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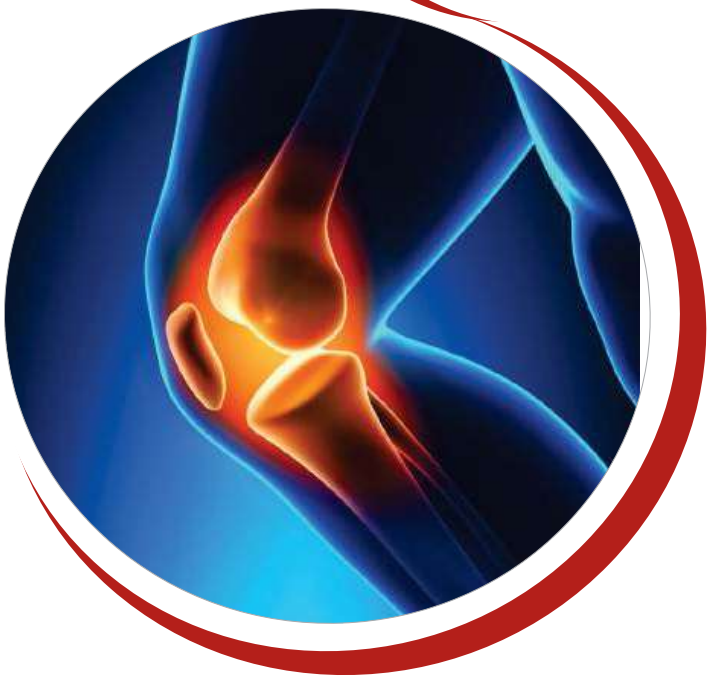

HIGHLIGHTS

GERIATRIC SOCIETY INDIA
CARING THE ELDERLY

PRINCIPLES & PRACTICE OF GERIATRIC MEDICINE

A TEXTBOOK OF GERIATRICS AND GERONTOLOGY

Comprehensive Care of Elderly in India

About the book

Principles and Practice of Geriatric Medicine is a compilation of carefully chosen topics pertaining to Clinical Geriatrics and Gerontology. The chapters have been written by authors with wide ranging experience in treating the Elderly, especially in India. This approach has been rendered necessary by the fact that the problems faced by the Indian elderly differ from their American or European contemporaries due to differences in race, nutrition, family set up, socioeconomic factors and climatic conditions. Since this book provides a comprehensive account of the care needed by the Indian elderly, it will be an asset for family physicians who treat elderly patients. Besides treatment part, preventive strategies relevant to our country have also been included. Geriatric Medicine is a multi-disciplinary branch of Medical Sciences that has been added to the academic curricula of Medical Colleges. This book will therefore prove a competent guide for Medical Students in general, and students of Geriatrics in particular, who will find everything they need to know within a single volume. The reader / treating doctor will be able to answer the queries of their patients in other fields related to them like financial, legal and constitutional matters. The inclusion of subjects like epidemiology and hospital setup will make it useful for planners as well.

Edited by
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Editorial

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Diabetes in Elderly: A test of Physicians Knowledge, Experience and Wisdom

India has nearly 100 million elderly at present and the number is expected to increase to 323 million, constituting 20 per cent of the total population, by 2050.[1] Increased life expectancy, control of infections, better facilities for survival has led to the number of persons above 60 years (elderly) being tripled in this period.[2] It is estimated that this will rise from 7.5% in 2010 to 11.1% in 2025.[3] More than two-thirds of them live in rural areas and almost half of them belong to lower socioeconomic stratum.[4] Almost 50% of them are dependents, women constitute the majority in this group (70%).[5]

There has been a rapid rise in non-communicable diseases (NCDs), particularly diabetes (T2DM), obesity and cardiovascular diseases in this population segment over the last few years.[6] Diabetes in the elderly is increasing at an alarming rate mainly due to decreased physical activity, changes in nutritional profile and alienation, marginalization, loneliness and other associated factors.[7,8] It is observed that with advancing age there are changes in body composition, reduction in lean body mass and this also affects the glucose disposal.[9] Further, reduction of lean tissue mass (metabolically active) and reduced physical activity levels of elderly predisposes them to become more obese. Loss of skeletal muscle strength, sarcopenia, also affects glucose metabolism adversely. These changes in body composition assume further significance in view of low muscle mass and high body fat phenotype of Asian Indians.[10]

The clinical features in elderly diabetics are also different from other age groups. The presenting symptoms may be non-specific like confusion, failure to thrive, incontinence, etc. Many a times diabetes is detected in elderly persons only when they are hospitalized with a complication related to diabetes, such as a myocardial infarction or a stroke. The treatment regimen includes several factors into consideration and has to be individualized. Hypoglycemia is of special concern in ensuring strict glycemic control.[11] Awareness of hypoglycemia may be impaired in them because of cognitive defects. In view of these factors, therapy should aim at fair control of hyperglycemia instead of tight control as done in younger patients. Excess usage of anti-hyperglycemic drugs, particularly sulphonyureas, need to be avoided.

Special care is warranted on socio-cultural and economic aspects in ensuring proper management of diabetes in the elderly. It has been observed in many surveys that retired elderly people are grappling with the problems of financial insecurity and loneliness.[12,13] The Central and State governments are making some efforts in this regard and have launched the National Policy on Older Persons, National Old Age Pension Program, Annapurna Program, etc. However, they have so far shown limited benefits because of various factors including meager budget, improper identification of beneficiaries, lengthy procedures, and irregular payment.[14]

Overall, prevention, management and rehabilitation of elderly patients with diabetes require astuteness, knowledge and experience of the physician. Attention should be paid to quality of life, and whole family needs counseling when treating such patients. Importantly, this issue of the Journal will deal with several of these aspects.

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ORIGINAL ARTICLE

Assessment of Balance in Elderly Individuals with Osteoarthritis of Knee Joint

CHETANA KUNDE[1], VISHWAJEET GIKWAD[2], SUVARNA GANVIR[3]

Abstract

Background: *OA knee condition is a leading cause of chronic disability in elderly individual and it is known to be a risk factor for fall injuries.*
Objectives: *The purpose of this study was to Assess balance control according to the severity of knee osteoarthritis (OA) using Berg Balance Scale in elderly individual with osteoarthritis.*
Methods: *60 elderly individual ranging from 60 – 75 years those who satisfy inclusion and exclusion criteria was selected randomly for the study. It is an observational study where severity of knee was assessed using Kellgren and Lawrence grading criteria and the balance control was assed using Berg Balance Scale.*
Result: *The patients with grade 3 (moderate) and grade 4 (severe) OA knee according to Kellgren and Lawrence grading criteria has poor balance which indicates moderate (33%) to high risk of fall (66%) on Berg Balance Scale.*
Conclusion: *It is concluded that moderate to severe OA patients had diminished balance control compared to mild OA patients.*

Keywords*: osteoarthritis, balance, risk of fall, elderly individuals.*

INTRODUCTION

Osteoarthritis (OA) is a degenerative joint disease that is caused by breakdown of articular cartilage.[1] It is also known as a group of overlapping distinct diseases that affect not only the articular cartilage but, also the subchondral bone, ligaments, tendons, and periarticular tissues including the muscles, capsule, synovial membrane around the joint.[2,3]

Radiographs are commonly used for classifying OA. Kellgren and Lawrence in 1957 developed classification for OA based on radiographic findings. The clinical presentation of OA is characterized by joint pain, tenderness, limitation of movements, crepitus, edema, altered proprioception, and decreased muscle strength.[4] As the disease progresses, pain, stiffness, reduced muscle strength, and limited range of motion impact on daily activities such as walking, getting in and out of the bath and doing simple household activities, leading to difficulty in performing functional activities To date, no cure for the disease exists. However, epidemiologic studies confirm that the onset and progression of the disease could be controlled through lifestyle modifications such as weight loss, increased physical activity and dietary changes.[5]

Patients with knee OA typically have impairment of proprioception within the joint or weakness in the quad-riceps muscles as compared with those without knee OA. Also, the number of mechanical sensory receptors around the

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ligaments of knee joints with OA has been reported to be reduced when inspected histologically and compared to similar age group.[6,7] These impairments associated with the disease may explain the poorer balances within these patients.[8-10] The knee is the most commonly injured weight bearing joint, and OA of the knee is known to be a risk factor for fall injuries. Clinical balance evaluation can be done by using tests such as the timed up and go test (TUG), 10 meter walking test (10 m WT), functional reach test (FRT)[8] and the Berg balance scale (BBS)[11,12] are all reported to have high intraclass correlation and reliability between test-retests.[8,10]Among them Berg balance scale is mostly used because it is a easily administered physical performance test. Berg balance scale has shown high reliability and validity when compared to other balance scale. Berg Balance Scale have three categories of sitting, standing, and Postural change were evaluated in 14 areas with each Area having a low score of 0 points and a high score of 4 Points, for a possible total of 56 points with a higher score implying better balance control.[13]

Studies have shown that osteoarthritis of knee joint negatively affects physical functioning and quality of life, and balance function is important indicator of physical function and risk of fall. Impairment associated with osteoarthritis of knee joint may explain poor balance which leads to decreased independence and increased fear of fall. There are many studies done on urban population and limited study provides information of balance affection in rural population.

