrison's principles of Internal Medicine Vol-1,Newyork,Chicago,Newdelhi,Sydney Toronto, Seventeen Edition 2008: pp. 96

[2]Fauci, Braunwald, Kasper, Hauser, Longo, Jameson, Loscalzo: Harrison's principles of Internal Medicine Vol-1,Newyork,Chicago,Newdelhi,Sydney Toronto, Seventeen Edition 2008: pp. 98

[3]SatyanaranaShastri, Pan. KashinathPandey, GorakhaNathChaturvedi: Caraka Samhita Vol. 1, (C.Su. 6/3) ChaukhambhaBharti Academy Varanasi 2013: pp.134

[4]*Rahul Jaiswal* Guided by NeeruNathani (Supervisor),Prof. S.K. Tiwari (Co-supervisor), *"A Study on Rtucarya and its Relation with Prevalance of Diseases",* Dept. of Swasthavritta and Yoga F.O.A., I.M.S. BHU Varanasi 221005, 2011:pp. 85

[5]*Rahul Jaiswal* Guided by NeeruNathani (Supervisor),Prof. S.K. Tiwari (Co-supervisor), *"A Study on Rtucarya and its Relation with Prevalance of Diseases",* Dept. of Swasthavritta and Yoga F.O.A., I.M.S. BHU Varanasi 221005, 2011:pp. 87

[6]*Rahul Jaiswal* Guided by NeeruNathani (Supervisor),Prof. S.K. Tiwari (Co-supervisor), *"A Study on Rtucarya and its Relation with Prevalance of Diseases"*, Dept. of Swasthavritta and Yoga F.O.A., I.M.S. BHU Varanasi 221005, 2011:pp. 121

[7]*Rahul Jaiswal* Guided by NeeruNathani (Supervisor),Prof. S.K. Tiwari (Co-supervisor), *"A Study on Rtucarya and its Relation with Prevalance of Diseases"*, Dept. of Swasthavritta and Yoga F.O.A., I.M.S. BHU Varanasi 221005, 2011:pp. 133

[8]*Rahul Jaiswal* Guided by NeeruNathani (Supervisor),Prof. S.K. Tiwari (Co-supervisor), *"A Study on Rtucarya and its Relation with Prevalance of Diseases",* Dept. of Swasthavritta and Yoga F.O.A., I.M.S. BHU Varanasi 221005, 2011:pp. 150

[9]Fauci, Braunwald, Kasper, Hauser, Longo, Jameson, Loscalzo: Harrison's principles of Internal Medicine Vol-1,Newyork,Chicago,Newdelhi,Sydney Toronto, Seventeen Edition 2008: pp. 96

Letter No.V-34564,Reg.533/2007-2008 INDIAN JOURNAL OF RESEARCH(2015)**9,78-82**
ANVIKSHIKI ISSN 0973-9777 Advance Access publication 10 July 2015

POST EXTRACTION ZINC OXIDE EUGENOL PACK MIMICKING TOOTH LIKE STRUCTURE IN ORO-ANTRAL FISTULA

Dr. Neeraj Kumar Dhiman*, Dr. Chandresh Jaiswara**, Dr. Naresh Kumar***,
Dr. Vishal Verma**** AND Dr. Ajit Kumar Vishwakarma*****

Declaration

The Declaration of the authors for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: We, *Neeraj Kumar Dhiman, Chandresh Jaiswara, Naresh Kumar, Vishal Verma and Ajit Kumar Vishwakarma* the authors of the research paper entitled POST EXTRACTION ZINC OXIDE EUGENOL PACK MIMICKING TOOTH LIKE STRUCTURE IN ORO-ANTRAL FISTULA declare that , We take the responsibility of the content and material of our paper as We ourself have written it and also have read the manuscript of our paper carefully. Also, We hereby give our consent to publish our paper in Anvikshiki journal , This research paper is our original work and no part of it or it's similar version is published or has been sent for publication anywhere else.We authorise the Editorial Board of the Journal to modify and edit the manuscript. We also give our consent to the Editor of Anvikshiki Journal to own the copyright of our research paper.

Abstract

Foreign bodies in a maxillary sinus are unusual findings in the clinics. Mostly iatrogenic dental extractions and few causes of non dental origin are reported. Foreign bodies in the maxillary sinus can cause chronic sinusitis by mucosal irritation. Foreign bodies like tooth, gutta percha points, cotton, and dental amalgam have been found in the maxillary sinus. We present a case of a patient with maxillary sinusitis associated with oro antral fistula shows a tooth like structure which on surgical exploration found to be a zinc oxide eugenol dressing.

Keywords: Maxillary Sinus, Oro-antral fistula, Sinusitis.

Introduction

Odontogenic sinusitis is the inflammation of mucosa of any paranasal sinuses[1]. Mostly foreign bodies in the maxillary sinus are related to iatrogenic dental extractions. Foreign bodies of very different nature such as fillings, roots of tooth, dental amalgam, gutta percha are introduced in the maxillary sinus iatrogenically[2]. In very few cases foreign bodies are of non-dental origin .The proximity of the

*(First Author) Assistant Professor, Faculty of Dental Sciences [Institute of Medical Sciences] Banaras Hindu University, Varanasi (U.P.) India. e-Mail : drnkdhiman@yahoo.co.in
**(Corresponding Author)Assistant Professor, Faculty of Dental Sciences [Institute of Medical Sciences] Banaras Hindu University, Varanasi (U.P.) India. e-Mail : drchandresh@hotmail.com
*** Professor, Faculty of Dental Sciences [Institute of Medical Sciences] Banaras Hindu University, Varanasi (U.P.) India.
****Junior Resident, Faculty of Dental Sciences [Institute of Medical Sciences] Banaras Hindu University, Varanasi (U.P.) India. e-Mail :Vermavisha23@gmail.com
*****Junior Resident, Faculty of Dental Sciences [Institute of Medical Sciences] Banaras Hindu University, Varanasi (U.P.) India. e-mail :ajitweb88@gmail.com

maxillary second premolar and first molar to the maxillary sinus is of great importance as inadvertent dental manipulation may cause oro-antral communication. The palatal root of maxillary first molar when broken during extraction brings about the most frequent cause of the oro-antral communication[3,4]. Oro-antral fistula (OAF) is a pathological communication between oral cavity and maxillary sinus occurred either from traumatic extraction of maxillary molars, dentoalveolar fractures of posterior maxilla, osteomyelitis or pathologies involving the maxillary bone[3]. Fresh oro-antral communication of less than 5 mm requires no interventions and heals spontaneously whereas if it is of more than 5 mm then it requires immediate primary closure. Large sized communications may progress to form OAF[5,6]. The frequency ranges between 0.31%- 4.7% after extraction of upper teeth[7]. It is characterized by presence of epithelium originating from oral mucosa and/or sinus mucosa inhibiting spontaneous healing. More frequently found in males than females. Radiological analysis might show sinus floor discontinuity, sinus opacity, focal alveolar atrophy and associated periodontal disease[8]. Most widely employed flaps for repair are buccal advancement flap, palatal rotation flap, combination flaps. When the fistula is smaller in size, it can be closed using local flaps like buccal flap, palatal flap, buccal pad of fat (BFP), nasolabial flap and tongue flap. When the defect is larger, surgical repair involves larger size random pattern local regional flaps like temporalis myofacial flaps[8], endoscopic sinonasal surgery allowing the removal of most foreign bodies via a wide endonasalmeatotomy[9]. Due to various advantages buccal pad of fat is now increasingly used in the closure of oro-antral fistulas and also as local flap for different lesions. The advantages of BFP include that the location of the BFP is anatomically favorable, the ease and minimal dissection with which it can be harvested and mobilized, simplicity, versatility, excellent blood supply. The buccal fat pad flap is an axial flap. The facial, transverse facial and internal maxillary arteries and their anastomosing branches enter the fat to form a sub-capsular vascular plexus[10]. Low rate of complications, minimal to no donor site morbidity, a quick surgical technique due to fact that BFP is located in the same surgical field as the defects to be covered, a good rate of epithelialization and allows for replacement of the mucoperiosteal flap without loss of vestibular depth. The possibility of harvesting under local anesthesia can be considered as an added advantage. Problems that can be noted while harvesting BFP ranges from perforation to shrinkage of BFP[11,12]. We present a case of foreign body in the maxillary sinus later to be found as zinc oxide eugenol dressing which was misinterpretated as root/tooth like structure/ odontome due to its radiological appearance.

