IJGC

INDIAN JOURNAL OF GERIATRIC CARE

JAN-APR 2024, VOL. 13 NO 1

HIGHLIGHTS

IJGC Subscription Form

☐ Individual ☐ Indian Origin ☐ Institutional ☐ Foreign (Non-Indian)

Name _____

Address _____

_____

City: _____ Pin Code: _____ Country: _____

Phone: _____ E-mail: _____

Yearly Subscription Rates

Individual (Indian) in INR	Print	1000
Individual (Foreign) in USD	Print	40
Institutional (Indian) in INR (5 copies)	Print	3000
Institutional (Foreign) in USD (5 copies)	Print	185

Enclosed is the Cheque / DD no _____, in currency (INR / USD) _____, in favour of **"Geriatric Society of India"** payable at New Delhi only.

Indian Journal of Geriatric Care is published three times a year.
The journal is dispatched within India by surface mail and to other countries by sea mail.
The prices in USD are subjected to change based upon currency fluctuation without any prior notice.

Geriatric Society of India, K-49, Green Park, New Delhi - 110 016
Email : opsharma@geriatricindia.com, opsharma.gsi@gmail.com Visit us at : http://www.geriatricindia.com

IJGC Advertisement Tariff

Position	Four Colour	Complimentary Copies
Back Cover	60,000/-	25
Inside Front Cover	45,000/-	20
Inside Back Cover	45,000/-	20
Full Page	25,000/-	10
Half Page	20,000/-	05

Sponsorship for one issue - 100000/- (Complimentary copies 25)

Sponsorship for one year - 300000/- (Complimentary copies 25 each issue)

**All Prices indicated in INR.*

Technical Details

Advt. material should be in Corel Draw convert to curved file or EPS/Tiff Image, or High Quality PDF.

Full Page: Over all Journal size 8.5" x 11"

Full Page Advt Size: 8" x 10" (Bleed size 0.5")

Half Page : 8" x 5", 1/3rd Page : 8" x 3"

Payment to be made in advance in favour of:

"Geriatric Society of India" payable at New Delhi only.

EDITORIAL BOARD

IJGC
INDIAN JOURNAL OF GERIATRIC CARE

Subscription Information:
Indian Journal of Geriatric Care is published three times a year.

DELENG/2012/42798 Dt. 12 June 2012, Price Rs. 20 Per Copy

Annual subscription for Journal, all flyers and circulars Rs: 1000.00 (One Thousand Only) for India; for other countries US $ 40.The journal is dispatched within India by surface mail and to other countries by sea mail.

Business Correspondence:
Enquires concerning subscription, advertisement, etc, should by addressed to Dr.O.P.Sharma, Editor-in- Chief , IJGC, K-49 Green Park Main New Delhi 110016.
Tel: 9810627346. Email : opsharma.gsi@gmail.com

Edited, printed and published by:
Dr. O.P. Sharma, for The Geriatric Society of India, K-49 Green Park Main, New Delhi-110016.
The Editor disclaims any responsibility or liability for statements made and opinion expressed by authors or claims made by advertisers.

Advertorial Enquiry:
Dr. O.P. Sharma, Editor-in- Chief, IJGC, K-49 Green Park Main, New Delhi-110016. Tel: 9810627346. Email : opsharma.gsi@gmail.com

Printed at Modest Graphics (P) Ltd, C-53, DDA Sheds, Okhla Phase-I, New Delhi, India.

CONTENTS

IJGC
INDIAN JOURNAL OF GERIATRIC CARE

Guest Editorial

Original Articles

GSI News

Editorial

Prof. Dr. P. S. Shankar
Emeritus Professor of Medicine, Rajiv Gandhi University of Health Sciences, Bengaluru and KBN University, Kalaburagi

Increase The Number of Healthy People by Geroscience

Advancing age makes the individuals more susceptible to multiple disorders such as cardiovascular diseases, Diabetes mellitus, chronic obstructive pulmonary disease, idiopathic pulmonary fibrosis, chronic kidney disease, paralysis, dementia, cancer, decreased vision and hearing, arthritis, osteoporosis, sarcopaenia, frailty, functional decline, decreased resilience and immunosenescence. These ailments rob the quality of life of the individual. Though ageing in itself is not a disease, the ageing process forms a major risk factor for many chronic diseases and disabilities in aged. It is visualized that any intervention that reduces the rate of ageing process may help in delaying the onset of multiple co-morbidities .[1]

Geroscience is the study of biologic process of ageing and the pathophysiology of age-related chronic diseases and disabilities that have an underlying genetic, molecular, and cellular mechanisms.[2] It enables to understand the process of ageing and utilize the knowledge to slow the appearance and progression of chronic ailments in the aged. It is visualized that with greater understanding it may be possible to intervene to delay the appearance of chronic ailments and to delay the ageing processes.

In advancing years, it is a common observation that they rarely suffer from a single disease, but from many diseases. Ageing makes them more susceptible to diseases. Geroscience has visualized that any reduction in the rate of ageing process may delay the onset of multiple diseases.