Hence the purpose of study is to assess balance dysfunction in patients with osteoarthritis of knee joint in rural population of Ahmednagar district.

AIMS AND OJECTIVES

AIM—To study balance control according to the severity of knee osteoarthritis (OA) using Berg balance scale

Objective- Assessment of balance control according to the severity of knee osteoarthritis (OA) using Berg Balance Scale

METHODOLOGY

Elderly individuals (37 male and 23 females) with age ranging from 60-75 years were recruited for the study. Informed consent was taken from each individual after the approval of Institutional Review Boards. It is an observational study where subjects is assessed for risk of fall according to the severity of OA knee. All of them underwent radiological examination. The grades of osteoarthritis according to Kellgren and Lawrence grading criteria were used to understand the severity of OA knee. Their eligibility was based on following inclusion criteria: 1) Both male and female 2) Subjects willing to participate with age group 60-75 3)Both unilateral and bilateral Osteoarthritis of knee involvement and Exclusion criteria was 1)Any previous lower extremity surgery 2) Osteoarthritis of other joint in lower extremity 3) Subject who are not co-operative to procedure 4)Any neurological condition 5)Any systemic involvement, pathology within 2 months 6) Patient with significant spinal pathology 7) Patient with neoplasm.

PROCEDURE

P.D.V.V.P.F's college of Physiotherapy and DR.VIKHE PATIL MEMORIAL HOSPITAL, Ahmednagar participated in the study. The selected individual was explained about study. Subjects also answered several questions related to their condition in order to understand the importance of testing. All selected individual underwent radiological examination. An expert opinion was obtained from the radiologist regarding the grades of osteoarthritis according to Kellgren and Lawrence grading criteria and the subject was assessed for balance by using Berg Balance Scale. Radiological examination was done free of cost with the permission of medical director of the institute.

RESULT

Table 1: Shows age wise distribution of patients with OA knee. There were 69 % of patients with OA knee in between 60-65 years, 26 % within 66-70 years and 5% within 71-75 years. This age wise distribution shows that that there was maximum number of patients with OA in 60-65 age groups, moderately belong to 66-70 age group and minimum belong to 71-75.

Table 2: Shows sex wise distribution of patients with OA knee. Out of total number of patients with OA knee, there were 61 % male and 39 % female patients with OA knee. This shows that there was more number of male patients who were suffering from OA knee.

Table 3: Shows distribution of patients according to grades of OA knee. It shows that there were 42% patients with grade 1 OA knee, 33% patients with grade 2 OA knee, 18% patients with grade 3 OA knee and 7% patients with grade 4 OA knee according to Kellgren and Lawrence radiological finding.

Table 4: Shows distribution of grades of OA knee according to age. With in the age group 60-65 there was 53% patients with grade 1 OA knee, 36 % patient with grade 2 OA knee, 7% patient with grade 3 OA knee and 2% patient with grade 4 OA knee. Within the age group 66-70, 12% patient

with grade 1 OA knee, 37% patient were with grade 2 OA knee, 43% patient with grade 3 OA knee and 6% patient with grade 4 OA knee. Within the age group 71-75, 33% patient were with grade 3 OA knee and 66% with grade 4 OAknee.

Table5: shows distribution of Berg Balance Score according to age. Within the age group of 60-65, 87% patients had low risk of fall, 10% patients had medium risk of fall and 2% patients had high risk of fall. In age group of 66-70, 61% patients had low risk of fall, 38% patients had medium risk of fall, and there was no patient with high risk of fall. In age group of 71-75 there was no patient with low risk of fall, 33% patients had medium risk of fall and 66% patients had high risk of fall.

DISCUSSION

Falls bring negative results, such as disability, loss of mobility, poor quality of life, and emotional fear of falling again.[14,15] Postural instability is a risk factor for falls.[16,17] Patients with OA knee mostly report postural instability and balance impairment leads to greater disability.[18] Balance can be assessed in a number of different ways.[19,20] An accurate evaluation of balance control in OA knee patients is necessary before recommending treatment .BBS tests are widely used as clinical assessment tools of balance control. These method of assessment are easy to use by anyone and are reported to have high reliability between examiners and test-retests.[15]

Present study reveals that severity of the OA knee is more with the advancing age, as all the patients above 70 years have grade 4 OA knee, none of them have grade 1 or 2 finding. This finding is supported by many previous studies.

Table 1: Age wise distribution of patients with osteoarthritis of knee

Age (Years)	No. of patients	Percentage
60-65	41	69%
66-70	16	26%
71-75	3	5%
Total	60	100%

Table 2: Gender wise distribution of patients with osteoarthritis of knee

Sex	Male	Female	Total
No. of patients	37	23	60
Percentage	61%	39%	100%

Table 3: Distribution of patients according to grades of osteoarthritis of knee

Grade of O.A	Grade 1	Grade 2	Grade 3	Grade 4
No. of patients	25	20	11	4
Percentage	42%	33%	18%	7%

Table 4: Distribution of grades of osteoarthritis of knee according to age

Age group	60-65		66-70		71-75	
Pt. with grade 1	22	53%	2	12%	0	0%
Pt. with grade 2	15	36%	6	37%	0	0%
Pt. with grade 3	3	7%	7	43%	1	33%
Pt. with grade 4	1	2%	1	6%	2	66%

Table 5: Distribution of Berg Balance Scale score according to age

Age group	60-65		66-70		71-75	
Low risk of fall	34	87%	11	61%	0	0%
Medium risk of fall	4	10%	7	38%	1	33%
High risk of fall	1	2%	0	0%	2	66%

In contrast to this, one patient in our study from age group of 60-65 has severe OA knee grade and hence high risk of fall in Berg Balance Scale because this patient is laborer and hence started knee pain complaint very early after 40y ears, this is because of his occupation of prolong standing and walking an uneven surface and lifting and carrying heavy object an head might have stressed his knee joint more as compared to others of same age group in the study. This occupation related risk factor for fall is explained in previous study done by Kim HS, Yun DH, et al[21] and other possible cause would be poor nutritional status.

Other finding is that when balance was assessed in patients with OA knee of different grades of Kellgrene and Lawrence, it is seen that more severe the OA knee more is the balance affection. This finding of our study is in concordance with the finding of previous studies done by Kim *et al*.[19] They found more balance deficits in patients with moderate to severe knee OA than in those with mild diseases [20,21] Explanatory factor for this is that in patients with severe OA knee, there is more degenerative changes which lead to poor proprioceptive awareness and knee pain due to joint erosion which causes poor balance.

One of the important finding of our study is that patients with bilateral OA knee have more balance affection as compared to single leg OA knee. Although the grades of OA knee differ in both the knees, grade of maximum pathological changes is considered in the study and it is seen that balance impairment is more pronounced in moderate to severe OA knee.

But limitations of our study are: Small sample size, and there was unequal distribution of subject in different age group, there were only 3 patients with OA knee in age group 70-75, of which one has moderate grade of OA knee and other two have severe OA knee according to Kellgrens and

Lawrence grading system. That is one with moderate OA knee has moderate risk of fall and other two with severe OA knee has severe risk of fall on Berg balance score. Hence future study should take care of more equal distribution of subjects to make finding more accurate and clear.

CONCLUSION

It is concluded that moderate to severe OA patients had diminished balance control compared to mild OA patients.

Hence future fall injuries can be prevented if rehabilitation treatment and education as to the importance of preventing falls is enforced, based upon the results of balance tests.

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Assessment of Clinical Oral Diseases in Elderly (CODE) Index in Geriatric Patients with and without Systemic Diseases - A Clinical Study

GAURAV P.JAISWAL*

Abstracts

The mouth is often referred to as a mirror of one's health. The large increase in human life expectancy over the years has resulted in a very considerable major shift in the age groups of 80 and above. These findings give special emphasis to the field of geriatric dentistry or gerodontology. The purpose of this study is to know the effect of systemic diseases and socioeconomic factors on oral health of geriatric population and to know the effect of systemic diseases on percentage of tooth loss.

Keywords: *Gerodontology, teeth, diabetes mellitus, socioeconomic status, xerostomia.*

INTRODUCTION

The mouth is often referred to as a mirror of one's health, and it is substantiated that, oral health is an integral part of general health. The large increase in human life expectancy over the years has resulted not only in a very considerable increase in the number of older persons but in a major shift in the age groups of 80 and above. Indian demographic profile depicts that in the years 2000 to 2050, age group of 80 and above will grow fastest i.e 700 %. Oral health care in elderly is often neglected and is dependent on many factors such as systemic health, socioeconomic status and availability of dental health care.

These findings give special emphasis to the field of geriatric dentistry or gerodontology, which is a specialized multidisciplinary branch of general dentistry designed to provide dental services for elderly patients.

According to many researchers, especially in elderly population, poor oral health has been considered a risk factor for general health problems and vice versa. Oral diseases have a negative effect on quality of life. Impaired oral health and loss of teeth directly affects the diet, nutrition, sleep, psychological status, social interaction and restrict major oral functions.