Case Report

A 45 year old male patient came to the outdoor clinic in our department with a chief complaint of discharge from the left nose for past 30 days. He had a history of dental extraction one month ago. On clinical examination the extraction site in left maxillary dental arch was tender, oro-antral fistula was present with no pus discharge. There was a discharge from the left nostril after taking fluids. Orthopantomogram (OPG) shows the presence of the root/tooth/odontome like structure in the alveolus close to floor of the left maxillary sinus (fig.1). There was also a discontinuity in the sinus floor. Patient operated under local anaesthesia under antibiotic coverage. An incision was given around the fistula opening with anterior and posterior releasing incisions and full thickness mucoperiosteal flap was raised. Since the left maxillary third molar was sensitive to hot and cold fluid, tender on percussion and slight mobile so it was extracted to allow proper closure of fistula. Surgical exploration leads to the recovery of zinc oxide eugenol pack (Fig.2) which was thought to be the roots of the molar tooth. It appeared that after extraction there was an oro-antral communication and the socket was packed with zinc oxide eugenol pack which shifted into the antrum and appears radioopaque root like structure in

radiograph leading to the misinterpretation. After copious irrigation of the sinus with metronidazole, buccal pad of fat was harvested, advanced and secured with the help of the 3-0 22 mm round body vicryl suture with the palatal mucosa, above which buccal flap was sutured to make it double layer closure. Post operative instructions were given carefully with administration of antibiotics, analgesics and nasal decongestants. Patient is doing well and healing is uneventful (Fig.3).

Fig.1: OPG showing tooth like structure in the left maxillary sinus.

Fig.2: Zinc oxide eugenol pack removed from left maxillary antrum.

Fig.3: One week post operative photograph of Closure.

Discussion

The maxillary sinus is covered with ciliated pseudostratified columnar epithelium essential to secretion of mucous to ostium. Its function depends on the ostium opening, cilium apparatus and secretion quality. Foreign body in the maxillary antrum may present as an acute phenomenon or may remain silent for years[13]. Antroliths can be classified into endogenous and exogenous antroliths. Endogenous antroliths may form around blood, mucus, pus, red blood cells or white blood cells. Exogenous antroliths may develop around a foreign body such as a tooth, tooth root, bead, button, paper, vegetable/bean pieces,

snuff, and fruit seeds[14]. Foreign bodies in the maxillary antrum are not a rare entity, with most of them being iatrogenic in nature and most commonly follow dental procedures. Some patients present with swelling in the cheek, nasal discharge, nasal regurgitation due to oro-antral fistula etc. The etiology of foreign bodies in the maxillary sinus can be classified as either traumatic like pieces of glass, stone, airgun pellets etc. or iatrogenic like whole tooth, root of the teeth, cement, gutta-percha point, impression material or even an implant[14]. Removal of teeth where there is a close communication between the maxillary antrum and the oral cavity can lead to the root being displaced into the antrum and result in oro-antral communication[15]. In the present case zinc oxide eugenol dressing was found in the maxillary sinus. Zinc oxide eugenol sedative dressing is routinely used in the treatment of alveolar osteitis. There might be two possibilities of displacement of zinc oxide eugenol dressing in the antrum: i) Either the dentist didn't diagnose the oro-antral communication perioperatively or ii) The dentist displaced the dressing above the thin floor of the maxillary sinus. There are numerous flaps available to close oro-antral communication varying from local to regional flaps. This case is important due to the wide use of zinc oxide-eugenol cement, especially as a sedative dressing, after tooth extraction but it should be avoided in case of oro-antral communications.

Conclusion

Dentists in the clinical practice should examine the presence of oro-antral communications intra-operatively while doing dental extractions or endodontic treatment or any other dental procedures that may lead to the perforation in the maxillary sinus. Thus it is emphasized that if any doubt of oro-antral communication arises, a dentist should confirm it with clinical and radiological aids and treat it immediately to avoid further complications. If a dentist place any dressing (zinc oxide euzenol gauze) in the socket for reasons such as dry socket then it must be explained to the patient and mentioned in the prescription form to facilitate further treatment in a different clinic or institute so that the confusions/misdiagnosis can be ruled out.

References

[1]Neelima Anil Malik. Textbook of oral and maxillofacial surgery, second edition.

[2]Dr. Prajwalit Prakash Kende, Dr. Ankush Janardhan Chavan, Dr. Roshni Anil Kumar Dadlani. Management of iatrogenic oroantral communication: A case report.

[3]A. Scattarella, A. Ballini, F. R. Grassi et al., *"Treatment of oroantral fistula with autologous bone graft and application of a non-reabsorbable membrane,"* International Journal of Medical Sciences, vol. 7, no. 5, pp. 267–271, 2010.

[4]C. H. J. Hauman, N. P. Chandler, & D. C. Tong. *"Endodontic implications of the maxillary sinus: a review".* International Endodontic Journal, vol. 35, no. 2, pp. 127–141, 2002.

[5]Yilmaz T, Suslu AE, Gursel B. Treatment of oroantral fistula: Experience with 27 cases. Am J Otolaryngol. 2003;24:221–3.

[6]Visscher SH, Van Minnen B, Bos RR. Closure of oroantral communications: A review of literature. J Oral Maxillofac Surg. 2010;68:1384–91.

[7]J. Punwutikorn. *"Clinically significant oroantral communications- a study of incidence and site".* International Journal of Oral and Maxillofacial Surgery, vol. 23, no. 1, pp. 19–21, 1994

[8]Singh J, Prasad K, Lalitha RM, Ranganath K. Buccal pad of fat and its applications in oral and maxillofacial surgery: A review of published literature (February) 2004 to (July) 2009. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2010;110:698–705.

[9]P. K. Tingsgaard & P. L. Larsen. *"Chronic unilateral maxillary sinusitis caused by foreign bodies in the maxillary sinus".* Ugeskr Laeger, vol. 159, pp. 4402–4404, 1997.

[10]Johan Fagan. Open Atlas Of Otolaryngology, Head And Neck Operative Surgery.

[11]Lazow SK. Surgical management of the oroantral fistula: Flap procedures. Oper Tech Otolaryngol Head Neck Surg. 1999;10:148–52.

[12]Adeyemo WL, Ogunlewe MO, Ladeinde AL, James O. Closure of oro-antral fistula with pedicled buccal fat pad: A case report and review of literature. Afr J Oral Health. 2004;1:42–6.

[13]Jain RK, Frommer HH. Incidental finding of antroliths in panoramic radiography. N Y State Dent J. 1982; 48:530-1.

[14]Sandu KB, et al. Foreign body in the maxillary antrum. Int J of Oral and MaxillofacSurg 1997; 26: 110-11.

[15]Chandrsena F, et al. Removal of root from the maxillary sinus using functional endoscopic sinus surgery. British J Oral and Maxillofacial Surgery 2009.

Letter No.V-34564,Reg.533/2007-2008 INDIAN JOURNAL OF RESEARCH(2015)**9,83-87**
ANVIKSHIKI ISSN 0973-9777 Advance Access publication 12 March 2015

A CRITICAL REVIEW ON *SHUKTA KALPANA* (FERMENTED ACIDIC PREPARATIONS) WITH SPECIAL REFERENCE TO *KANJI*

CHANDRA SHEKHAR*

Declaration

Abstract

Shukta Kalpana is a type of Sandhana Kalpana which is prepared by fermentation process. It categorized under Shukta, Cukra, Tusambu, Souvira, Kanji, Sandaki and Maireyak. These preparations are predominantly acidic in nature and have sour taste while Madyas Kalpana (alcoholic preparations) is another type of fermentation process has five different types of Rasas (tastes) except the acidic taste. It is a thinking that the alcoholic media may turn into the acidic media by some acidic bacteria with passage of time. Kanji is usually prepared by fermentation of incompletely boiled Masha Dhanya (pulse of Phaseolus mungo) with gruel prepared by Rakta shali (Oriza sativum). In modern perspective of acitic fermentation, Vinegar (traditionally the product of acetic acid fermentation of dilute alcoholic solutions) and Gruel (a short time fermented liquid preparation of rice boiled in water and rye flour, in other liquid media) are also illustrated here.

Key Words: Kanji, Shukta Kalpana, Acidic Preparation, Sandhana, Vinegar, Gruel

Introduction

Ayurveda, '*The Science of Life'* is one of the most ancient alive medical sciences for taking care of mankind since earliest time or may be alleged, from the beginning of the Life. The basic aim of this science is not only to cure the person and make them healthy. But, according to *Ayurveda* a person would be said healthy only when he is happy by mentally, physically and spiritually. The literal meaning of *Sandhana* is to unite, compounding or growing together. It is the fermentation process in which only liquid alone or along with drug constituents or food materials intermingled to produce *Madya*, *Shukta*

*M.D. Scholar, Faculty of Ayurveda [Institute of Medical Sciences] BHU, Varanasi (U.P.) India. e-Mail : chandu4ubhu@gmail.com

or such substances. There are so many dosages froms described in *Ayurvedic* therapy, but out of them *Sandhana* products are the most popular dosage form which are widely prescribed due to its long shelf life, palatability, quick action and liquid form[1].

Some of the most popular fermented products derive from grain, fruit and vegetables and there are also many fermented food products which are extremely important in meeting the nutritional requirements of a large proportion of the global population. These Fermented products can play an important role contributing to the livelihoods of rural and peri-urban. Fermented foods are considered as one of the major dietary constituents in numerous developing countries because of their keeping quality under ambient conditions thereby contributing to food security and because they affect nutritional value through enhancing digestibility and soluble fractions, improving food safety and quality of the proteins (increase in bio availability of lysine), increasing water soluble vitamins and declining antinutritional factors[2, 3].