Geroscience is trying to find out the relationships between the biological process of ageing and the biological process of age-related chronic diseases and disabilities. It is visualized that it will prove that the biological processes of ageing are playing the role of important risk factor for the development of age-related chronic diseases and disabilities.[3] We should remember that ageing is a phenomenon that occurs in every individual and the disease is noted only in some individuals. Many factors play a role in the development of chronic diseases of ageing.

In this background, geroscience tries to reverse this phenomenon and make every attempt to prevent, cure or delay the chronic ailments. Ageing makes an individual susceptible to diseases exhibiting a decreased ability to withstand the stress caused by such diseases. It is the wish of everyone not to extend their life span unless it is associated with improved health span. Thus these two phenomenons must occur simultaneously. Geroscience is making novel approach to determine the relationships between the biologic processes of ageing and the biologic processes of age-related chronic diseases and associated disabilities. This has shown that ageing is the major risk factor for the development of age-related chronic diseases and disabilities.

Daniel Belsky, working as an epidemiologist at Columbia University, New York coined the term 'geroscience' to the conditions related to age. Life expectancy has increased all over the globe. Paradoxically it is not associated with a corresponding increase in human health span. This has facilitated the emergence of a new branch of geriatric medicine, geroscience to find out the ways and means for increasing the health span of

individuals. Geroscience has visualized that ageing can be modified to delay or prevent the emergence of age-related diseases. It attempts to tackle the ageing process than to treat ageing disorders. Utilisation of geroscience-based approaches in healthcare practices could provide a means to increase the number of healthy people in the population.

REFERENCES

1. Kennedy BK, *et al.* Geroscience: linking aging to chronic disease. Cell 2014;159(4): 709-713.
2. Roller Y, Sierra f, Ferrucci L, *et al.* Challenges in developing Geroscience trial . Nature Communication 2023: 14
3. Sierra F. The Emergence of Geroscience as an Interdisciplinary Approach to the Enhancement of Health Span and Life Span. Cold Spring Harb Perspect Med. 2016 Apr; 6(4): a025163.doi: 10.1101/cshperspect.a025163

Assessment of Renal Dysfunction Among Elderly Patients of Chronic Obstructive Pulmonary Disease Admitted in A Tertiary Care Hospital of Eastern India: A Hospital Based Study

Purna Chandra Dash[1], Sunita Sethy[2]

ABSTRACT

Background: *The prevalence of both CKD (Chronic Kidney Disease) and COPD (Chronic Obstructive Pulmonary Disease) increases with age and they are commonly associated with atherosclerosis. While the mechanisms linking CKD and COPD have been completely elucidated, systemic inflammation and hypoxia associated with COPD could contribute to adverse outcomes in those with CKD. Present study was conducted to assess the renal dysfunction among elderly COPD patients.*

Materials and Methods: *This study was conducted in the Department of Medicine, SCB Medical College, Cuttack, (Odisha) from December 2020 to November 2022. For the study group, known COPD patients attending the medicine OPD were selected. For the control group, non-COPD patients with no history of respiratory distress and kidney dysfunction were selected. All the patients of both groups were thoroughly examined clinically and were subjected to routine and specialized investigations as needed. CKD was defined as an eGFR of less than 60 mL/min/1.73 m^2 as per MDRD Criteria. The data was tabulated and subjected to statistical analysis.*

Result: *A total of 100 patients, 50 in Study group and 50 in control group were included in the study. The mean age of patients in study group was 73.46 years and 69.95 years in control group. The number of male patients in study group was 32 and 35 in control group. The mean BMI of patients in study group was 23.45 kg/m^2 and in control group was 25.15 kg/m^2. In the study group, the number of patients with eGFR Cr<60 was 17 and with eGFR Cys c<60 was 23. In the control group, the number of patients with eGFR Cr<60 was 5 and with eGFR Cyst<60 was 7.*

Conclusion: *The renal dysfunction is more common in COPD patients. Hence, it is utmost important not to miss the presence of renal dysfunction in COPD patients because renal disease can influence the treatment and prognosis of patients.*

Keywords: COPD, Renal dysfunction, CKD, eGFR, CVD, Elderly population, Tertiary care Centre

INTRODUCTION

The broad systemic inflammatory condition known as chronic obstructive pulmonary disease (COPD) is marked by airflow restriction and enduring respiratory symptoms. It is usually not completely reversible.[1] Genetic predisposition and exposure to environmental factors, such as air pollution and tobacco smoke, interact intricately to cause COPD in elderly.[2] CKD is presently one of the leading causes of morbidity and mortality and in the coming next few years, its incidence is likely to rise. Numerous cardiovascular (CV) and non-cardiovascular comorbidities, like hypertension, diabetes, osteoporosis/osteopenia, chronic kidney disease (CKD), and carcinoma etc are highly related to the individual burden and health expenditures associated with COPD in elderly.[3] Patients with COPD are more likely to develop CKD than the