Fig. 1. Loss of tooth translucency

Fig. 2. Abrasion, attrition and erosion

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Fig. 3. Loss of tooth support

Fig. 4. Root surface caries

Effect of ageing on oral tissues which causes functional loss

1. Loss of tooth translucency and surface details on teeth (Fig 1)
2. Abrasion, attrition and erosion of teeth (Fig 2)
3. Loss of tooth support (periodontium) which is often due to plaque and calculus deposits (Fig 3)
4. Root surface caries (Fig 4)
5. Temporomandibular joint changes

Geriatric patients are often affected by several systemic diseases which directly or indirectly can cause many oral diseases.

Effect of systemic diseases and drugs on oral tissue in elderly

1. Hypertention: Diuretics, beta blockers, ACE inhibitors[1]., calcium channel blockers can cause xerostomia, glossitis, altered taste sensation and gingival enlargement (nifidipine)[2]
2. Ischemic heart diseases: xerostomia (nitroglycerin and isosorbite dinitrate).[3]
3. Stroke and cerebrovascular accidents: Periodontitis and loss of teeth due to poor oral hygiene.[4]
4. Diabetes: Gingivitis, Periodontitis, loss of teeth and alveolar bone.[5]
5. Arthiritis: poor oral hygiene due to impaired dexterity Oral ulcerations (methotrexate), gingivitis, glossitis, stomatitis (gold sodium thiomalate)[2]
6. Osteoporosis: Bisphosphonate-related osteonecrosis of the jaw (BRONJ)[6]

Effect of these factors on oral health of elderly can be assessed by several oral health indicators. MacEntee and Wyatt[7] had described a Clinical oral disorder in elderly (CODE) index to clinically assess the functional and psychosocial impact of oral diseases on oral health of geriatric patients.

CODE index systematically measures 27 oral disorders covering five major areas:

1. Mandibular and occlusal dysfunction
2. Dentures
3. Mucosal health
4. Teeth
5. Periodontium

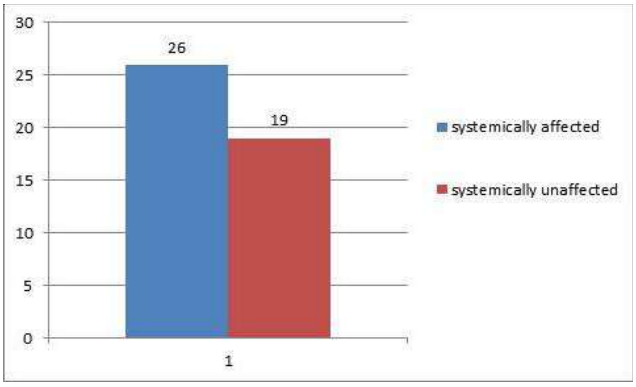
The purpose of this study is to examine the oral health status of a group of geriatric patients according to CODE index and to know the effect of systemic diseases and socioeconomic factors on their CODE score and to know the effect of systemic diseases on percentage of tooth loss.

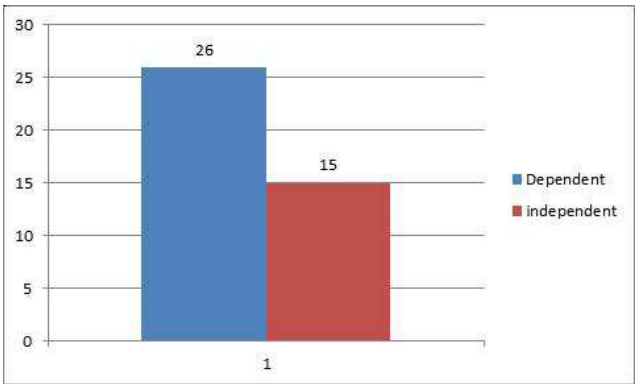
AIM

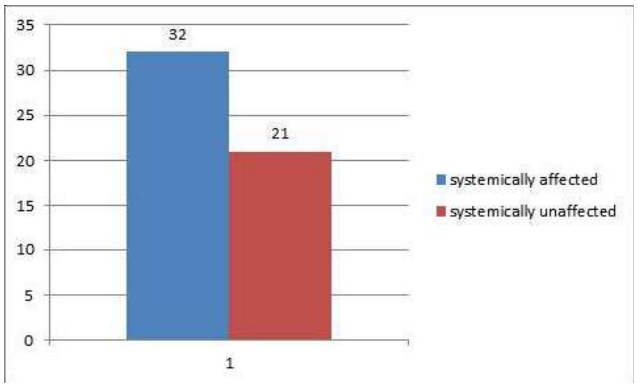
To comprehensively assess the clinical component of oral health in systemically unhealthy and healthy geriatric patients.

OBJECTIVES

1) To examine and diagnose oral conditions of systemically healthy and unhealthy geriatric patients according to







CODE index.

2) To compare the CODE index score of systemically healthy and unhealthy patients
3) To compare CODE index score according to the socioeconomic background
4) To compare the percentage of loss of teeth among systemically healthy and unhealthy patients.

Inclusion and exclusion criteria

Inclusion

1) All patients above 60 years of age approaching Dentistry OPD, IGGMC with oral complaints were included.

Exclusion

1) Patients not willing for detailed oral examinations and questionnaire.
2) Patients with acute symptoms and mental disorders were excluded.

Material and methods

Materials

1) Dental mirror and probe
2) Graduated periodontal probe
3) Portable light
4) Measurement scale
5) Divider

Methods

In this study 120 geriatric patients were selected irrespective of sex and were divided in two groups each consisting 60 number of systemically affected subjects and healthy subjects. For systemically affected patients thorough medical and drug history was taken including the duration of disease and medications. For assessing socioeconomic status, special emphasis was given on the patient's personal history regarding dependence or independence on kin.

A case history format was prepared including all five areas of CODE index and all 27 oral disorders were given their respective scores when present. Scores for missing, carious, fractured teeth, periodontal pocket and calculus deposits were given on per tooth basis. Patient's occlusal examination was done to measure posterior occlusal tooth contacts (POTC). For individual patients, numbers of missing teeth were measured to calculate the percentage of teeth lost (excluding third molars).

For the assessment of subjective feelings of xerostomia the participants were asked whether they suffered from mouth dryness on a regular basis.

RESULTS

In this study each patient of two groups were given their respective CODE score. Final CODE score for each subject was calculated by adding individual scores of five areas. The percentage of missing teeth was calculated by measuring the number of missing teeth and then converting the values in percentage considering 28 teeth (excluding third molars) in the masticatory apparatus. The patients were assigned in two groups of dependent and independent according to their socioeconomic status and the subjective complaint of Xerostomia were assigned as yes or no.

1) CODE score

Graph no1 shows the individual code scores of the subjects in both groups, as the values do not lie in normal distribution curve median value of both groups was calculated and compared by Mann-Whitneys non parametric test to get statistically significant difference in the values.

Median group 1 = 26

Median group 2 = 19

$P = 0.00$ i.e < 0.05 , statistically significant.

This result denotes that patients who are systemically affected show higher CODE score as compared to healthy patients.

2) Socioeconomic status

Out of 120 subjects, 85 subjects were dependent and 35 subjects were independent (Graph 2). CODE scores of subjects in these two groups were compared by calculating median value and using Mann- Whitneys nonparametric test to get statistically significant results.

Median group 1(dependent) = 26

Median group 2 (independent) = 15

$P = 0.0002$ i.e < 0.05, statistically significant.

This result denotes that dependent subjects show higher CODE score than independent subjects.

3) Percentage of teeth loss

For calculating the percentage of teeth lost all the patients got their individual values according to the number of teeth missing (Graph 3). These values were converted into percentage and the two groups were compared using Mann-Whitneys nonparametric test to get statistically significant results.

Median group 1 (systemically affected) = 32

Median group 2 (systemically unaffected) =21

P= 0.0001 i.e < 0.05, statistically significant

4) Xerostomia

Out of 60 systemically affected subjects, 42 subjects were under antihypertensive drug treatment, of which 31 subjects were taking antihypertensive drugs for more than 5 years. Out of these 31 subjects, 27 showed positive response for xerostomia. Among systemically healthy subjects, 16 showed positive responses for xerostomia.

Table : Xerostomia

Group	Antihypertensive drug treatment	Xerostomia
Systemically affected	42	27
Systemically unaffected	0	16

DISCUSSION

Geriatric medicine deals with the social, psychological and clinical aspects of diseases in older individuals. However, geriatric dentistry refers to dealing with oral diseases in old individuals including prevention and treatment. Ageing is characterized by decline in oral health such as limitation of oral cavity function due to oral disease, tissue damage, and pain leading to the avoidance of certain daily activities. Most oral changes experienced by the elderly are not the result of ageing process itself, but are the consequences of systemic diseases, pharmacotherapy, functional disabilities, and cognitive impairment.