Historical review

Vedic Period: From the ancient time, the ultimate source of knowledge is nothing but *Vedas*. The descriptions of *Sandhana Kalpana* are found since *Vedic* period, but the detailed procedure of preparation is lacking. In *Rigveda* and *Yajuveda* description are too brief but these fermented products (described as *Soma Rasa*) were consumed extensively in social gathering and in religious functions of that period [4].

Charak Samhita: Acharya Charak has mentioned that *Kanji* alleviates burning sensation and fever by external application and *Vata, Kapha* by internal application. It relieves constipation, propels (excrement) downwards and as an effective appetizer[5, 6].

Sushruta Samhita: Acharya Sushruta has described similar properties of kanji as said by *Acharya Charak. Dhanyamla* or *Kanji* because of being obtained from cereals, is vitalized, removes burning sensation by external application while by intake pacifies *Vata, Kapha* and thirst and is light, because of sharpness it expels mucus and by gargle alleviates abdominal tastes, foul smell, dirt and dryness of mouth and also exhaustion, it is appetizer, digestive, purgative and useful in non-unctuous enema and is suitable for the people depending on sea for living[7].

Ashtanga Sangraha and Ashtanga Hridaya: Acharya Vagbhatta also mentioned the gradation of *Shukta Varga* products with respect to their *Laghuta* as a pioneering approach and a useful guideline to the practicing physicians.

Sharangadhara Samhita: Sharangadhara Samhita is one of the essential and complete texts of *Bhaishajya Kalpana*. It explains preparations, proportion, doses, *Saviryata avadhi* (shelf life), definitions, general principles, measurements, various classifications based on the source /raw material and the guidelines to be adopted when specificity is unexplained. According to this a fermented product prepared with *Manda* of half boiled *Kulmasha*, *Dhanya* is called as *Kanji* [8].

Rasa Granthas: According to *Paribhasha Prabhandha, Kanji* prepared with of cooked rice grain fermented with water while in the commentary of *Rasaratna Samucchaya* by *Dattatreya Anant Kulkarni, Kanji* is prepared by 12 drug ingredients along with water.

Shukta Sandhana Varga: Sandhana Kalpana is basically divided into *Madya Sandhana Varga* and *Shukta Sandhana Varga* [9]. *Madya Sandhana Varga* includes *Sura, Sidhu, Varuni, Maireyaka* .and *Sarkara* (Table 01). These fermentative preparations are hydro-alcoholic in nature [10]. On the other hand, the fermentative preparations lik*, Shukta, Tushodaka, Sandaki, Sauvirak* and *Kanji* which are acidic in nature, are taken in *Shukta Sandhana Varga*. Present study is mainly focus on acidic fermentative preparatios (*Shukta Sandhana Varga*) which are described as follow.

1. Shukta: When liquid associated with *Kanda, Mula, Phala, Sneha* and *Lavana* are allowed to ferment in a vessel, that fermented liquid is known as *Shukta*. *Acharya Yadavji* has defined *Shukta* further that any *Madya* group of preparation or any sweet liquid when become spoiled and develops acidic taste or prepared in acidic liquid by fermentation, called as *Shukta* [11]. There are 3 types of *Shukta* are described in Ayurvedic texts

(a) Gudashukta : Water in which jaggery is dissolved, mixed with oil, bits of *Kanda Shaka*, roots, *Phala* and fermented to acquire sour taste is called *Gudashukta*.

(b) Ikshu/madhushukta: If sugarcane juice is used, instead of jaggery solution, it is known as *Ikshushukta*.

(c) Mridvikashukta: Here grapes juice is used instead of jaggery solution.

2. Tushodaka (Tusambu): Tushodaka or *Tusambu* is prepared by crushed barley grains with husk and water four times and allowed to ferment till acidic taste is produced [8].

3. Sandaki (Shindaki): Sandaki is a fermented product prepared with radish *(Muli*), mustard *(Sarsapa*) etc [8]. Some Acharyas has defined it as an *Amla* & *Tikshna* liquid prepared with decoction of *Mulaka* and *Sarsapa shaka* mixed with *Krishna jeeraka* and *Rajika* and allowed to ferment. According to *Bhava prakash, Sandaki* is prepared by *Mulaka patra Drava* or with *Sarsapa swarasa* along with *Rajika* and *Salipisti*.

4. Sauviraka: Fermentation of *Yava*, which is boiled after removing its husk (*Nistusha*) is called as *Sauviraka.* In other texts, *Sauviraka* prepared is by the fermentation of barley grains (without husk) and it is also prepared by using *Pakva* and *Apakva nistusa yava* water (barley water) respectively.

5. Kanji: According to *Vaidhyaka Paribhasa pradeep,* the *Sastika Sali* (rice grown in 60 days) *Dhanya* is coarsely pounded and boiled with mentioned quantity of water. When the rice particles are properly cooked, boiling is stopped and the preparation is allowed to cool down. Later the roots and tubers or wet drugs are to be cut into smaller pieces and other drugs roughly pounded. All these have to be taken in bigger vessels which remains1/3rd vacant even after filling all drugs and it is sealed and kept in a suitable place for the process of fermentation.

Modern perspectives of Shukta Sandhana

Vinegar; Commercial vinegar is produced by either fast or slow fermentation processes. For the quick methods, the liquid is oxygenated by agitation and the bacteria culture is submerged permitting rapid fermentation. The slow methods are generally used for the production of the traditional wine vinegars, and the culture of acetic acid bacteria grows on the surface of the liquid and fermentation proceeds slowly over the course of weeks or months. The longer fermentation period allows for the accumulation of a nontoxic slime composed of yeast and acetic acid bacteria, known as the mother of vinegar [12].

Traditionally, vinegar was produced in casks filled with wood shavings on which wine was sprayed. When vinegar is distilled it will have no colour. But the produced colour and taste of the vinegar depends on the source (cider, wine, beer, barley malt) and production method. The chemical and organoleptic properties of vinegars are a function of the starting material and the fermentation method. Acetic acid, the volatile organic acid that identifies the product as vinegar, is responsible for the tart flavour and pungent, biting odour of vinegars [13]. Other constituents of vinegar include vitamins, mineral salts, amino acids, polyphenolic compounds (eg, galic acid, catechin, caffeic acid, ferulic acid), and nonvolatile organic acids (eg, tartaric, citric, malic, lactic).

Types of Vinegar [15]; Depending upon the constituents Vinegars, may be differentiated into 1. Fruit substrate vinegars (exampls- Wine vinegar, Cidar Vinegar, Honey Vinegar, fruit Vinegar), 2. Starch substrate vinegars (exampls- Malt Vinegar, Rice Vinegar, Molasses vinegar), 3. Spirit vinegar, 4. Special vinegars (exampls-Balsamic vinegar, Chinese Vinegar).

Gruel; This is another example of acidic preparation, which is defined as a type of food consisting of some type of cereal oat, wheat or rye flour or rice boiled in water or other liquid media. It is a thinner version of porridge that may be more often drunk than eaten and may not need to be cooked. Historically, gruel has been a staple of the Western diet, especially for pleasant. It is often made from

millet, hemp, barley or, in hard times, from chestnut flour or even the less tannic acorns of some oaks [14].

Other researches showed gruel as a colloquial expression for any watery or liquidly food of unknown character, e.g., pea soup, the word soup itself being derived from 'sop' the slice of bread.

Mechanism of the acidification process

It is generally, believed that the oxidation of the constituents of vinegar include vitamins, mineral salts, amino acids, polyphenolic compounds (eg, galic acid, catechin, caffeic acid, ferulic acid), and nonvolatile organic acids (eg, tartaric, citric, malic, lactic). Vinegar is the product of acetic acid fermentation of dilute alcoholic solutions. Aerobically, food-grade acetic acid is produced by the two-step vinegar process. The first step is the production of ethanol from a carbohydrate source such as glucose which is carried out by yeasts and the second step is the oxidation of ethanol to acetic acid carried out by acetic acid acteria. Although a variety of bacteria can produce acetic acid, mostly members of Acetobacterand Gluconobacter are used commercially [15].

Thus alcohol converted into acetic acid by "Aceto-bacter" species is a two-step process; in which acetaldehyde or its hydrate serves as an intermediate. Thus alcohol is first dehydrogenated into acetaldehyde, which is further hydreted and changes into Acitic Acid by process of dehydrogenetion.

Discussion

Shukta are the unique preparations which facilitate the reuse of the discard able products. As according to *Yadav Ji Tikkram Acharya, Shukta* group preparations are those when *Madya* group of preparations get spoiled, after a few days they develop into acidic taste and wonder is that these *Shukta* preparations are therapeutically very effective.