[1]Professor, Dept. of Medicine, SCB Medical College and Hospital, Cuttack, Odisha
[2]Assistant Professor, Dept. of Medicine, SCB Medical College and Hospital, Cuttack, Odisha

general population.[4] The most prevalent risk factors for new development of CKD include overweight, diabetes, arterial hypertension, and age etc. Due to the activation of pro-inflammatory and pro-oxidant pathways that cause pathologic alterations in renal circulation, atherosclerotic damage is a part of the pathophysiology of CKD. COPD is a systemic disease with various comorbidities and is associated with underlying systemic inflammation. Because the comorbidities affecting disease severity and prognosis, the screening and treatment of comorbidities are keys to the control of COPD.[5,6] Cardiovascular diseases (CVD), osteoporosis, and depression are considered to be representative comorbidities of COPD, but has been minimally investigated in this context of chronic kidney disease. Advanced age and smoking in COPD are also risk factors for CKD, which is also known to be an important risk factor for CVD. The prevalence of both CKD and COPD increases with age and both these diseases are associated with atherosclerosis.[7] While the mechanisms linking CKD and COPD have been completely elucidated, systemic inflammation and hypoxia associated with COPD could contribute to adverse outcomes in those with CKD. CKD is more prevalent in people with COPD than general population.[8,9] Additionally, at the time of COPD exacerbation, when gaseous exchange within the lungs decreases and carbon dioxide retention occur, reduction in renal blood flow and subsequently reduction in GFR can result.[10] Hence, the present study was planned to assess renal involvement among COPD patients.

OBJECTIVES

To assess the renal involvement among elderly COPD patients.

MATERIALS AND METHODS

The study was conducted in the department of medicine, SCB Medical College, Cuttack, Odisha, India from December 2020 to November 2022.Patients of known COPD attending the medicine OPD were selected for study. Non-COPD patients with no history of respiratory distress and kidney disease were selected as control. Written consent was obtained from the patients of both the groups after explaining them the procedure of the study. They were subjected to thorough clinical examination and routine investigation like CBC, ESR, Fasting/Post glucose blood sugar, blood urea and serum creatinine, Liver function test, urine routine microscopy, 24 Hr urinary protein, urinary albumin/ creatine ratio, chest x-ray, Ultrasonography of Abdomen, pulmonary function test, ECG, ABG, Serum Cystatin C, and brain natriuretic peptide etc. Special investigations like HRCT scan of Thorax,2D and colour Doppler Echocardiography, Renogram etc were done wherever needed. CKD was defined as an eGFR of less than 60 mL/min/1.73 m^2 as calculated by COCKROFT GAULT formula.

Inclusion Criteria

Elderly Patients (>60 years) who were previously diagnosed to have COPD based on clinical features and spirometry admitted to the medicine wards were included in the study.

Exclusion Criteria

Patients with age group <60 years were excluded from the study. Patients with COPD who have other comorbid illness which are likely to cause renal dysfunction were excluded like Diabetes Mellitus, Hypertension, Known renal disease such as renal stones, polycystic kidney disease, Cardiac failure, Cirrhosis of liver, Ingestion of nephrotoxic drugs etc.

Ethical clearance was taken from the Institutional Ethical Committee of SCB Medical college before start of the study. COPD was diagnosed based on spirometry when the FEV1/FVC was less than 70% after inhalation of a bronchodilator, and the severity of airflow obstruction was judged according to the Global Initiative for Chronic Obstructive Lung Disease (GOLD) criteria. Kidney diseases were diagnosed with abnormal reports in the

Table 1: Characteristic parameters of study group and control group

Characteristic Parameters	Study group (n=50)	Control group (n=50)	P-value
Mean age (years)	73.46	69.95	0.36
No. of male patients (n)	32	35	0.17
No of female patients (n)	18	15	0.18
Mean BMI (kg/m^2)	23.45	25.15	0.56
H/O Smoking			
Non smoker	08	36	0.0001
Past smoker	32	09	
Current smoker	10	04	

different kidney function tests as described earlier. All the data were compiled, tabulated and subjected to statistical analysis. The statistical analysis of the data was done using SPSS version 20.0 for windows. The Student's t-test and Chi square test were used to check the significance of the data. The p-value less than 0.05 was predetermined as statistically significant.

OBSERVATION AND RESULTS

A total of 100 patients, 50 in Study group and 50 in control group were included in the study and the following observations were made (Table 1).

The above table shows characteristic parameters of study group and control group. The mean age of patients in study group was 73.46 years and 69.95 years in control group. The number of male patients in study group was 32 and 35 in control group. The mean BMI of patients in study group was 23.45 kg/m^2 and in control group was 25.15 kg/m^2. In the study group, 10 patients were currently smoker, 32 were past smoker 08 patients were nonsmoker. In control group, 04 patients were currently smoker, 09 patients were past smoker and 36 patients were nonsmoker (Table 2).