In this study 120 geriatric patients with some oral complaints were selected out of which 60 subjects were selected on the basis of their medical history with diseases ranging from hypertension, diabetes mellitus, ischemic heart diseases, and stroke. The duration of diseases was noted and the latest blood investigations if available were also noted.

CODE index was selected for measuring oral health status as it is the only index available which reflects the oral disorders with psychosocial and functional perspective. It does overall assessment of oral cavity and adjoining structures along with, temporomandibular joint, jaw movements and prosthetic status of elderly.

The result of this study indicates poor oral health status (higher CODE index score) of patients affected with systemic diseases as compared to patients with no systemic diseases. This finding strongly supports the correlation of systemic diseases and poor oral health.

DIABETES MELLITUS

Maximum patients in this study were affected with diabetes mellitus with varied duration. According to recent epidemiologic evidence prevalence of DM in patients with periodontal diseases is two times than in people without periodontal diseases. In diabetics, advanced glycation endproducts alters the phenotype of macrophages which produce cytokines and metabolizes fibroblasts which ultimately results in periodontal bone loss and teeth loss. Also, there is evidence of reduced advanced glycation endproducts in patients with effective control of periodontal infection.[8]

HYPERTENSION AND ISCHEMIC HEART DISEASES

Hypertension affects approximately 1 in 3 Indian adults. In this study 85% of systemically affected subjects gave positive history of hypertension and IHD. Many patients with hypertension also had other cardiovascular and cerebrovascular problems. Hypertension and IHD causes oral implication indirectly through the medications used.[1-3] Many antihypertensive drugs such as diuretics, beta blockers, ACE inhibitors, calcium channel blockers can cause xerostomia, glossitis, altered taste sensation and gingival enlargement (nifidipine). Anti angina drugs like nitroglycerin and isosorbite dinitrate also cause reversible xerostomia. Xerostomia leads to oral dehydration, plaque accumulation and ultimately teeth loss. In this study 27 subjects taking antihypertensive treatment for more than 5 years subjectively agreed for the presence of xerostomia.

STROKE

Five patients had history of paralysis, with reduced manual dexterity and dependence on kin for day to day activities[4]. These patients had higher CODE scores manly due to poor oral hygiene and lack of maintenance. Special oral hygiene care and frequent reviews can improve oral health for these patients.

SOCIOECONOMIC STATUS

In this study subjects were divided in two groups according to their socioeconomic status, as dependent and

independent. Dependent are the subjects whose regular day to day activities depend upon kin financially. Also frail patients with reduced manual dexterity were included in this group. Due to financial constraints such individuals often neglect their oral hygiene care and treatment needs resulting into poor oral health. We found maximum dependent subjects and they showed significantly higher CODE score as compared to independent subjects.

THE PERCENTAGE OF TOOTH LOSS

Each and every tooth in the masticatory apparatus has their specific role. Teeth present posterior to canines are for mainly masticatory purpose. Posterior occlusal teeth contacts (POTC) depends upon the number of posterior occluding teeth present and it decides patients masticatory performance. Less than two POTC seriously hampers the masticatory performance causing swallowing of larger food particles and avoidance of hard textured fibrous food, which can result in the development of digestive disturbances particularly in elderly patients.[9] It is known that intake of various nutrients is affected by dental status and intake of carbohydrate, various vitamins, dietary fibre, calcium and iron is lower in patients who lack adequate posterior occlusal teeth contacts. In this study systemically affected patients had significantly higher number of missing teeth as compared to healthy counterparts. This can be correlated by the influence of systemic diseases and the medications. The number of missing teeth ranged from 1 to 23 with only 8 patients having prosthetic replacement that too of poor quality. As a consequence of teeth loss eight patients showed symptoms of pain and arthritic changes of TMJ due to overclosure of jaw. Geriatric patients should be educated about oral hygiene maintenance so that to preserve maximum number of teeth alongwith the consequences of teeth loss and the benefits of prosthetic replacement.

CONCLUSION

Within the limitations of this *in vivo* study, following conclusions are drawn with respect to comparison of the oral health status of patients affected by systemic diseases and healthy patients.

1) Oral health status of patients affected by systemic diseases is poor as compared to healthy patients due to the effect of systemic pathophysiology and medications used.
2) Patients with low socioeconomic background has poor oral health status as compared to high socioeconomic background due to negligence and dependence for oral health care.
3) Due to the effect of systemic diseases and medications systemically affected patients had higher percentage of teeth missing as compared to their healthy counterparts.

Orodental examination of all elderly patients should be carried out at regular intervals, together with any preventive, curative or prosthetic treatment, found necessary. Management of the oral problems in elderly patients does not depend on the development of new technical skills, but rather on the knowledge of biological, psychological and social aspects of age-related changes and disease-related changes; and the role of an interdisciplinary team.

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A Spectrum of Diabetes Care in the Elderly

J K SHARMA, SHRADHA MINOCHA

Abstracts

A diabetic elderly has special concerns as compared to the rest of diabetic population. The threshold for microvascular and macrovascular complications as well as side effects of therapy, both are low. In elderly population prediabetics and newly detected elderly diabetics with mild hyperglycemia can achieve good control following lifestyle changes and dietary restrictions. The decision to start oral hypoglycemics or insulin, depends on the degree of uncontrolled sugars, biochemical profile and the existing comorbidities of the patient. Cardiovascular risk reduction is an important consideration in management of elderly diabetics.

Keywords: *Elderly diabetic, oral hypoglycemic, insulin therapy, cardiovascular risk*

INTRODUCTION

Diabetes Mellitus in adults older than 65 years requires special considerations. The perspectives of diabetes management depend on pathophysiological variations in elderly like insulin resistance and insulin deficiency due to impaired pancreatic islet function, progressive renal insufficiency and microvascular.[1] Elderly diabetics are predisposed to specific complications like hypoglycaemia, postprandial hyperglycemia, cognitive dysfunction, diabetic ketoacidosis and hyperosmolar state. Diabetes in elderly has special needs in various dimensions.

EPIDEMIOLOGY AND PREVENTION

Prevalence of diabetes in elderly in India varies from 25-30%. Almost equal number of both sexes are affected.[2] It is important to consider whether treating prediabetes and asymptomatic diabetes in adults is of any benefit in the anticipated time frame versus life expectancy. The timeline of benefits is around eight years for glycemic control and 2-3 years for blood pressure and lipid control.[3] Clinical trials suggest prediabetes and diabetes can be prevented by lifestyle interventions efficiently and need not require metformin. [4]

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SCREENING ELDERLY DIABETIC

ADA recommends that elderly with risk factors as well as elderly more than 65 years be screened annually using fasting

Table 1: Diagnosis of diabetes in elderly[6]

FPG ≥126 mg/dL (7.0 mmol/L). Fasting is defined as no caloric intake for at least eight hours
Or
2-h PG ≥ 200 mg/dL (11.1 mmol/L) during an OGTT. The test should be performed as described by the WHO, using a glucose load containing the equivalent of 75 g anhydrous glucose dissolved in water.
Or
A1C ≥ 6.5% (48 mmol/mol). The test should be performed in a laboratory using a method that is NGSP certified and standardized to the DCCT assay.
Or
In a patient with classic symptoms of hyperglycemia or hyperglycemic crisis, a random plasma glucose ≥ 200 mg/dL (11.1 mmol/L).

Table 2: Treatment Goals for Glycemia, and Hypertension in Elderly[7]

Patient Characteristics	A1C Goal	FBS	PPBS	BP mm Hg	Lipids
Long life expectancy	< 7.5%	90-130	90-150	<140/90	statins
Intermediate life expectancy	< 8.0%	90 - 150	100 -180	<140/90	statins
Limited life expectancy	< 8.5%		100 - 200	<150/90	statins

blood glucose or HbA1C. It is a proven fact that early diabetes control leads to reduction in mortality and myocardial infarction, this is referred to as the "legacy effect".[5]

TREATMENT GOALS

Glycemic Targets

The treatment goals are set at a higher point; HbA1C is targeted < 7.5 %. FPG and PPG should range between 90-130 mg/dl and 90-150 mg/dl. HbA1C targets are relaxed in elderly with cardiovascular mortality. Polypharmacy increases the risk of CV mortality, so in these patients target is HbA1C < 8%, FPG and PPG ranges between 90-150 mg/dl and 100-180 mg/dl respectively. HbA1C target should be < 8.5% in very elderly to avoid hypoglycemia and related complications.

Initiating Treatment

Lifestyle modifications can be given a trial at least for 3 to 6 months. Diabetics with no comorbidities may be initiated with metformin in the absence of contraindications at the time of diagnosis.

Exercise

Moderate intensity aerobic activity 5 days a week has been shown to be effective. People with increased risk for falls should be referred to exercise physiologist. Muscle strengthening and balance training are of vital importance.

Medical Nutrition Therapy

Elderly diabetics are faced with altered smell, depression, motor incoordination leading to difficulty in cooking, dysphagia, dental issues and gastrointestinal dysmotility. As a result, they develop macro and micronutrient deficiencies. Food fortification, adding liquid nutrition supplements, small frequent meals and thick energy dense meals for those with decreased food intake can be few of the interventions.