When the *Kanji* is applied externally, it alleviates from *Daha* (burning sensation) and fever. It would be because the most commonly used ingredients in all types of pharmaceutically prepared *Kanji* are rice which is *Sita* in *Virya*. *Kanji* is appropriate and can be used regularly by the persons who live near the sea shore. As these areas are salty and they are forced to consume excess salt mixed diet.

Vinegar, an Acetobactor aceti product, in which malt sugar is used as the source materials. Acetic acid is the chief active component of this recipe [15]. The slow methods are generally used for the production of the traditional vinegars, and the culture of acetic acid bacteria grows on the surface of the liquid and fermentation proceeds slowly over the course of weeks or months. It is very much concentrated as compared to *Kanji.* Sour gruel is often made from millet, hemp, barley or from chestnut flour as soup. It is especially western diet and used for pleasant purposes.

T A B L E 01 *Showing the Shukta group preparations*

S.N.	*Shukta Varga*	Ingredients	Properties	Therapeutic Uses
1	*Shukta*	*Kanda, Mula, Phala*	*Vtanuloman, Raktapitta hara*	*Ama/Bhukta pachana, Bisuchika, Krimihara, Mala-bhedana*
2	*Kanji*	*Sashthika rice, Haridra, Hingu, Jeerak, Bamboo, Kulatha,* Saindhava salt	*Deepana, Pachana, Vata-kapka har*	*Dahanasahana, Mukha-vairasya & dourgandhahara, Aruchi, Vibandha nasaka*
3	*Tushodaka*	Crushed barley grains with	*Deepana, Pachana,*	*Pandu, Krimihara, Basti-*

		husk	*Tikshna, Usna*	*sula har*
4	*Souviraka*	Crushed barley grains without husk	*Kaphagna, Bhedana, Deepana*	*Arsh, Udaverta, Adhmana, Krimiroga*
5	*Sindaki*	*Mulaka, Sarsapa*	*Rochana, Guru , Pitta-Kaphahara*	*Mala-bhedana*

Conclusion

In the present study, description of *Shukta kalpana* in different texts, extending from the *Vedic* period to the recent literatures of *Rasa shastra* and *Bhaishajya kalpana* are talked about. *Shukta varga* is the acidic fermentation part of the *Sandhana kalpana.* In this the subdivision of *Shukta varga,* their definitions and therapeutic properties are described. The review of the literatures related to *Kanji*, its modern perspective, the process of fermentations is elaborated here.

References

[1]Alathur S. & et al;(2013), Critical Analysis on Pharmaceutics of Alcoholic Preparations (Asava-Arishta) in Ayurveda*, Ayurveda Journal of Ayurveda and Holistic Medicine,* Vol 1(9), pp15-22.

[2]Ojokoh A. O. & et al; (2014), Proximate composition, antinutritional contents and physicochemical properties of breadfruit (Treculia africana) and cowpea (Vigna unguiculata) flour blends fermented with Lactobacillus plantarum, *African Journal of Microbiology Research,* Vol 8(12), pp 1352-1359.

[3]Mashak Z. & et al; (2014), Chemical and microbial properties of two Iranian traditional fermented cereal-dairy based foods: Kashk-e Zard and Tarkhineh, International Journal of Bioscience,Vol. 4(12), pp. 124-133.

[4]Dhavamony .M, (1971), Love of God Saiva Sidhanta; A Study in the Mystism and Theology of Saivism, Claredon Press, pp 55.

[5]Sharma RK, Vaidya Bhagavan Dash, (2014), Agnivesha, Charaka Samhita, English Translation, Sutra Sthana, Chaukhambha Prakashan Varanasi., Vol I, Chapter 27:192, pp.525.

[6]Ranasinghe R. L. D. S. & Ediriweera E. R. H. S. S., (2015), Effects of Dhanyamla Vasti Onamavata With Special Reference to Rheumatoid Arthritis- A Case Report, *International Ayurvedic Medical Journal*, Vol 3(6), pp 1892-1904.

[7]Sharma P.V, Sushruta Samhita, (2013), English Translation. Sutra Sthana, Chaukambha Visvabharati, Varanasi, Vol I. Chapter 45: 214-216, pp 458.

[8]Sharangdhara A, Shrivastava S.R (2003), (3rd edition), Sharangdhar Samhita, Madhyamkhanda, Chapter 10;12 Saptamoadhyayah Chaukhamba Bharati Academy, Varanasi;

[9]Prabhakara R. G. (2008), *A text book of Bhaishajya Kalpana Vijnanam,* Chaukhambha Publications, New Delhi. pp 289, 293.

[10]Chaudhary Anand, Singh Neetu, Dalvi Madhuri, Wele Asmita, (2011), A progressive review of Sandhana kalpana (Biomedical fermentation)*, AYU*, Vol (32) 3. p. 408-416.

[11]Yadav Jitrikum A. (1997), Dravyaguna Vigyan, Vol.II, Vedhnath Ayurved Bhavan, Nagpur, P.366.

[12]Johnston C S, Gaas C. A., (2006), *Medscape General Medicine*, Vinegar; Medicinal Uses and Antiglycimic Effect, Vol 8(2) pp 61.

[13]Guardia M.De La, Garringue M.,(2015), Handbook of Mineral Elements in Food, John Wiley & Sons Publication, UK, Chapter 30, pp 692.

[14]Marshall E. & Mejia D.,(2011), Traditional Fermented Food and Beverages for Improved Livelihood, Rural Infrastructure and Agro industries Division Food and Agriculture Organization of the United Nations, Rome.

[15]Raspo P. & Goranovic D; (2007), Biotechnological Application of Acitic acid Bacteria in Food Production, *Biotecnology, EOLSS,* Vol 7, pp 21.

Letter No.V-34564,Reg.533/2007-2008 INDIAN JOURNAL OF RESEARCH(2015)**9,88-91**
ANVIKSHIKI ISSN 0973-9777 Advance Access publication 10 September 2014

REVIEW OF *KALA* IN AYURVEDA

R. JAISWAL* AND N. NATHANI**

Declaration

Abstract

In BhagvatGita Lord declares himself as "Time I Am" and "I have come as all devouring death, the great destroyer of the worlds". Time is considered as deadly sharp blade of a razor means everything that is born has to die, that is the law of material nature. Kala is the time factor with past, present and future and in Ayurveda Kala is divided as Muhurt, Pakshma, Masa, Ritu, Ayan, Samvatsar etc. In Ayurveda Kala is known as consequence (Parinama) that is changes taking places constantly. Kala is one of the KaranDravya and considered as one of the topic of Ayurveda. Kala plays very important role in the fulfillment of both the purpose of the Ayurveda that is maintenance of health and treatment of diseases. Thus the consideration of Kala is necessary to student and teacher to explore fully the knowledge of Ayurveda. Kala Factor is also too much important for the practisoner to get success in his treatment.

Key words: Kala, *Parinama*.

Introduction

Kala is known as consequenses or "*Parinama*" that is changes taking placeconstantly.[1]everything in this cosmos, living and non- living, big or small is undergoing constant change and nothing can escape from change. So time is considered as eternal and inexorable. That's why in *Ayurveda Kala* is considered as name of the Divinity[2], which is self-born and has no beginning, middle or end. *Kala* is one of the *KaranDravya* and considered as one of the topic of *Ayurveda*. *Kala* expressed itself in time as *Masa*, *Ritu*, *Ayan*, *Samvatsar*, *Yuga* etc. *Kala* plays crucial role in the maintenance of health, development,

*(corresponding author) Assistant Professor Department of *Swasthyavritta* and Yoga, Dayanand Ayurvedic PG Medical College and Hospital Siwan (Bihar) India. e-Mail : vaidyarahuljaiswal02@gmail.com
**Associate Professor & Head Department of *Swasthyavritta* and *Yoga*, Institute of Medical Sciences Banaras Hindu University Varanasi (U.P.) India.

pathogenesis, management and in prognosis of diseases. *Kala* is also important in outcome of fetus, in *Nidra* and in collection, preparation, preservation and administration of drug. Thus without proper knowledge of *Kala* in *Ayurveda* we will not be able to fulfill both the purpose of *Ayurveda* i.e. maintenance of health and treatment of diseases.

Role of Kala in the Primal origin of Purusa and Roga: AcharyaCharak has given the concept of development of *Purusa* and *Roga*. "It is the very elements whose wholesome combination gives rise to the well-being of man that bring about, in their unwholesome combination, various kinds of diseases."[3]In this *Kala* is also an element which is quoted by *Aatreya*, the mendicant, that man is an evolved of time, and man's ailment likewise are born of time. The whole world is under the suzerainty of time and time is evolving everywhere.[4]

*Kala as a Topic of the Ayurveda system: AcharyaCharak*has divided the scope of the *Ayurveda* system with reference of topics, into ten different heads - Anatomy, Physiology, Etiology, Pathology, Therapeutics, Objectives, Climatology (*Kala*), Physicians, Pharmacology and Procedures.[5]

Role of Kala in the Maintenance of Health

In Asta- Aaharvidhivisheshayatan (Eight factors of diet and dietetics): Kala- time is used in two senses – time in the general sense and time in the sense of a stage. Now "stage" is used in relation to disease, and time in the "general sense" is used in relation to seasonal wholesomeness. On the basis of this seasonal wholesomeness, the concept of *Ritucarya* evolved out.[6]

In the reference of Bala: Bala (strength) is of three types: congenital, time-effected and acquired. Time effected is due to seasonal variation and age factors.[7]

Role of Kala in Development of Disease:As an Etiological Factor: In *Ayurveda*, there are three main causative factors of diseases, they are overuse, disuse and misuse in relation to sense – objects, activity and *Kala* (season).