Table 2 shows number of patients with chronic kidney disease in study group and control group. In the study group, the number of patients with eGFRCr<60 was 17 and with eGFRCys<60 was 23. In the control group, the number of patients with eGFRCr<60 was 5 and with eGFRCys<60 was 7. On comparing the results, we observed that the results are statistically significant (p<0.05).

Table 3 shows distribution of mean Hb(g%) in study and control group shows that mean Hb in study group was 8.89 and 12.92 in control group having a p-value 0.8353which is statistically not significant (Table 4).

Table 4 shows distribution of mean serum albumin in case and control group which shows that mean serum albumin in study group was 2.712 and 3.91 in control group having a p-value 0.7915 which is statistically insignificant.

Table 5 shows distribution of serum urea and creatinine in study and control group which shows that mean serum urea in study group was 59.22 and 34.06 in control group having a p-value 0.0103 which is statistically significant and mean serum creatinine in study group was 3.27 and 1.04 in control group having a p-value 0.00132which is statistically significant.

Table 6 shows distribution of mean creatinine clearance by MDRD formula in ml/min/1.73 m^2 in case

Table 2: No. of patients with chronic kidney disease in study group and control group

	Study group (n=50)	Control group (n=50)	P-value
eGFR (Cr<60)	17	5	0.038
eGFR (Cys c<60)	23	7	0.041

Table 3: Distribution of mean Hb (g%): Study & control Group

		Number	Mean	SD	Minimum	Maximum	Median	p- value
HB (g%)	Study group	50	8.8940	2.7940	5.8000	11.2000	12.5000	0.8353
	Control	50	12.9200	2.4402	9.9000	15.4000	12.1000	

Table 4 :Distribution of mean Serum Albumin(g/dl): Study and Control Group

		Number	Mean	SD	Minimum	Maximum	Median	p- value
S Albumin (g/dl)	Study group	50	2.7120	.5945	2.3000	4.8000	4.0000	0.7915
	Control	50	3.9100	.6114	2.7000	5.2000	4.0000	

Table 5: Distribution of mean Sr urea & Sr creatinine mg/dl: Study and Control Group

		Number	Mean	SD	Minimum	Maximum	Median	p- value
S urea mg/dl	Study group	50	59.2200	15.1695	56.0000	104.0000	40.0000	0.0103
	Control	50	34.0600	13.0646	18.0000	49.0000	33.0000	
S Cr mg/dl	Study group	50	3.2729	.5206	0.6000	5.800	1.2000	0.001
	Control	50	1.0440	.5211	0.6000	1.8000	0.9000	32

Table 6: Distribution of mean creatinine clearance by MDRD formula in ml/min/1.73 m^2: Group

		Number	Mean	SD	Minimum	Maximum	Median	p- value
Cr Cl By MDRD Formula In ml/ min/1.73m^2	Study group	50	71.9000	29.6882	8.5000	105.0000	59.4000	<0.00025
	Control group	50	100.7760	38.1287	71.0000	124.3000	104.0000	

and control which shows that mean creatinine clearance by MDRD formula in ml/min/1.73 m^2 in study group was 71.9 and 100.77 in control group having a p-value <0.00025 which is statistically significant.

Table 7 shows that out of 50 number of study group, 20 showed reduction in kidney size whereas in control group no patients showed reduction in kidney size.

Table 7: Patients having ultrasound proven renal dysfunctions

USG abdomen & pelvis		Number of patients with reduced kidney size (n=50)	Percentage
	Study group	20	40%
	Control group	0	0%

Table 8 shows that all patients in the study group had FEV1/FVC < 70 whereas only 1(2%) patient had FEV1/FVC >70 in control group.

DISCUSSION

This study was carried out in the Department of

Table 8: PFT parameters of study group and control group

		Number (n=50)	Percentage
FEV1/FVC <70	Study group	50	100%
FEV1/FVC <70	Control group	1	2%

Medicine, SCB Medical college, Cuttack, from December 2020 to November 2022. Total 100 patients were studied. The mean age of patients in study group was 73.46 years and in control group was 69.95 years. There is no statistical significance in both the group. This is because the study population in both the group was more than 60 years (geriatric age). The number of male patients in study group was 32 and in control group was 35 which is also not statistically significant. The mean BMI of patients in study group was 23.45 kg/m^2 and in control group was 25.15 kg/m^2 and it was also statistically not significant. In the study group, 10 patients were currently smoker, 32 were past smoker 08 patients were nonsmoker. In control group, 04 patients were currently smoker, 09 patients were past smoker and 36 patients were nonsmoker. As the patients selected in both groups were almost identical in age, sex and minor difference in BMI, the p value is not statistically significant. The population of male was determined to be greater [32(64%)] than that of female [36%)], although this difference was not statistically significant (p=0,17). Globally, COPD is a major cause of death (Elmahallawy II et al, 2013).[11] It is linked to a greater number of comorbidities. The control patients in the current study were age and gender matched; they were aged 69.95 ± 7.12 years; out of them (70%) were male, and the remaining patients were females.