ORAL HYPOGLYCAEMICS

Currently available agents are directed towards either improving the insulin sensitivity, promoting insulin secretion, delaying the delivery and absorption of carbohydrate or promoting urinary glucose excretion.

Biguanides

The prototype drug is metformin. Metformin decreases hepatic glucose production, decreases intestinal absorption of glucose, and improves insulin sensitivity by increasing peripheral glucose uptake and utilization. There is a low risk of hypoglycemia. An eGFR > 30ml/min has been suggested as the safe level to use metformin. If eGFR is 30-60 ml/min, half dose of metformin (no more than 1000 mg/d) has to be prescribed; full dose (2g/d) can be given in eGFR > 60 ml/min. Weight loss and gastrointestinal side effects may be a limiting factor in older adults taking metformin. The patient can be initiated on 500mg and dose is gradually increased slowly to minimise gastrointestinal side effects.

Metformin has to be used cautiously in comorbid states like myocardial infarction, stroke, cardiac failure, pneumonia and renal impairment. Lactic acidosis is a major factor associated with mortality. Caution has to be exercised in an elderly undergoing procedure requiring iodinated contrast material. Quarterly assessment of renal function test and eGFR is essential.

Sulphonylureas

In the case of contraindication to metformin, short-acting sulphonylureas like glipizide or glinides like repaglinide, DPP4 inhibitors, SGLT2 inhibitors and insulin may be considered. Sulphonylureas are preferred due to their glucose-lowering efficacy, local availability, and low cost. There is a risk of fatal prolonged severe hypoglycemia and weight gain more commonly with long-acting sulphonylureas like glyburide, glimepiride especially in the elderly. Short-acting sulphonylureas like 2.5 mg glipizide may be taken 30 minutes before breakfast.

Drug-induced hypoglycemia is most likely to occur in older adults after fasting long hours, exercising, alcohol abuse, gastroenteritis, impaired renal and cardiac status. It is frequently found in diabetics co-administered with salicylates, sulphonamides, fibric acid derivatives (gemfibrozil) and warfarin.[8,9]

Meglitinides

Repaglinide and nateglinide are short-acting glucose lowering drugs similar to sulphonylureas in action. They have a role in diabetics allergic to sulphonylureas as well as metformin. The risk of hypoglycemia is lesser as compared to sulphonylureas, even though the risk of weight gain is similar.

Dose adjustments with repaglinide do not appear to be necessary for patients with renal insufficiency. The liver principally metabolises it, and less than 10% is renally excreted. Repaglinide can be given as initial therapy in a patient with a chronic kidney disease who is intolerant to metformin and sulphonylureas.[6,10]

DPP4 Inhibitors

These are weight neutral and have a low risk of hypoglycemia. They can be given as monotherapy safely in elderly diabetics. They lower the HbA1c levels by 0.6% - 0.8%. As a result, they have a limited role in persistent hyperglycemia. Long-term safety has not been established yet, they are expensive and require renal adjustments except linagliptin.

SGLT2 Inhibitors

Limited long-term experience despite initial safety and efficacy. Its use is better avoided in volume depletion, impaired renal function and low systolic blood pressure. It has been shown to have numerous pleiotropic effects like reduction in albuminuria, increase in HDL cholesterol, weight reduction and reduction of systolic blood pressure. They should not be used above 75 years of age.

Acarbose

It inhibits pancreatic alpha-amylase and intestinal alpha-glucoside hydrolase delaying the breakdown of complex carbohydrates. It can be used to control the postprandial glucose. Abdominal pain, diarrhoea, and flatulence may restrict its use.

Thiazolidinediones

It improves the insulin sensitivity by acting on muscle, adipose tissue, and liver tissue by binding to peroxisome proliferator-activated receptor alpha and gamma which regulates gene expression and improves insulin sensitivity. The physician has to be alert for side effects like fluid retention, weight gain, heart failure, macular edema and osteoporotic fracture.

GLP 1 Analogues

It binds to the specific glucagon linked polypeptide receptor in the pancreas, gastric mucosa, and various other sites. It is illustrative of the incretin effect, in which oral glucose has a greater stimulatory effect on insulin secretion than intravenous glucose. It also inhibits gastric emptying. It promotes weight loss and has a lesser risk of hypoglycaemia.

Insulin

Insulin may be considered as first line in all type 2 diabetics with persistent hyperglycemia (HbA1c > 9%, FPG > 250 mg/dl, RPG > 300mg/dl or ketonuria).[9]

Intensive glucose control in long-duration diabetes has been found to be associated with frequent hypoglycaemia and higher mortality.[11] ACCORD trial did not demonstrate a reduction in primary endpoints like myocardial infarction, stroke and cardiovascular death with intensive glucose control. However, certain studies have demonstrated a reduction in the incidence nephropathy.[12]

Persistent Hyperglycemia

Single or dual Agent Failure

One can add second oral agent or injectable agent including insulin. The second oral agent may be repaglinide, DPP4 inhibitor, GLP1 receptor agonist or SGLT2 inhibitors. Insulin therapy can be initiated in the form of basal insulin when HbA1c > 9%.

If the A1c is above glycemic targets but <8.5%, short-acting sulphonylureas, DPP4 inhibitors, GLP1 agonists, SGLT2 inhibitors and alpha-glucosidase inhibitors may be used.

Patients not meeting A1c goals on dual agents should be started on intensified insulin therapy. Metformin may be continued while sulphonylurea may be gradually tapered and stopped.

Another way is to add GLP1 receptor agonist to the ongoing dual therapy. GLP1 agonist may be tried before insulin, in the case of a diabetic patient having weight loss or when avoidance of hypoglycaemia is a primary consideration.

Three oral agents – metformin, sulphonylureas, and DPP4 inhibitors may be used when HbA1c values are near the goal (A1c < 8.5%). However, polypharmacy should be avoided.

Insulin Initiation

In elderly with suboptimal control, monotherapy with insulin is a reasonable alternative. It can be used instead of oral hypoglycemics. Intermediate or long acting Insulin (10 units or 0.2 U/kg) with weekly titration is required to reach target fasting blood sugar. Insulin metabolism is altered in chronic renal failure when GFR fall below 50 ml/min and dose de-escalation is required in such case.

Avoiding Hypoglycemia

Older adults are more vulnerable to hypoglycaemia. Neuroglycopenic manifestations range from dizziness, delirium, confusion to irritability. Adrenergic manifestations like tremors and sweating are also seen. It is important to rule out transient ischaemic attacks as a co-existing etiology.

Insulin secretagogues like sulphonylureas, meglitinides, and insulin, need to be avoided in frail elderly diabetics.

Interpreting HbA1c

Glycated haemoglobin can be falsely low or high in conditions like reduced RBC life span, chronic kidney diseases, recent transfusions, erythropoietin infusions, recent acute illnesses, hospitalisations and chronic liver diseases.

Monitoring Glycemic Control

Glycated haemoglobin needs measurement at least twice a year in older patients who meet treatment goals. It should be done quarterly in those with the recent change in therapy or frequent fluctuations.

Screening microvascular complications

Dilated eye screening should begin early and repeated every 2-3 years to prevent visual impairment. Cataract and glaucoma are often seen with more frequency in diabetes.[13] Foot care to prevent foot ulcers can prevent amputations significantly. Hearing impairment is also common to high as well as low-frequency sounds. Vascular diseases and neuropathy are implicated in pathology. Screening diabetic nephropathy includes screening for increased urinary albumin excretion. Detailed neurological assessment and examination for peripheral limb ischemia are desirable annually.

Cardiovascular Risk Reduction

Macrovascular complications like coronary artery disease are a leading cause of mortality in diabetics. Elderly diabetics derive greater reduction in morbidity and mortality from lipid lowering with statins, smoking cessation, dyslipidemia correction, physical exercise and aspirin therapy. Lipid-lowering therapy provides 15% reduction in cardiovascular risk reduction than tight glycemic control.[14]

Based on the results of ACCORD trial, it is recommended to add statin therapy in diabetics at risk for cardiovascular diseases in older adults. However, there is no benefit of adding fenofibrate to a statin in this group. [15]

Fasting hypertriglyceridemia (>500 mg/dl) should be evaluated for secondary causes. Some patients require medical therapy to reduce chances of pancreatitis.

Aspirin Therapy

Meta-analysis of secondary prevention trials recommends aspirin therapy in a dose of 75-183 mg for individuals with a 10% or greater risk of coronary heart disease. There is an absolute benefit for those over the age of 65 years with diabetes or diastolic hypertension. The benefits of aspirin therapy have not been thoroughly demonstrated in elderly diabetics and need to be balanced against the risk of adverse events like bleeding. The incidence of gastrointestinal bleed is particularly higher for older adults (1-10 per thousand) than for middle-aged adults (3 per thousand).[16]

Hypertension Management

There is evidence that lowering blood pressure from 170 mm Hg to 150 mm Hg reduces the risk of cardiovascular mortality significantly. The ACCORD-BP trial showed no benefit in major cardiovascular events with systolic blood pressure targets of less than 120 mm Hg as compared to less than 140 mm Hg. However, there was a significant reduction in secondary outcome of stroke.[17] Low diastolic blood pressure may be a risk factor for mortality in adults. Diastolic blood pressure between 70-79 mm Hg or > 80 mm Hg show equally low mortality benefits.[18]

Cognitive Dysfunction

Alzheimer's type multi-infarct dementia occurs twice more commonly in diabetics.[19] The presentation varies from subtle executive dysfunction to overt dementia and memory loss. It is also associated with frequent hypoglycaemia.