Kala plays role in the development of disease in two forms, as direct effect and as indirect effect. In the context of direct effect of *Kala,Acharya* explained in *Sutrasthana* eleven, as time is year which again consists of winter, summer and rainy seasons with dominant characters of cold, heat and rain respectively. If there is excess of the specific character of time, it is called as excessive occurrence, deficiency in these characters denote the deficient occurrence and time having characters opposite to its own ones indicates the perverted occurrence. These all are sign of unwholesome *Kala*.[8]

In the context of direct effect of *Kala*, *AcharyaCharak*explained *Janpadodhvansa* (epidemic). There are four common factors – air, water, place and *Kala*, which are shared by every person of the community. Derangement of these four common factors produces diseases having similar period and symptom arise and destroy the community.[9]

In the Pathogenesis of Diseases: Kala is responsible for the accumulation and aggravation of *Dosa*, causation and progression of various diseases. It also plays an important role in pacification of *Dosa* and resolution of disease process.In the 21st chapter of *Sutrasthana*, six stages of treatment (*SadaKriyaKala*) has been described by *AcharyaSusruta* to show the importance of *Kala* in the pathogenesis of disease and its treatment, because if proper management of disease is not planned in these *KriyaKala* (stages) then it became incurable.[10]

Role of Kala in Management of Disease

Dasavidha-ParikshyayaBhava: To obtain the desired fruit and subsequent benefit in any action without any good effort *AcharyaCharak*in *Vimanasthana* eight explained "*Dasavidha-ParikshyayaBhava*". These include *Kala* also.[11]

The status of the patient is also called as timely or untimely in relation to the act being performed or not; such as in a certain condition one drug is untimely, and the other one is timely. This is also due to specific condition hence the nomenclature of "*Kala* " and "*Akala*" (untimely) is given to the conditions of the patient. The physician should observe all the conditions of the patient again and again in order to administer the correct therapy. The therapy administered after or before the (opportune) time is not effective because time determines the sufficiency of the administration of therapy.

Time Related to Treatment: Curable disorder goes back by drugs having opposite properties and administered with due consideration of *Desha*, *Kala,Matra*. The proper treatment requires due consideration of *Desha*, *Kala*, *Matra*, *Satmya* or *Asatmya* otherwise even favorable medicament become harmful.[12]

Time Relating to Drug Administration: It is tenfold such as before meal day and night, during mid-meal day and night, after meal day and night, frequently, before and after meals, mixed with meal and between morsels of food. In derangement of *Apana*, drug should be taken before meals, in derangement of *Samana* it should be taken during mid-meal, in *Vyana* and *UdanaVikriti*, drug taken after breakfast or lunch and meal respectively. In *PranaVikriti*, drug should be administered between morsels. Drug should be administered frequently in case of dyspnea, cough and thirst. In hiccup, drug should be given mixed with various food items.[13]

Kalaveksha: Observation of the specific features of disease corresponding to season, day and night, age and meal is known as *Kalaveksha*.[14]

	Season	Age	Digestion
Kaphaja	Spring	First phase	Just after meal
Pittaja	Autumn	Middle phase	During digestion
Vatika	Rainy	Last phase	After digestion

Role of Kala in Prognosis: Kala is an important factor for the prediction of the prognosis. Even the *Sadhya*generally become difficult to be treating if not treated in time; this is the reason why earliest possible management of disease is important. One practicing medicine, keeping these views in mind attains virtue, wealth, enjoyment and fame.

Effect of Kala on Nidra (sleep): In *SutraSthana* 21st chapter, *AcharyaCharak*mentioned the role of *Kala* in the sleeping behavior of an individual.

Effect of Kala on Outcome of Fetus: Kala is responsible for the careful delivery of fetus as stated by *AcharyaCharak* in 2nd chapter of *Sarirasthana* that by the excellence of sperm, ovum, *Atma*, uterus and time and by management with wholesome diet the normal fetus gets delivered in fully developed state in time and with ease.

Conclusion

Thus in *Ayurveda Kala* is very important as it is mentioned as *KaranDravya* because of its transformation property. It is important from anatomic physiological, pathological, management and treatment and prognosis point of view. It is important in maintaining the health and also important for collection, preparation and administration of drug.

References

[1]Satyanarana Shastri, Pan. Kashinath Pandey, GorakhaNathChaturvedi: Caraka Samhita Vol. 1, (C.Su. 11/42) ChaukhambhaBharti Academy Varanasi 2013: pp.233

[2]AmbikadattaShastri: Susruta Samhita Vol. -1(Su Su. 6/3)Chaukhambha Sanskrit Sansthan Varanasi 2013: pp.27

[3]SatyanaranaShastri, Pan. KashinathPandey, GorakhaNathChaturvedi: Caraka Samhita Vol. 1, (C.Su. 25/29) ChaukhambhaBharti Academy Varanasi 2013: pp.463

[4]SatyanaranaShastri, Pan. KashinathPandey, GorakhaNathChaturvedi: Caraka Samhita Vol. 1, (C.Su. 25/25) ChaukhambhaBharti Academy Varanasi 2013: pp.461

[5]SSatyanaranaShastri, Pan. KashinathPandey, GorakhaNathChaturvedi: Caraka Samhita Vol. 1, (C.Su. 30/32) ChaukhambhaBharti Academy Varanasi 2013: pp.591

[6]SatyanaranaShastri, Pan. KashinathPandey, GorakhaNathChaturvedi: Caraka Samhita Vol. 1, (C.Vi. 1/21/6) ChaukhambhaBharti Academy Varanasi 2013: pp.682

[7]SatyanaranaShastri, Pan. KashinathPandey, GorakhaNathChaturvedi: Caraka Samhita Vol. 1, (C.Su. 11/36) ChaukhambhaBharti Academy Varanasi 2013: pp.228

[8]SatyanaranaShastri, Pan. KashinathPandey, GorakhaNathChaturvedi: Caraka Samhita Vol. 1, (C.Su. 11/37) ChaukhambhaBharti Academy Varanasi 2013: pp.229

[9]SatyanaranaShastri, Pan. KashinathPandey, GorakhaNathChaturvedi: Caraka Samhita Vol. 1, (C.Vi. 3/6/4) ChaukhambhaBharti Academy Varanasi 2013: pp.694

[10]AmbikadattaShastri: Susruta Samhita Vol. -1(Su Su. 21/36)Chaukhambha Sanskrit Sansthan Varanasi 2013: pp.121

[11]SatyanaranaShastri, Pan. KashinathPandey, GorakhaNathChaturvedi: Caraka Samhita Vol. 1, (C.Vi. 8/68) ChaukhambhaBharti Academy Varanasi 2013: pp.764

[12]SatyanaranaShastri, Pan. KashinathPandey, GorakhaNathChaturvedi: Caraka Samhita Vol. 1, (C.Su. 1/62) ChaukhambhaBharti Academy Varanasi 2013: pp.37

[13]SatyanaranaShastri, Pan. KashinathPandey, GorakhaNathChaturvedi: Caraka Samhita Vol. 11, (C.Chi. 30/299-301) ChaukhambhaBharti Academy Varanasi 2013: pp.790

[14]SatyanaranaShastri, Pan. KashinathPandey, GorakhaNathChaturvedi: Caraka Samhita Vol. 11, (C.Chi. 30/308) ChaukhambhaBharti Academy Varanasi 2013: pp.791

Letter No.V-34564,Reg.533/2007-2008 INDIAN JOURNAL OF RESEARCH(2015)**9,92-96**
ANVIKSHIKI ISSN 0973-9777 Advance Access publication 31 August 2015

ROLE OF STEREOLITHOGRAPHY IN DENTISTRY- A REVIEW

DR. ROMESH SONI* AND DR. RAJUL VIVEK**

Declaration

The Declaration of the authors for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: We, *Romesh Soni and Rajul Vivek* the authors of the research paper entitled ROLE OF STEREOLITHOGRAPHY IN DENTISTRY- A REVIEW declare that , We take the responsibility of the content and material of our paper as We ourself have written it and also have read the manuscript of our paper carefully. Also, We hereby give our consent to publish our paper in Anvikshiki journal , This research paper is our original work and no part of it or it's similar version is published or has been sent for publication anywhere else.We authorise the Editorial Board of the Journal to modify and edit the manuscript. We also give our consent to the Editor of Anvikshiki Journal to own the copyright of our research paper.