Our analysis revealed that although the age difference between the Control group (69.95± 6.8761) and the study group (73.46± 6.8306) was greater, it was not statistically significant (p=0.36).

The mean Hb (g%) in case and control shows that mean Hb in study group was 8.8940 and 12.920 in control group having a p-value 0.8353 which was statistically not significant .This may be due to the fact that we have excluded cases of severe anemia.We found that the difference in Serum Albumin (g/dl) between the study group [2.7120 ± 0.5945] and Control [3.9100±0.6114] was greater, but the difference was not statistically significant (p=0.7915). Patients of liver and kidney diseases were not included in our study. Our observations match the studies done by Elmahallawy et al[12] and Wang H et al.[13]

There have been few reports of chronic kidney disease (CKD) as a comorbidity of chronic obstructive pulmonary disease (COPD), although Yoshizawa T et al (2015) found cardiovascular illnesses, osteoporosis, and depression as comorbidities of COPD.[14] But we have not explored the presence of above comorbidities in our study.

In our study estimated glomerular filtration rate (eGFR) based on creatinine (Cr) and cystatin C (Cys) levels to examine the prevalence of CKD in COPD patients were taken into account. A comparison was made between 50 number of known COPD patients and 50 number of healthy persons (the non-COPD control group, the staff of our hospital) who were more than 60 years old and had no prior history of any chronic disease. The criteria for CKD were an eGFR of less than 60 mL/min/1.73 m^2. The criteria of COPD group had a considerably lower value of FEV1/FVC (<70%). In our study we have found higher Creatinine level in cases of study group, however there was significant difference in eGFR based on serum Cr (eGFRCr) between the two groups (71.9±29.68 vs 100.7±38.12 mL/min/1.73m^2 p-value <0.00025). Our study matches with the study done by Yoshizawa T et al.[14]

According to Madouros N. et al (2022),[15] the prevalence of chronic obstructive pulmonary disease (COPD), one of the most prevalent illnesses in the world, rises with age. It frequently coexists with other illnesses, making patient management challenging and costly. Patients with COPD frequently have chronic kidney disease (CKD), which may go undiagnosed, particularly if it is mild. Most investigations revealed a greater frequency of CKD in COPD patients, and they also revealed a higher mortality risk when both conditions combine. To support the association, additional investigations are needed, as well as larger prospective studies with matched control groups should be done.

COPD was independently associated with CKD. This association was strongest in patients with COPD. COPD was associated with increased long-term mortality in patients with CKD, compared to patients without COPD. In addition, COPD is related to increased long-term morbidity in patients with CKD.

CONCLUSION

Our study concludes that the renal diseases occur at a high rate in COPD patients. Hence, it is utmost important for the clinicians to search for renal involvement in all cases of COPD, because renal disease can influence the treatment and prognosis of COPD. Our study concludes that COPD and renal dysfunction are strongly associated in elderly population. The fact that individuals with COPD have less muscle mass, which results in a normal blood creatinine level despite a marked reduction in renal function, may be the cause of the inability to recognize the link between renal failure and COPD. This is known as “hidden renal failure”. This suggests that in COPD patients, the estimated GFR should ideally be determined by estimating the creatinine clearance using established formulae, such as the MDRD

formula, which have been verified in extensive research.

CONFLICT OF INTEREST: None declared

LACUNAE OF THE STUDY: Small number of patients were taken in study and control group.