Functional Impairment

Gait and balance problems, sarcopenia, muscle atrophy, osteoporosis increase the risk of falls and fracture. Hip and proximal humerus fractures are more common in women.

Depression

It leads to deterioration of mood, inability to self-care, and foot negligence. Diabetes associated with obesity, sleep apnea, somnolence and anxiety contributes to depression.

Urinary Incontinence

It can be due to urinary tract infection, vaginal infection, autonomic neuropathy and persistent hyperglycemia.

SUMMARY

- Avoid use of glyburide due to its high risk of hypoglycaemia
- A1c target 7.5% for older diabetics with type 2 diabetes without major complications
- A1c target 8.5% for frail elderly diabetics with multisystem involvement
- Insulin can be used as first-line agent in patients with A1c > 9% at first-time presentation
- Calculate cardiovascular risk reduction in all diabetics
- Cardiovascular risk reduction should be focussed at correcting medical nutrition therapy, dyslipidemia, controlling hypertension, hypertension management, and smoking cessation, exercise and aspirin therapy

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REVIEW ARTICLE

A Simple (Saral) Meditation-to Live Longer, Healthier and Quality Life

*H.L. DHAR

Abstract

In recent years it has been demonstrated that Saral meditation is practiced by millions and that it is the key to all round success and quality life. Just by spending 20 minutes you can save hours in terms of finishing work perfectly in shorter time and students can perform better, devoting less time in reading. Practice of Saral meditation makes you more intelligent and increases your creativity, presence of mind and inner quality. It reduces incidence of disease and even if you fall ill, causes speedy recovery and prevents relapse. Regular practice reverses ageing process and three year's practice makes you younger by 6 years and also look younger. It improves memory in general and reduces loss of memory in elderly. It reduces sleeplessness in elderly and converts loneliness to solitude. It controls Blood pressure, Blood sugar and pulmonary function and keeps the heart and lungs in check.

One year practice corrects mild and moderate degree Blood pressure and Blood sugar and reduces drug intake by 50% in severe cases particularly in bronchial asthma . Regular practice for a year increases alpha wave in the brain, increasing intelligence and creativity and balances activity of right and left brain maintaining peace and harmony.

Saral meditation is based on scientific evidence. Each and every effect has been scientifically evaluated and published in recognised and reputed journals.

Basic concept- it improves the prakritis(human qualities) inherent in all human being.

It is simple to perform and universally accepted as it does not require mantra and other formalities and do not interfere with religious belief. It is being practiced throughout Bangladesh and to a limited extent in Iran. Presently, it has gone world wide through Face book as meditation for millions.

However, Saral meditation does not substitute physical exercise and walking, as 30-40 minutes walking is complimentary.

INTRODUCTION

The word meditation came from Latin word 'Meridi'(heal) practiced in ancient Greece since 3500 B.C. followed by India 2700 B.C. and mentioned in the book of wisdom, the Veda 4000 years ago.[1] Ancient sages used to remain in meditative posture for long and some of them were wiser and many lived longer. But scientific evidence is quite recent. First comprehensive evidence came from Transcedentat meditation (TM), initially showing increase in intelligence and performance followed by reversal of ageing process which made it popular through out America.[2] It requires Mantra given by a Guru and Puja and other formalities including fees and has to be practiced twice for 20 minutes.

Saral meditation is based on TM but withour Mantra and other formalities, it is to be practiced once for 20 minutes preferably in the early morning.

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Actually the author learnt TM from Maharshi Mahesh Yogi and wanted permission to impart TM to his students to increase intelligence and performance but was told it requires 3 month's training to give Mantra. He could not afford staying for 3 months after 6 week's program of delivering lectures on 'Vedic approach to health' world wide for which he went on deputation while working as Director Medical Research Centre, Bombay Hospital. After coming back he did extensive studies on Meditation, interacted with number of authorities both in India and abroad including personal interactions and participating in their discourses and simplified TM without Mantra and other formalities but incorporating a new concept (to remain conscious of breathing when mind is free) which has been confirmed to reduce the practice once[3,4] and having wide ranging benefit over and above TM.[5] Each and every effect claimed is based on scientific evidence, published in recognised and reputed journals.

BASIC CONCEPT

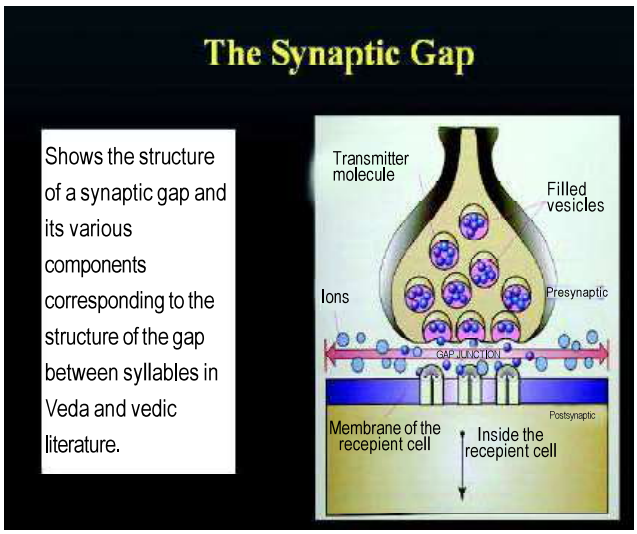
Saral meditation is based on Vedic concept. Veda is universal knowledge, written 4000 years ago when there were no religion not even Nations. Basic concept's it works at molecular level. According to Maharshi Mahesh Yogi Veda is Human physiology.[6] Smallest unit of the body is a cell. Impulses pass from cell to cell through a gap called synaptic gap which contain various hormones (Fig 1). If any hormone is deficient, impulse passing through will be defective and ultimately manifest as disease. Similarly the smallest unit of Veda (book) is a letter and the silent gap between two letters represent the synaptic gap which contain prakrities (Fig. 2).

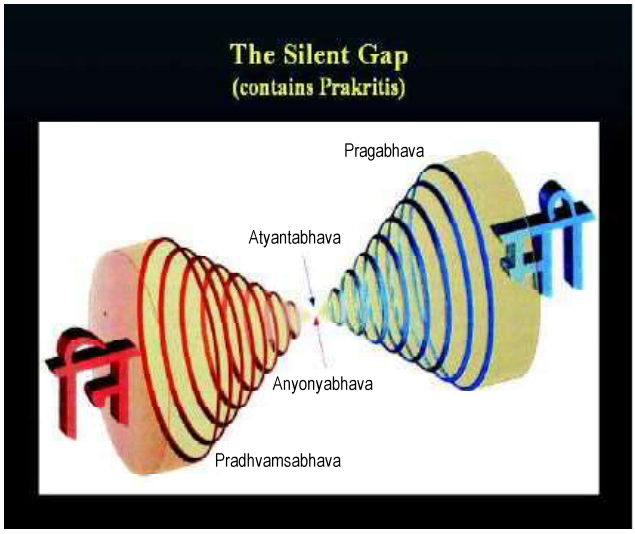
There are 8 prakrities representing the hormones. One sound collapses into the silent gap and another sound emerges, quality of which will depend on prakrities. Saral meditation works at this level improving the prakrities.

SCIENTIFIC BACKGROUND

Initially it was reported that practice of Saral meditation over a year significantly increases intelligence and academic performance but moderately increases cardiopulmonary function in normal volunteers (students).[7] This was followed by comparison of long and short term practice including stress and reaction time (mental alertness) showing that more than one year practice significantly reduce stress and reaction time in addition to improved intelligence and performance but short term practice for two months significantly increased mental alertness and reduced stress.[8] Based on these results extensive studies were conducted including parameters over and above TM involving the author's PhD students including their thesis work over the years showing wide ranging effects that have been reviewed very recently as meditation for millions.[9]

Regular practice in addition to increase in intelligence, performance[7,8] and mental alertness and reduction of stress, increases confidence and personality[8,10] and improves behaviour, relationship and memory[11,13] and reduces sleeplessness and loneliness in the elderly.[13-15] It has been demonstrated to reduce significantly disease and ageing process[16,17] One of the outstanding finding was regular practice of Saral meditation for 3 years makes you younger by 6 years and also look young.[11,12,15,16] It brings out inner quality and beauty making you look better and fresher and younger and smarter with increased alertness.[2,10] It controls Blood pressure and Blood sugar and keeps the heart in check.[18,19] One year practice significantly reduces Blood





pressure in hypertensive, blood sugar in diabetics and bronchomotor tone in asthmatics.[20,21] Another land mark study first time anywhere was , one year practice of Saral meditation in the same individuals has been demonstrated in marked increase in Alpha wave in the brain.[22] It has also been shown that it causes coordination between right and left brain thereby increasing intelligence, creativity and mental alertness[4,16,23] and that 10 Alpha is the cross section of human intelligence.[24]