Abstract

Stereolithography is a relatively new class of technology used for building physical models and prototype parts from 3D CAD data. Stereolithography systems join together liquid, powder and sheet materials to form complex parts. Layer by layer, RP machines fabricate plastic, wood, ceramic, and metal objects based on thin horizontal cross sections taken from a computer model. As in many branches of medicine, rapid prototyping has been also used in dentistry for a range of dental specialties, including oral and maxillofacial prosthodontics and surgery, dental implantology as a surgical guide or physical model and Prosthodontics. The use Stereolithography of dental branches has many other benefits of which only one of them is medical modelling construction; there are so many useful fields, in which this technique is helpful like mass production of patterns for casting purposes. In this way, time consuming and/or difficult parts in restoration making can be easily implemented even without human intervention

Keywords – Stereo lithography, Computer-aided designing, Prosthesis, 3D system

Introduction

Stereolithography is an additive manufacturing or 3D printing technology used for producing models, prototypes, patterns, and production parts up one layer at a time using lithographic methods. Stereolithography (SLA) is the most widely used rapid prototyping technology. It was the first rapid prototyping Process, introduced in 1988 by 3D Systems, Inc., based on work by inventor Charles Hull. It is an additive manufacturing process in which a liquid photo curable resin acrylate material is used.

*Assistant Professor, Faculty of Dental Sciences [Institute of Medical sciences] Banaras Hindu University Varanasi (U.P.) India.
**(Corresponding Author) PhD Research Scholar, Faculty of Dental Sciences, Institute of Medical sciences, Banaras Hindu University Varanasi (U.P.) India.

SLA uses a highly focused UV laser to trace out successive cross-sections of a three-dimensional object in a vat of liquid photosensitive polymer. [1, 2]

Rapid Prototyping (RP) is an additive processes that fabricates parts layer-by-layer also known as Layer Manufacturing (LM). They are capable of creating parts with small internal cavities and complex geometries. The process or RP and manufacturing basically consists of three steps: form the cross sections of the object to be manufactured, lay the cross sections layer by layer, and combine the layers.[3] RP&M method was first presented at the AUTOFACT show in Detroit (U.S.A.) in November 1987, by 3D Systems, Inc. At that time, the process was very inaccurate and the choice of materials was limited.[4]One of the advantages of stereolithography is its speed; functional parts can be manufactured within a day. The length of time it takes to produce one particular part depends on the size and complexity of the project and can last from a few hours to more than a day. Now days in dentistry the use of Stereolithography technique commonly used. This review article discuss about the use of stereolithography in dentistry.

Basic Principle of Stereolithography

Stereolithography is an additive manufacturing process which employs a vat of liquid ultraviolet curable photopolymer ”resin” and an ultraviolet laser to build parts layers one at a time. For each layer, the laser beam traces a cross-section of the part pattern on the surface of the liquid resin. Exposure to the ultraviolet laser light cures and solidifies the pattern traced on the resin and joins it to the layer below.

After the pattern has been traced, the SLA’s elevator platform descends by a distance equal to the thickness of a single layer, typically 0.05 mm to 0.15 mm (0.002 in to 0.006 in). Then, a resin-filled blade sweeps across the cross section of the part, re-coating it with fresh material. On this new liquid surface, the subsequent layer pattern is traced, joining the previous layer. A complete 3-D part is formed by this process. After being built, parts are immersed in a chemical bath in order to be cleaned of excess resin and are subsequently cured in an ultraviolet oven.

Stereolithography requires the use of supporting structures which serve to attach the part to the elevator platform, prevent deflection due to gravity and hold the cross sections in place so that they resist lateral pressure from the re-coater blade. Supports are generated automatically during the preparation of 3D Computer Aided Design models for use on the stereolithography machine, although they may be manipulated manually. Supports must be removed from the finished product manually, unlike in other, less costly, rapid prototyping technologies.

Application of Stereo lithography in Dentistry

Prosthodontics-

(a) Crown Fabrication; In prosthodontics, crown by conventional methods greatly relies on the quality and accuracy of the final product which depends mostly on the technician’s subjective judgment. Also Conventional method is manually operated which involves many complex procedures, and is a time-consuming and labour intensive job with no quantitative design and manufacturing information preserved for future retrieval. In this paper, Rapid Prototyping an additive manufacturing method is proposed for the design of custom dental crown. It is applied to modify the morphology and design of the dental crown which are able to generate a 3D object layer by layer directly from a CAD file with the most powerful and versatile RP technique known as Stereo lithography (SLA), which is

opposite to that of conventional manufacturing processes. It has the highest fabrication accuracy and an increasing number of materials, which can be processed, are becoming available.

(b) Maxillofacial Prosthesis; Absence of all or part of the external ear may be either acquired or congenital. When attempting to restore this part with prosthesis, the prosthesis should ideally be customized to restore the anatomy as closely as possible. In so doing, it may be helpful to have a priori knowledge of average values for each index and use these values to help construct prosthesis of the appropriate size and shape. However, individual proportion indices vary from the average, so where the defect is unilateral it is more practical to compare and duplicate proportions from the no defect side.[5]This process can be difficult and time consuming and demands a high level of artistic skill to form a mirror image and achieve a good esthetic match. Similarly, patients with existing prostheses may need frequent replacements because of color changes, loss of fit, tearing, aging, contamination of the material and general wear. Conventional duplication procedures are often unreliable and inaccurate, as errors may occur at any one of many stages during production.[6]

The advent of CT and magnetic resonance imaging with three-dimensional representation of human anatomy has opened up new perspectives for design and production in the medical field computer manipulation of the data allows for mirroring or modifications to establish the exact dimensions needed, and a computer numeric controlled (CNC) milling machine can be used to manufacture a template for the final prosthesis. CNC milling, however, is limited by difficulties encountered when trying to replicate the complex anatomy of internal features.

The development of RP systems has led to the creation of customized three-dimensional anatomic models that exhibit a level of complexity unknown with CNC-based equipment, primarily because RP methodologies use an additive process of building an object in layers defined by a computer model that has been virtually sliced.[7]This allows for the production of complex shapes with internal detail and undercut areas. One such method is stereolithography, which produces three-dimensional objects by curing a liquid resin under a computer-guided laser. A newer system is the Thermojet Printer (3D Systems): Shenzhen Towell Model Technology Co., Ltd., Shenzhen, China, which operates as a network printer and uses wax as the building material. The advantage of such a system is the ability to cast directly from a wax model.

Applications in maxillofacial prosthodontics :

- Production of auricular and nasal prosthesis
- Obturators
- Duplication of existing maxillary/mandibular prosthesis especially crucial when an accurate fit to natural teeth or an osseointegrated implant is needed
- Manufacturing of surgical stents for patients with large tumors scheduled for excision
- Manufacturing of lead shields to protect healthy tissue during radiotherapy treatment

Fabrications of burn stents, where burned area can be scanned rather than subjecting delicate, sensitive burn tissue to impression-taking procedures.

(c) Implantology; Since the advent of osseointegration, the use of dental implant detrimental effect on the long-term predictability and success of the implant-supported prosthesis.[8] The use of computer-aided design/computer-aided manufacturing (CAD/CAM) technology has gained popularity in implant dentistry. The applications pertain to three-dimensional imaging, 3D software (Delcan India, Maharashtra) for treatment planning, fabrication of computer-generated surgical guides using additive RP, as well as fabrication of all-ceramic restorations using subtractive RP.6 RP technology allows for industrial fabrication of customized three-dimensional objects from computer-aided design (CAD) data.[9]

Orthodontics

Using state-of-the-art CAD/CAM technology, the two normally separate processes of bracket production and bracket positioning are fused into one unit. In this process, the demand for maximum individuality with simultaneously minimized space requirements is put consistently into practice.[10]Another innovative use of the CAD/CAM technology was to create an over crown able to open the bite through clinical crown lengthening of the mandibular second premolars. Some technology provides clear plastic orthodontic treatment devices. Every one to 2 weeks, the patient receives a new set of splint-like aligners that are intended to continue moving their teeth. This technology utilizes several stereolithography machines to fabricate models upon which plastic sheets are molded. Data sets are obtained by digitizing an impression taken of the patient's teeth. The resulting point sets are separated into individual tooth geometries, which are then positioned according to the orthodontist's treatment plan.

Oral Surgery

Anatomic medical models built with RP technologies represent a new approach for surgical planning and simulation. These techniques allow one to reproduce anatomical objects such as three-dimensional physical models of the skull or other structures, which give the surgeon a realistic impression of complex structures before surgical intervention. The shift from the visual to the visual-tactile representation of anatomical objects introduces a new kind of interaction called "touch to comprehend".[11]Clinical data indicate that computer-aided RP may be of value in minimizing the extra-oral time and possible injury to transplanted teeth during the process of auto transplantation.[12]

Conclusion

A brief description of stereo lithography technology is given and a proposed procedure of CAD/CAM technology applied to dental science is explained which provides an efficient and fast method to digitally design and manufacture biocompatible metal frameworks for complex dental prostheses. CAD/CAM technology has improved predictability of implant surgery with the use of CAD/CAM surgical guides and revolutionized the field of implant dentistry. It is clear that CAD/CAM technology and SLA production strategy guarantee an accurate fit between the framework and the prosthesis, needed to avoid mechanical or biological failures of the prosthetic system and have transformed all aspects of dentistry.