FUNDING: Self

REFERENCES

1. Fabbri L.M., Rabe K.F. From COPD to chronic systemic inflammatory syndrome?Lancet. 2007;370:797–799. doi: 10.1016/S0140-6736(07)61383-X.
2. Raad D., Gaddam S., Schunemann H.J., Irani J., AbouJaoude P., Honeine R., Akl E.A. Effects of water-pipe smoking on lung function: A systematic review and meta-analysis. Chest. 2011;139:764–774. doi: 10.1378/chest.10- 0991.
3. Cleutjens F.A.H.M., Wouters E.F.M., Dijkstra J.B., Spruit M.A., Franssen F.M.E., Vanfleteren L.E.G.W., Ponds R.W.H.M., Janssen D.J.A. The COgnitive-Pulmonary Disease (COgnitive-PD) study: Protocol of a longitudinal observational comparative study on neuropsychological functioning of patients with COPD. BMJ Open. 2014;4:e004495. doi: 10.1136/bmjopen-2013-004495.
4. Chen C.-Y., Liao K.-M. Chronic Obstructive Pulmonary Disease is associated with risk of Chronic Kidney Disease: A Nationwide Case-Cohort Study. Sci. Rep. 2016;6:25855. doi: 10.1038/srep25855.
5. Haroun MK, Jaar BG, Hoffman SC, Comstock GW, Klag MJ, Coresh J. Risk factors for chronic kidney disease: a prospective study of 23,534 men and women in Washington County Maryland. J Am Soc Nephrol. 2003;14(11):2934–41. doi: 10.1097/01.ASN.0000095249.99803.85.
6. Perneger TV, Brancati FL, Whelton PK, Klag MJ. End-stage renal disease attributable to diabetes mellitus. Ann Intern Med. 1994;121(12):912–8. doi: 10.7326/0003-4819-121-12-199412150-00002.
7. Snively CS, Gutierrez C. Chronic kidney disease: prevention and treatment of common complications. Am Fam Physician. 2004;70(10):1921–8.
8. Weiner DE, Tighiouart H, Amin MG, Stark PC, MacLeod B, Griffith JL, et al. Chronic kidney disease as a risk factor for cardiovascular disease and all-cause mortality: A pooled analysis of community-based studies. J Am Soc Nephrol. 2004;15:1307–1315. doi: 10.1097/01.ASN.0000123691.46138.E2.
9. Wu VC, Huang TM, Lai CF, Shiao CC, Lin YF, Chu TS, et al. Acute-on-chronic kidney injury at hospital discharge is associated with long - term dialysis and mortality. Kidney Int. 2011;80(11):1222–30.doi: 10.1038/ki.2011.259.
10. Zhang Q-L, Rothenbacher D. Prevalence of chronic kidney disease in population-based studies: Systematic review. BMC Public Health. 2008;8:117. doi:10.1186/1471-2458-8-117.
11. Elmahallawy II, Qora MA. Prevalence of chronic renal failure in COPD patients.Egyptian Journal of Chest Diseases and Tuberculosis. 2013 Apr 1;62(2):221-7.
12. Wang H, Yang L, Zou L, et al. Association between Chronic Obstructive Pulmonary Disease and Lung Cancer: A Case-Control Study in Southern Chinese and a Meta-Analysis. de Torres JP, ed. PLoS ONE. 2012;7(9):e46144. doi:10.1371/journal.pone.0046144.
13. Chen CY, Liao KM. Chronic obstructive pulmonary disease is associated with risk of chronic kidney disease: a nationwide case-cohort study. Scientific reports. 2016 May 11;6(1):1-8.
14. Yoshizawa T, Okada K, Furuichi S, Ishiguro T, Yoshizawa A, Akahoshi T, Gon Y, Akashiba T, Hosokawa Y, Hashimoto S. Prevalence of chronic kidney diseases in patients with chronic obstructive pulmonary disease: assessment based on glomerular filtration rate estimated from creatinine and cystatin C levels. International Journal of Chronic Obstructive Pulmonary
15. Madouros N, Jarvis S, Saleem A, Koumadoraki E, Sharif S, Khan S. Is There an Association Between Chronic Obstructive Pulmonary Disease and Chronic Renal Failure?. Cureus. 2022 Jun 21;14(6).

Physical Activity And Exercise In The Indian Elderly

M E Yeolekar*

ABSTRACT

Physical activity and exercise are increasingly emphasised and recommended for health promotion, disease prevention and supplement to management in several disease conditions and states. The elderly is no exception and in prevalent multimorbidity in the age group sixty onwards, striving for fitness assumes a different dimension for rehabilitation and recovery with the benefit of improved QoL (quality of life). A conceptual clarity is provided.

INTRODUCTION

Physical activity broadly refers to ALL movements including transport to and from places as a part of work / occupation, and even leisure time requiring more energy than resting. Considered in physiological terms, it is any bodily movement produced by skeletal muscles that results in 'energy expenditure ' measurable in K. Calories. Alternatively, physical activity (PA) is any deliberate muscle activity- such as walking, running, swimming, dancing, gardening, Yoga practiced at home, Sportsground, gymnasium or a swimming pool.

Categories: PA can be:

A) Aerobic: brisk walking, running, swimming and such activity of low / moderate/vigorous intensity.
B) Strengthening: Lifting weights, digging at garden.
C) Flexibility / Stretching exemplified by Yoga.
D) Balance Maintenance. Yoga, Tai Chi.

The popular forms include walking, jogging/ running and athletics. The vigorous and strenuous forms include climbing stairs, lifting weights, digging shovels, gardening, hill walking/ climbing, pushups, water aerobics, bicycling on path. The four essential components promoted include Endurance, Strength, Balance and Flexibility- each with different benefits.

Health Related Fitness: is a multidimensional construct with the components of

a) Cardiorespiratory Endurance b) Muscular Strength c) Flexibility and d) Body Composition (increasingly recognized in Metabolic Syndrome/Diabetes Mellitus). A relevant acronym to be considered is FITT (frequency, intensity, time, type).

Importance of physical activity in the elderly: Exercise training in older persons has been associated with health benefits such as decreased cardiovascular morbidity. Further lower risk of Cerebrovascular Stroke, T2DM and some Cancers has been observed.

EXERCISE: It is a subcategory of physical activity (PA) that is planned, structured and repetitive for improvement or maintenance of physical fitness and physical/functional capacity to perform activities of daily living (ADL).

Therapy / Targets: Having considered the concept of Physical Activity (PA), the Exercise dose is determined by a) Mode b) Duration c) Frequency d) Intensity.