Meditation is the true anti-ageing medicine[4] because it activates our body's own healing process.[16,23] Endrocrines secreated during meditation[25] also reverses the ageing process.[4,16] One of the important effect of Saral meditation is increasing memory.[27] Recently it has been reported to reverse memory loss[28] which could be due to endorphine by keeping brain cells intact and healthy.[29] Saral meditation improves behavior[29,31] reduces sleeplessness [3,14] and converts loneliness to solitude,[14,29] by coordinating and balancing the activity of right and left brain.[3,16,32]

RATIONAL

Saral meditation is an effortless mental exercise for general well being with all round improvement in quality life. It makes you more intelligent, creative, efficient with confident and presence of mind involving improved brain waves.[3,21,22]

It makes you healthy with less incidence of disease[16,] even if disease occurs recovery will be quicker and relapse will be rare.[33] It will increase your life span and you will look younger than your age.[16,20] Your behaviour will be more and more pleasant and relationship in the office and the family will improve.[9,13,26,34] Just sparing 20 minutes you can save hours by finishing your works perfectly in less time and students can perform better devoting less time in reading. If you are in the army or any other defence establishment, your strength and capability will increase with presence of mind in extreme situations.[19]

Inner quality will improve automatically without effort and super consciousness will prevail in the long run.[9,35] Normally, there are two level of consciousness, either you are conscious or unconscious (sleep). But there is another level of consciousness called super-consciousness attained through meditation, making you more conscious while awake with full of wisdom distinctly superior from others.[23,35] Recently it has been reported that during deep meditation our brain switch from alpha (resting) to (theta) relaxing brain wave[22,] resulting in super consciousness.[3,35]

Saral meditation is like a daily bath for refreshing your mind and body with alertness about one's consciousness to do what is right which comes automatically and instantly without efforts. It is like gaining spirituality without conscious efforts to be spiritual.[5,9]

METHODS

There are many methods of meditation of which prominent ones are as follows.

Yoga: Sage Patanjali described 8 steps of Integrated yoga of which meditation is an important step to achieve the goal of Super-consciousness.[35]

Vipassana: First comprehensive meditation by Buddha 2500 years ago in which a person sits in a comfortable posture with eyes closed and directs attention to the tip of nose to observe breath continuously. By this simple procedure one learns to practice concentration of mind and one can use this method for meditation to attain peace of mind.[36]

Transcendental meditation: Maharshi Mahesh Yogi described a simple method popularly known as TM. Here again the person assumes a comfortable sitting position with eyes closed and turns his attention inward to control his internal environment.[2,37] Then he repeats certain sacred words called 'Mantra' for 20 minutes twice a day.

Limitless meditation: Still recently Lama Gangchen has described five limitless meditation – immeasurable love, compassion, joy, equanimity and peace of mind for achieving world peace.[38]

Meditation for beginners: Described by Benson[39] which consists of quiet environment, passive attitudes, comfortable position (sitting or even lying short of sleep) uttering mantra for 20 minutes with eyes closed.

Saral meditation: Based on TM without mantra superimposed with consciousness of breath even when not doing meditation, when mind is free but without interfering with work (work is meditation) and other activities.

It begins with sitting in a comfortable position with eyes closed in quiet surrounding, clean clothes, no shoes (except while travelling), phone off the hook. Completely relaxed with mind fixed in between eye brows. Awareness of breathing, both inspiration and expiration. Mind may go here and there, do not try to force it back (mind is creative) but witness it when it comes back (effortless). Gradually respiration will be deeper, slower, shallow and calm. A stage will come (initially may be momentary), you are not aware of breathing as if breathing has stopped but conscious within, the state of absolute silence, tranquillity. When this state comes your body and mind will be guided by the Law of Nature, only right impulses will be allowed to pass through your body and mind to take right decision and block abnormal impulses injurious to health.[40]

CONCLUSION

According to Charaka Samhita (4: 7-8) from promotive treatment, one attains longevity, memory, intelligence, freedom from disorders, youthful age, excellence of lustures, complexion and voice, optimum strength of physique and sense organs successful words, respectability and brilliance.

Rasayana (Promotive treatment) means the way to attaining excellent life. Regular practice of Saral meditation fulfils all these criteria as promotive, plus it is preventive and to certain extent curative of mild to moderate blood pressure, blood sugar, Memory loss, Coronary artery blocks and lately Tremors of Parkinsonism and palliative to Cancer.

India is a vast country, more than 70 % of it's population lives in villages, many of them in distant areas where medical facilities are difficult to reach and simple practice of Saral meditation and Meditation therapy (beyond the scope of this article) could be handy and cost effective tool to reduce the health burden.

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Neutropenia triggered by Vancomycin – A Case Report

*N.S. NEKI, **JASBIR KUMAR, *** PASHORA SINGH

Vancomycin is a glycopeptide antibiotic used for the management of methicillin resistant strain of coagulase positive and coagulase negative staphylococcus infection, gram positive penicillin resistant infections and as alternative treatment for penicillin allergic patients. We report a case of 60 year male presenting with recurrent fever and the blood cultures persistently showing growth of streptococcus viridans organisms. He was a known case of rheumatic heart disease with severe mitral regurgitation and mild mitral stenosis. He was allergic to penicillin and had undergone tooth extraction in the recent past. He was treated with vancomycin for 10 days but developed neutropenia. Vancomycin induced neutropenia is a rare adverse side effect. Hence the case report.

Keywords:*Vancomycin; Neutropenia*

INTRODUCTION

Vancomycin is a glycopeptide antibiotic used extensively since 1958.[1] It exhibits concentration independent bactericidal activity by inhibiting bacterial cell wall synthesis.[2] But it also exhibits minimal concentration dependent activity.[3] It is clearly indicated for the treatment of methicillin resistant strains of coagulase positive and coagulase negative and staphylococcus infections including bacteremia, endocarditis, osteomyelitis, pneumonia and cellulitis.[1] It is mainly indicated for bacterial endocarditis in penicillin allergic patients and those with gram positive penicillin resistant infections. Rarely it can cause adverse effects like anaphylaxis, nephrotoxicity, ototoxicity etc but occurrence of neutropenia is a very rare side effect.[1,2]

CASE REPORT

A 60 year old man non alcoholic, non smoker, presented with fever for the last 6 weeks which was recurrent intermittent, 39.2^0 C. He was given penicillins and cephalosporins by a local practitioner but developed angioedema of face, neck and tongue. There was no history of extramarital contact and illicit drug use. But he had undergone tooth extraction about 2 weeks before admission and did not require any prophylactic antibiotics. On examination, he was febrile (temp 39.2^0c) with no cyanosis, jaundice, lymphadenopathy. Pulse was 90/min regular, BP 130/80 mmHg, Respiratory rate 18/min. Past history revealed that he was a patient of rheumatic heart disease with mitral regurgitation (MR) and mild mitral stenosis (MS)without atrial fibrillation and infective endocarditis. Cardiovascular system examination revealed finding suggestive of MR and MS. X-ray chest revealed mitralised heart. 2D echocardiography revealed severe mitral regurgitation with ejection fraction 55% without vegetations or thrombus. Laboratory investigations included Hb 10.8 gm/dl, Total leucocyte count 10800/mm^3, Differential leucocyte count P 76, L 24, E 0, B 0. Peripheral smear, renal profile and renal functions tests, MP slide, Widal test were non contributory. ECG revealed left ventricular hypertrophy with P mitrale. Blood cultures on 2 occasions revealed streptococci viridans organisms. Urine cultures and stool cultures were negative. In view of history of allergy to cephalosporins and penicillins, patient was managed with vancomycin 20 mg/kg thrice daily for 10 days. A diagnosis of infective endocarditis was made on the basis of positive blood cultures and Echo

*Professor, **Associate Professor,***Assistant Professor, Dept. of Medicine, Govt. Medical College and Guru Nanak Dev Hospital, Amritsar.

findings. His repeat blood cultures after 2 weeks were negative and patient was discharged. But he again reported back after 7 days with complaints of recurrent fever 38^{0}C and macular rash on the face. Laboratory profile at this time revealed Hb 10 gm/dl, total cell count of 800/mm^3 with neutrophil count 25%. His blood, urine and stool cultures all were negative. Diagnosis of drug induced rash was thought of. Accordingly vancomycin was stopped and the rash disappeared. Neutropenia was thought to be triggered by vancomycin according to Naranjo probability scale.[6] Patient was started on granulocyte colony stimulating factor (GCSF) for 5 days with subsequent improvement of neutropenia and total cell count. Meropenam was also used I/V. He was discharged with total cell count of 4900/mm^3 with neutrophils 70%.