Reference

[1]S.Kumawat, A. Gawali, *"Application of Cad in Rapid Prototyping Technology",* in Journal of Engineering Research and Studies, Vol.2, Iss.4, Oct-Dec 2011, pp 3.

[2]Muhammad Enamul Hoque, *"Rapid Prototyping Technology Principles and Functional Requirements",* InTech Publishers, Sept 2011, pp 2.

[3]Terry Wohlers, *"New Developments and Trends in Product Design, Prototyping, Tooling, and Reverse Engineering",* Wohlers Associates, Inc, 2000, USA.

[4]Mole C, Gerard H, Mallet J, Chassagne J, Miller N, *"A new three dimensional treatment algorithm for complex surfaces: Applications"* in Surgery. J Oral Maxillofac Surg, vol 53, pp158-162, Feb 1995.

[5]Sykes LM, Parrott AM, Owen CP, Snaddon DR. Applications of rapid prototyping technology in maxillofacial prosthetics. Int J Prosthodont. 2004;17:454–9.

[6]Coward TJ, Watson RM, Wilkinson IC. Fabrication of a wax ear by rapid-process modeling using stereolithography. Int J Prosthodont. 1999;12:20–7.

[7]YAN X, GU P. A review of rapid prototyping technology and systems. comput Aided Des. 1996;24:307–18

[8]PETZOLD R, ZEILHOFER HF, KALENDER WA. Rapid protyping technology in medicine – basics and applications. Comput Med Imaging Graph. 1999;23:277–84

[9]CHAN DC, FRAZIER KB, TSE LA, Rosen DW. Application of rapid prototyping to operative dentistry curriculum. J Dent Educ. 2004;68:64–70

[10]WU G, ZHOU B, BI Y, ZHAO Y. Selective laser sintering technology for customized fabrication of facial prostheses. J Prosthet Dent. 2008;100:56–60

[11]XU F, WONG YS, LOH TH. Toward generic models for comparative evaluation and process selection in rapid prototyping and manufacturing. J Manuf Syst.2000;19:283–96.

[12]WINDER J, BIBB R. Medical rapid prototyping technologies: State of the art and current limitations for application in oral and maxillofacial surgery. J Oral Maxillofac Surg. 2005;63:1006–15

Letter No.V-34564,Reg.533/2007-2008 INDIAN JOURNAL OF RESEARCH(2015)**9,97-101**
ANVIKSHIKI ISSN 0973-9777 Advance Access publication 25 March 2015

PUBLIC HEALTH FACILITIES AND MEDICAL SERVICES IN CHANDAULI DISTRICT, UTTAR PRADESH

CHANDRA SHEKHAR* AND ANKANA**

Declaration

The Declaration of the authors for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: We, *Chandra Shekhar and Ankana* the authors of the research paper entitled PUBLIC HEALTH FACILITIES AND MEDICAL SERVICES IN CHANDAULI DISTRICT, UTTAR PRADESH declare that , We take the responsibility of the content and material of our paper as We ourself have written it and also have read the manuscript of our paper carefully. Also, We hereby give our consent to publish our paper in Anvikshiki journal , This research paper is our original work and no part of it or it's similar version is published or has been sent for publication anywhere else.We authorise the Editorial Board of the Journal to modify and edit the manuscript. We also give our consent to the Editor of Anvikshiki Journal to own the copyright of our research paper.

Abstract

Health is considered as the basic element and essential component in the development of any nation's and their economic growth. That's why, health is accepted widely as an active role in reducing the poverty. Being multidimensional in nature, health of a person is largely influenced by his surroundings, his physical, social and mental status. The present paper highlights public health facilities and medical services issues in the Chandauli district of Uttar Preadesh. It also examines the accessibility of local people to these facilities. To give a general picture of the blockwise status of these facilities and their comparative analysis, is another important aspect of this study.

Key Words: Medical Facilities, Public health, Hospital, dispensary

Introduction

According to WHO (1946), "health is defined as a state of complete physical, social and mental well being, and not merely the absence of disease or infirmity". Physical well being is concerned with the health functioning of the body, biological normality, physical fitness and capacity to perform tasks. Social well being includes interpersonal relationships as well as wider social issues such as marital satisfaction, employability and community involvement. Mental well being involved self-efficacy, subjective well being and social inclusion and is ability of a person to adapt to their environment and the society in which they function (Laverack, 2004). Medical care has been important in prolonging life and improving prognosis after the serious illness, but the common cause of ill health that affects

*M.D. Scholar, Faculty of Ayurveda [Institute of Medical Sciences] BHU, Varanasi (U.P.) India. e-Mail :chandu4ubhu@gmail.com
**Research Scholar, Faculty of Science, BHU, Varanasi (U.P.) India. e-mail: ankana.kumari@gmail.com

populations are social, political, economic and environmental. These determinants reflect the way we live and come and go far quicker than medical based factors. This is the main reason that life expectancy has improved over recent generations and why some countries have improved the health of their population while others have not. It is also why inequalities in health have increased-for example, the gap between the health of rich and poor social groups has widened (Wilkinson, 2003, c.f. Laverack, 2007).

The health of a person is multidimensional and is largely influenced by environment, facilities and available infrastructure, he receives. In India, too, many initiatives have been taken by the Central and State Governments for betterment of people's health. Many NGO's also work in this area to provide facilities of medical services. In this regards, NRHM (National Rural Health Mission), a submission of National Health Mission, initiative was taken by the Central Government in 2005 to decentralized health facilities and improvement at all the levels like, water, sanitation, education, nutrition, social and gender equality and also other related aspect to make people and the country more healthy.

The present paper aims to assess the public health infrastructure in the Chandauli district of Uttar Pradesh and to explore the better blocks and thrust block in terms of medical facility availability. In spite of having many initiatives, still some regions are distressed and not having proper facilities. This paper gives the general picture of medical facilities in different blocks of the district and their comparative analysis.

Geographical Personality

Chandauli district (25º 16' N to 25º 27' N and 83º 16' E to 83º 27' E) is one of the districts of Uttar Pradesh, constitute total nine blocks, namely, Chahniya, Dhanapur, Sakaldiha, Niyamtabad, Chandauli, Barhani, Chakiya, Shahabganj and Naugarh. The northern portion of the district lies in completely alluvial plain, whereas the southern portion or Naugarh block of this district completely lies in the Vindyan Plateau region. The northern alluvial plain generally consists of flat topography with regional slope. The plateau zone is deeply dissected by network of Karamnasa River and is marked by highly rugged terrain. The resultant topography comprises of a number isolated hillocks showing elevational differences from 150 m to 385 m above mean sea level.

Medical Health Facilities

The status of public health facilities to the local reach is given in the tables below for the last 10 years, i.e., from 2000-2010. Table 1 shows the allopathic hospitals and dispensaries in the district. It is clear that the governmental hospitals and dispensaries, which was 45 in the year 2000, has reduced to 37 in 2010. Privately unaided hospitals have increased to 51, which have no existence during the past years. In total, nearly 89.58% facilities in the total districthas increased. Table 2 shows the allopathic medical services, which reflects that the availability of doctors and bed has significantly increased in the last ten years. Table 3 indicates the ayurvedic, unani and homeopathic medical services in the district. The number of doctors in ayurvedic practices has decreased to 25 in the year 2010 which was 29 in 2000. The number of unani hospital and dispensaries remained same in the last ten years, but homeopathic hospitals, dispensaries as well as number of doctors has increased in the year 2010. Table 4 indicates the family and mother-child centres in chandauli district.

T A B L E 1 *Allopathic Hospitals and Dispensaries in Chandauli District*

S.N.	Item	1999-2000	2009-2010
1	Government/Public	45	37
2	Government Special (Tuberclosis, Leprosy, Serious diseases)	1	1
3	Local Bodies	1	0
4	Privately Aided	1	2
5	Privately Unaided	0	51
6	Economically Aided	0	0
	Total (Change: 89.58%)	48	91

Source: District Statistical Magazine (2000-2010), Chandauli

T A B L E 2 *Allopathic Medical Services*

S. N.	Item	1999-2000	2009-2010
1	No. of Hospitals/Dispensaries	16	8
2	No. of Public Health Centres	0 6	
3	No. of Primary Health Centres	32	30
4	No. of Total Beds Available	335	390
5	Total Workers		
	Doctors	95	109
	Para-Medical	600	146
	Others	124	421

Source: District Statistical Magazine (2000-2010), Chandauli

T A B L E 3 *Ayurvedic, Unani, Homeopathic Medical Services in Chandauli District*

S. N.	Item	1999-2000	2009-2010
1	Ayurvedic		
	Hospital & Dispensaries	30	31
	Doctors	29	25
2	Unani		
	Hospital & Dispensaries	1 1	
	Doctors	1 1	
3	Homeopathic		
	Hospital & Dispensaries	17	20
	Doctors	17	20

Source: District Statistical Magazine (2000-2010), Chandauli

T A B L E 4 *Family and Mother-Child Centres in Chandauli District*

S.N.	Item	1999-2000	2009-2010
1	Family and Mother-Child WelfareCentres	20	38
2	Family and Mother-Child Welfare Centre/ Subcentres	230	212

Source: District Statistical Magazine (2000-2010), Chandauli

Number Of Villages As Per Distance From Social Facilities

The table 5 shows the distance of inhabited villages from the medical health facilities.