Physical Function: It reflects a) motor function and control b) physical fitness) habitual physical activity.[1]. Physical Activity is a protective factor in NCDs.

The profile of elderly is variable - disease free, single disease condition - stable or uncontrolled, multimorbidity with operative procedure/ surgical intervention(s), conditions requiring rehabilitation - in short diverse and exclusive plan demanding situations. In general older persons should a) adhere to the prescribed exercise program and follow overload principle of training, i e. - exercise near

*Former Prof& Head of Medicine, LTMMC & KJSMC., Ex- Dean, Sion / KEM Hospitals,
Former DMER(MCGM) Mumbai.

the limit of maintenance capacity to challenge the body systems sufficiently to induce improvement in physical parameters such VO -2 max and muscular strength.[1]

Longevity: As life expectancy rises, a central concern is whether the added time comprises years of healthy life and promotes a high health related quality of life -QoL into old age.[1] In the elderly in particular, physical function is crucial and critical when offering guidance in prescription for exercise.[2] Physical activity (PA) levels in older adults were noticed to remain below recommended 150 minutes/ week,[3] the crude global prevalence of physical inactivity being 21.4 %. Inactivity is associated with alterations in body composition resulting in increase in percentage of body fat and concomitant decline in lean body mass. Sarcopenia is defined as low muscle mass in combination with low muscle strength and / or low physical performance. Frailty,[4] produces dependence in activities of daily living. (ADL). Inactivity and ageing increase the risk of chronic disease and older people often have multiple chronic conditions.[5] Sudden cardiac death in / post-COVID era[6] have caused additional concern in the general public. Physical Activity (PA) / exercise help improve physical function, reduce falls, reduce cardiovascular mortality- explained by increase in/ relative dominance of the vagal component, and enhanced quality of life (QoL). For high level cardiorespiratory fitness being physically active for six months or longer is necessary. In the Indian subcontinent, environmental circumstances can differ widely causing temperature rising[7] and falling sharply - the exercise prescription requires modification accordingly. Outdoor Motor - Cognitive Exercise Programs[8] integrating coordination/strength/endurance/ cognition appeared feasible and useful as a part of healthy aging.

To sum up, physical activity (PA) / exercise play an important role in primary / secondary/ tertiary prevention and management of multiple disease conditions, to counteract sarcopenia and reduce falls and improve physical performance and activity of daily living (ADL). In clinical practice, patients desire direct advise/ follow up from the consultant. Adequate conceptual clarity is necessary in the matter of PA/ exercise as a prescription, vagueness should be avoided at all cost.

REFERENCES

1. Langhemmer B, Bergland A, Rydwick E.The importance of Physical Activity Exercise among older people. Biomed Research International. Dec 5,2018. Doi.10/1155/2018/7856823.
2. Garber CE, Blissmer B, Deschenes MR. Quality / Quantity of exercise for developing and maintaining cardiorespiratory, musculoskeletal, and neuromotor fitness in apparently healthy adults. Guidance for prescribing exercise. Medicine and Science in Sports and Exercise. 2011.Vol 43,7, 1334-59.
3. Boulton ER,Horne M, Todd C. Multiple influences on participating in physical activity in older age. Developing a social and ecological approach. Health Expectations. 2018. 21,1.239- 248.
4. Yeolekar ME, Sukumaran S. Frailty Syndrome. A Review. JAPI 2014.62 (11).34-38. PMID. 26281478.
5. Dumith SC, Hallal PC, Reis RS, Kohl HW. Worldwide prevalence of physical inactivity and its association with human development index in 76 countries. Preventive Medicine. 2011, vol 53, no. 1-2, p 24 -28.
6. Yadav R. Bansal R, Budakoty S, Barwad P. COVID-19 and sudden cardiac death: a new potential risk. Ind Heart J. 2020. Sept-Oct. 72(5). 333-336.
7. Yeolekar ME, Athavale AM. Heat Stroke: Managing a continuum. J Assoc Phys Ind. May 2006, vol 54, 357-8.
8. Zwingmann K. Schlesinger T, Muller K. Impact of an Outdoor Motor Cognitive Exercise Program on the health outcomes of older adults in Community settings. A pilot and feasibility study, Sports (Basel). 2024, Feb 1, 12(2).49.

Perioperative Management of Geriatric Patients

Ravikeerthy M, Sumana Y

ABSTRACT

Demographic shift has led to population ageing and consequent increase in the proportion of elderly population globally. Healthcare system needs to be prepared to meet the healthcare needs of the geriatric cohort. It has been reported that substantial number of surgeries are performed in individuals aged 60 years and above and estimates also point towards the increasing need for surgical care in the elderly. Hence, appropriate and robust perioperative management of geriatric patients is important. Physiologic changes due to aging and presence of co-morbidities pose unique challenges in the perioperative management of the elderly patients. Functional status, cognition and frailty are predictors of surgical outcomes and should be included in the assessment. Nutritional status and perioperative medication management are crucial. Intraoperative factors like type of anesthesia, hypothermia management and prevention of pulmonary complications, are few important considerations. Postoperative care consisting of pain management, delirium monitoring, prevention of pressure ulcers, bowel management have to be specially looked into in the elderly. Finally, transitional care is essential to ensure continuum of care and good outcomes after surgery.