DISCUSSION

Vancomycin, a glycopeptide antibiotic is extensively used since 1958.It is an important antibiotic for the treatment of infections caused by gram-positive organisms especially in situations of resistance to alternative antibacterials or development of multiple drug allergies.[1-3] Neutropenia is commonly defined as an absolute neutrophil count(ANC) <1000 cells/mm,[3] severe neutropenia is defined as ANC<500 cells/mm^3 and leukopenia is defined as<3000 cells/mm.[4-6] Vancomycin triggered neutropenia is a potentially fatal but rare adverse effect. In a study by Pai MP *et al* involving use of vancomycin, it was found that 12% patients had vancomycin induced neutropenia while 3.5% patients showed neutrophil count below 500 /mm^3 .[7] With vancomycin, neutropenia develops within 7 days while majority of patients develop it after 20 days. There is no correlation with dosage or total cumulative dosing.[8] The cause of neutropenia is proposed to be IgG or IgM immune mediated hypersensitivity reaction[9] or bone marrow toxicity.[10] Current guidelines by Infectious Diseases Society of America and American society of Health System Pharmacosis (IDSA/ASHP) do not advocate regular monitoring of leucocyte count when the patient is taking vancomycin but weekly laboratory testing is needed.[11] Koo etal rechallenged 1 patient with a lower dose of vancomycin after the patient recovered from neutropenia and the patient had no recurrence. However the patient needed second course of treatment with vancomycin only for 5 days.[12] Given concerns that neutopenia could recur with longer courses of treatment, rechallenge with vancomycin alone would not be practicalin many cases. Only very few cases of vancomycin triggered neutropenia have been reported in the literature.[1,2,9] This is a rare case of neutropenia induced by vancomycin from this part of the country.

CONCLUSION

Vancomycin is extensively used antibiotic. But neutropenia triggered by its prolonged use is extremely rare adverse effect. GCSF therapy is helpful in such cases. There is no need of doing daily cell count with vancomycin usage. But patients must have periodic assessment of white blood cell and neutophil counts with consideration to discontinue vancomycin in case neutopenia develops.

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News from Haridwar

DR. M.S. GUDI

Dr. Gudi examined a record no of 4142 patients in geriatric OPD at Haridwar. He conducted 7 Health awareness camp, in which special attention was given to Nutrition for Elderly, Prevention of Elder Abuse, Dementia Presentation, Healthy Heart Environment, Elderly Care, Prevent Diabetes, First Aid & CPR. Dr. Gudi also gave presentation on Prevalence of Hypertension & Diabetes in Geriatric Clinic, Assessment of Quality of Life in Uttarakhand, Assessment of Intergenerational Perceptions & Prevalence of Dementia. He received First prize for his presentation in free papers on ''Assessment of QOL of Elderly'' in GSICON Agra 2015.

Dr. Gudi was honoured with DISTINGUISHED SERVICE AWARD in MTC GSICON 2016 at Vijayapura.

News from Shimoga- Karnataka

DR. C.G. KESHEVMURTHY

Talk by Dr. C. G. Keshavamurthy

Dr. C.G. Keshev Murthy in Shimoga, Karnataka delivered a talk on 'Abuse of elders', which was attended by 150 citizens. This was a great service to enlighten the senior citizen about their day to day problems on abuse by relations and care givers. Prof. Anand P Ambali of Vijayapura also spoke on this occasion.

News from Mumbai

Congratulations

Dr. H. L. Dhar was awarded excellence award in education under the category of **BEST PERSONALITIES OF INDIA** by Friendship Forum. Dr. H.L. Dhar received from Rotary club of Bombay, Mid city, a certificate of appreciation of his invaluable & devoted services.

News from Kolhapur

News From Vijayapura

DR. ANAND P AMBALI

Midterm Conference on Geriatric Medicine

26th & 27th March 2016 - Vijayapura

The Geriatric Clinic of Department of Medicine, BLDE University Shri B M Patil Medical College Hospital and Research Centre organised a mid-term conference on Geriatric Medicine in collaboration with Geriatric Society of India, New Delhi, supported by Influenza Foundation of India, on 26 and 27 March 2016 at Vijayapura.

The conference was inaugurated by Nadoja Dr. P. S. Shankar, as Chief Guest. Dr. M. B. Patil, President of BLDE University and Minister for water resources, Government of Karnataka, presided the function. Dr. M. S. Biradar welcome the gathering, Book titled Current Issues in Geriatrics, part 4 was published and released during inaugural programme. The Editors of the book are Dr P S Shankar and Dr M S Biradar. Conference special issue of Indian Journal of Geriatric Care was also released during the inaugural program. Announcement of Dr B M Patil National Award for the Best PG Thesis in Geriatric Medicine was done in collaboration with Geriatric Society of India. The

Book Release


Dr.Anand P. Ambali
Mid Term
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March 26
GREEN
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Shri B M Patil Medical College Hospital
and Research Centre, Vijayapura
Geriatric Clinic, Department of Medicine
&
Geriatric Society of India, New Delhi
March 27, 2016

award shall be presented during National /International conferences of GSI. Dr. Anand P. Ambali presented report of Geriatric Clinic, Dr. O. P. Sharma presented report of GSI.

There was a guest talk before the conference in Kannada language for senior citizen titled "Ten Rules for healthy ageing" by Dr. C. G. Keshavamurthy from Shivamoga. A total of 60 senior citizens attended the program. Dr. S. S. Yarnal, HOD of Community Medicine Al Ameen Medical College, Chaired the session.

During inauguration, Distinguished Services award was presented to Dr. R. R. Padaki, Dr. P. J. Badabade, Dr. M. S. Gudi & Dr. Prabha Adhikari.

Two workshops were organised on Comprehensive Geriatric Assessment by Dr. Pratibha Pereria and Approach to Movement disorders by Dr. V. G. Warad.

There were guest lectures on Osteoporosis in Elderly by Dr Sigedar P, Delirium in Elderly by Dr M R Prabha Adhikari, Hypo and Hyperglycemia in the long term care of elderly diabetics by Dr M V Jali, Pre Operative Check Up in Elderly by DrAnand P Ambali, Sarcopenia as a Geriatric Syndrome by Dr P S Shankar, Dementia scenario – then and now by Dr Radha Murthy, Geriatrics in Indian Scenario by Dr O P Sharma, Falls in Elderly by Dr Sanjay Bajaj, Wellness in evening of Life by Dr M S Sridhar, Morphology in diagnosis of blood disorders in elderly by Dr Karuna Rameshkumar, Newer Hopes for Alzheimer's

Audience

Disease by Dr Arvind Ghongane, Palliative Care in Elderly by Dr Lingegowda, Pneumonia in elderly by Dr P V Rao, Anti Ageing Research by Dr D K Hazra, Brown Bag Concept by Dr B S Patil, Nursing issues in Geriatric Care by Dr Asha Shetty, Pigmentary disorders in elderly by Dr Racchana Fadia, Foot problems in Elderly by Dr Moinuddin & Rural Geriatric Care –a St Johns model by Dr Preetesh Kiran.

The following recommendations emerged from the conference

- To make Geriatric Medicine teaching compulsory in all medical colleges. It should be at par of the systems like respiratory system or cardiovascular system taught to under graduate students.
- To make the general wards of Medicine, Surgery, OBG and Orthopaedics in medical college hospitals senior citizen friendly.
- To create awareness about vaccine preventable diseases among the clinicians and the senior citizens.
- To create awareness about geriatric medicine among the clinicians practicing in rural areas.
- The holistic care approach for the senior citizen should be started in all medical colleges.

Two Best paper awards was presented to the winners. Dr K D Sharma from JNMC, Belagavi and Dr Gowri Shankar, SNMC from Bagalkot were the winners

The conference ended with an emotional valedictory session in which Dr. O. P. Sharma praised Dr. Ambali & his entire team for a wonderful academic feast & homely hospitality.

ANNOUNCEMENT

GSICON 2016

13th International Conference on Geriatrics & Gerontology

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Categories	Up to 15th Oct 2016	Spot Registration
GSI Members	INR 3,000/-	INR 4,000/-
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Nurses	INR 2,000/-	INR 3,500/-
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1. **ABSTRACTS -** Abstracts of papers must be sent at Conference Secretariat before 15th October 2016.
2. **CONVOCATION -** 22nd Ceremony of Geriatric Society of India® On 11th December 2016
3. **ACCOMMODATION, TOURS & TRAVEL -** M/s Namms Tours and Travels on namms.travel@gmail.com

TOPICS TO BE COVERED

Ageing Process & Medications In The Elderly, Influenza in Elderly, Nanomedicine With Special Reference To Geriatrics, CAD in Elderly, Saral Meditation, DM in Elderly, Diabetes as Accelerated Ageing, Choice of Fats In The Diet, Antioxidants: Hope or Hype: Measuring Biomarkers for Impact Assessment, Tuberculosis, Immunosenescence, Weak link system ...relevance and importance, Start slow go slow...when and how, Preoperative assessment in elderly, Frailty ...to be revisited, Debate on hypertension, Geriatric emergencies, Preoperative assessment and assessing risk of surgeries, Dose adjustments of medication in elderly, Start slow go slow how and when...a panel discussion & Case discussions on dementia...reversible vs irreversible.

SECRETARIATE

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