From the table 5, it is clear that, within the village and a range of 1-3 Km, medical health facilities are available nearly <20%. Outer of the villages allopathic hospitals, dispensaries and PHC (Public Health Centres), ayurvedic hospitals and dispensaries, unani and homeopathic hospitals and dispensaries having good facilities, but it is out of local village people. They have to travel larger distances for their

treatment. In case of family welfare and mother child welfare centres and sub centres are comparatively in good status and within the range they are facilitated.

T A B L E 5 *Distance of Health Facilities of Inhabited Villages in Chandauli District (2010)*

Distance (in kms.)	Allopathic Hospital & PHC		Ayurvedic Hospital		Homeopathic Hospital		Unani Hospital		Family Welfare Centres and Subcentres		Mother Child Welfare Centres and Sub centres	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Within village	34	2.40	28	1.97	14	0.98	1	0.07	234	16.49	224	15.78
0-1	67	4.72	49	3.45	17	1.20	2	0.14	65	4.58	76	5.35
1-3	207	14.59	197	13.88	82	5.78	26	1.83	504	35.52	558	39.32
3-5	291	20.51	325	22.90	172	12.12	72	5.07	352	24.80	335	23.61
>5	820	57.79	820	57.70	1134	79.91	1318	92.89	264	18.60	206	14.52
Total	1419	100	1419	100	1419	100	1419	100	1419	100	1419	100

Source: District Statistical Magazine (2010), Chandauli

T A B L E 6 *Number and Distribution of Health Facilties in Chandauli District (2010)*

Block	Total Number of Hospitals						Total	% share
	A+PHC	Ay.	Unani	Hom.	FWC/Cs	MCWC/Cs		
Chahniya	0	3	0	1	4	26	34	11.37
Dhanapur	1	2	1	1	4	22	31	10.36
Sakaldiha	2	3	0	4	4	28	41	13.71
Niyamatabad	1	3	0	2	4	30	40	13.37
Chandauli	0	4	0	1	4	23	32	10.70
Barhani	0	5	0	0	4	31	40	13.37
Chakiya	1	3	0	3	4	25	36	12.04
Sahabganj	0	3	0	2	4	17	26	8.70
Naugarh	1	2	0	2	4	10	19	6.35
Total (Rural)	6	28	1	16	36	212	299	100

Source: District Statistical Magazine (2010), Chandauli

Note: A: Ayurvedic Hospitals,PHC:Public Health Centres, Hom.: Homeopathic, FWC/Cs: Family welfare Centres and Sub Centres, MCWC/Cs: Mother and Child Welfare Centres and Sub Centres

The Table 6, shows that in terms of health and medical facilities Sakaldiha, Niyamatabad and Barhani tahsils have comparative better status from the rest of the tahsil with more than 13% share in total. Chahniya , Dhanapur, Chandauli and Chakiya tahsil have comparatively moderate conditions of health infrastructure. Shahabganj and Naugarh reflects the very poor status of health facilities.

Conclusion

It can be concluded that, health and medical facilities in Chandauli district is not very appreciable in rural areas. Except Shahabganj and Naugarh block, almost rest of all the blocks of the district have some comparatively significant share of public health facilities. Less share for Shahabganj and Naugarh block may be due to hilly and rugged terrain. The physiography of an area largely affects the infrastructure development of any region. Hilly terrain creates an obstacle for infrastructure development like road, railway etc. It restricts the accessibility. Most of the blocks lies in the northern plain, so terrain conditions are here favorable to basic infrastructure development. There may be many other factors which influences the health infrastructure development like central and state government initiative programmes, fund, local people awareness, accessibility,s etc. Overall a region's development and prosperity depends on their healthy people.

References

LAVERACK, G. (2007), *Health Promotion Practice: Building Empowered Communities*, Open University Press, McGraw-Hill Education, England.

SPARK, A. (2007), Nutrition in Public Health: Principles, Policies and Practice, CRC Press, Taylor and Francis Group, US.

*http://updes.up.nic.in/*spatrika/engspatrika/sect_table.asp?formd=74+Chandauli&formy=9900

http://www.who.in/trade/glossary/story046/en

updes.up.nic.in/spatrika/spatrika

Note for Contributors

SUBMISSION OF PAPERS

Contributions should be sent by email to Dr. Maneesha Shukla Editor-in-Chief, Anvikshiki, The Indian Journal of Research (maneeshashukla76@rediffmail.com). www.anvikshikijournal.com

Papers are reviewed on the understanding that they are submitted solely to this Journal. If accepted, they may not be published elsewhere in full or in part without the Editor-in-Chief's permission. Please save your manuscript into the following separate files-***Title; Abstract; Manuscript; Appendix.*** To ensure anonymity in the review process, do not include the names of authors or institution in the abstract or body of the manuscript.

Title**:** This title should include the manuscript, full names of the authors, the name and address of the institution from which the work originates the telephone number, fax number and e-mail address of the corresponding author. It must also include an exact word count of the paper.

Abstract**:** This file should contain a short abstract of no more than 120 words.

MANUSCRIPT: This file should contain the main body of the manuscript. Paper should be between 5 to 10 pages in lenth,and should include only such reviews of the literature as are relevant to the argument. An exact word count must be given on the title page. Papers longer than 10 pages (including *abstracts, appendices and references*) will not be considered for publication. Undue length will lead to delay in publication. Authors are reminded that Journal readership is abroad and international and papers should be drafted with this in mind.

References should be listed alphabetically at the end of the paper, giving the name of journals in full. Authors must check that references that appear in the text also appear in the References and *vice versa.* Title of book and journals should be italicised.

Examples**:**

BLUMSTEIN,A.and COHEN,J.(1973),'A Theory of Punishment' *Journal of Criminal Law and Criminology,*64:198-207

GUPTA,RAJKUMAR(2009),*A Study of The Ethnic Minority in Trinidad in The Perspective of Trinidad Indian's Attempt to Preserve Indian Culture,* India: Maneesha Publication,

RICHARDSON,G(1985),Judicial Intervention in Prison Life', in M. Maguire ,J. Vagg and R. Morgan, eds., *Accountability and Prisons,*113-54.London:Tavistocs.

SINGH,ANITA.(2007),*My Ten Short Stories,*113-154.India:Maneesha Publication.

In the text,the name of the author and date of publication should be cited as in the Harvard system(e.g.Garland 1981: 41-2;Robertson and Taylor 1973;ii.357-9)If there are more than two authors, the first name followed by *et al.* is manadatory in the text,but the name should be spelt out in full in the References. Where authors cite them as XXXX+date of publication.

Diagrams and tables are expensive of space and should be used sparingly. All diagrams, figures and tables should be in black and white, numbered and should be referred to in the text.They should be placed at the end of the manuscript with there preferred location indication in the manuscript(e.g.Figure 1 here).

Appendix: Authors that employ mathematical modelling or complex statistics should place the mathematics in a technical appendix.

NOTE : Please submit your paper either by post or e-mail along with your photo, bio-data, e-mail Id and a self-addressed envelop with a revenue stamp worth Rs.51 affixed on it. One hard copy along with the CD should also be sent.A self-addressed envelop with revenue stamp affixed on it should also be sent for getting the acceptance letter. Contributors submitting their papers through e-mail, will be sent the acceptance letter through the same. Editorial Board's decision will be communicated within a week of the receipt of the paper. For more information, please contact on my mobile before submitting the paper. All decisions regarding members on Editorial board or Advisory board Membership will rest with the Editor. Every member must make 20 members for Anvikshiki in one year. For getting the copies of 'Reprints', kindly inform before the publication of the Journal. In this regard, the fees will be charged from the author.

" After submission, the manuscript is reviewed by two independent referees. If there is disagreement between the referees , the manuscript is sent to third referee for review. The final decision is taken by the Editor in chief".

Other MPASVO Journals
Saarc: International Journal of Research
(Six Monthly Journal)
www.anvikshikijournal.com

Asian Journal of Modern & Ayurvedic Medical Science
(Six Monthly Journal)
www.ajmams.com

IJRA
www.anvikshikijournal.com

ISSN 0973-9777
09739777
₹ 1500/-