Key words : *Elderly, frailty, cognition, medication, pre operative, post operative, assessment*

INTRODUCTION

Most of the countries in the word are witnessing a demographic shift with the proportion of older people increasing due to increase inlife expectancy and declining fertility rates.Population ageing was first noted in high income countries and is currentlyexperienced by low and middle income countries as well.[1] Globally, in 2018, proportion of people aged more than 65 years outnumbered children under 5 years of age and it is projected that by 2050, older people (>65 years) will outnumber adolescents (10-19 years) and youth (15-24 years).[2] In India, as per estimates in 2021, elderly population (60 years and above) constituted about 10.1% of the total population and is projected to be around 13.1% in 2031.[3] Population ageing will have consequences on healthcare system too.

Physical health of the elderly is characterized by certain physiological changes due to ageing and also is influenced by presence of other co-morbidities. The Longitudinal Ageing study of India (LASI) reports that 75% of the elderly have one or more chronic disease.[4] With this background of increased population size of the elderly with huge burden of co-morbid conditions, the proportion of them needing surgical treatment modalities will also increase. An estimation of national surgical needs in India documented that the maximum number of surgeries were performed in the seventh decade (60-69 years) and about 47% of the surgeries per year per one lakh population was performed in individuals aged 60 years and above. Cataract surgeries and surgeries for fractures and hernia were among the commonest surgeries highlighting age related factor in these. It is estimated that, annually, a total of 3646 surgeries per one lakh population will be needed to meet the surgical needs of the Indian population and at least 20% of this will be the elderly cohort.[5] This indicates that the healthcare system needs to be prepared to provide good pre, peri and post operative care for the elderly. Perioperative care poses more challenges and appropriate perioperative assessment and management is important to minimize risk of complications in the elderly undergoing surgery.[6]

*Professor of Medicine, Meenakshi Medical College & Research Centre, Kanchipuram Tamilnadu
**Consultant Wellness, Gleneagles BGS Hospital, Bengaluru

Table 1: Physiologic effects of ageing and effects on perioperative care

System	Physiologic changes	Effects
General	Decreased skeletal muscle mass Decreased thermoregulation	Altered volume of distribution Potential drug toxicity Increased frailty Decreased functional recovery
Skin	Decreased dermal blood vessels and re-epithelization	Slow wound healing
Cardiac	Increased vascular and ventricular stiffness Degeneration of conduction system and valves Decreased maximal heart rate Cardiopulmonary deconditioning Increased prevalence of coronary artery disease	Increased vascular load Hypertension Ventricular hypertrophy Increased sensitivity to vascular shifts Decreased heart rate response Increased risk of high-grade arteriovenous blocks and myocardial ischemia
Pulmonary	Decreased elastic recoil and airway protection Increased chest wall stiffness and ventilation perfusion mismatch	High risk of respiratory failure especially with use of sedative drugs Increased risk of aspiration and infections
Hepatic	Decreased blood flow and microsomal oxidation	Increased half life for drugs cleared by the liver
Renal	Decreased nephrons, sodium and water excretion Prostatic hypertrophy	Changes in half life of drugs cleared by the kidney Increased risk of fluid overload, urinary retention and infection
Endocrine	Insulin resistance and impaired secretion	Hyperglycemia
Immune	Decreased immune function	High risk of infections

Table 2: Co-morbidity and its associated complications

Co-morbidity	Complications
Dementia	Post operative delirium
Diabetes Renal disease	Cardiac complications
COPD Asthma Smoking Obesity	Pulmonary complications
Malnutrition	Poor outcome Infections Delayed wound healing
Low functional capacity	Cardiac complications
Sarcopenia	Delayed functional recovery

EFFECTS OF AGEING AND ASSOCIATED CO-MORBIDITIES ON PERIOPERATIVE CARE

Ageing is associated with reduced physiologic reserve of all organ systems and body compositionwhich subsequently leads to changes such as slow metabolism, altered volume and circulatory status, decreased immune function and changes in thermoregulation.These changes have implications during perioperative care as there is risk of potential drug toxicity, fluid overload, infections and

cardiopulmonary effects like increased risk of myocardial ischemia, high grade arteriovenous blocks and respiratory failure.The physiologic changes itself predispose to risk of perioperative adverse events and presence of other co-morbidities further intensifies the risk (Table 1 and 2).Some studies have documented that certain medical conditions which are more frequent with age result in increase in perioperative complications in the older patients.[7]

PREDICTORS OF SURGICAL OUTCOMES IN OLDER PATIENTS

The main predictors of outcomes are age and functional reserve, medical co-morbidities, nature of surgery, malnutrition, frailty, cognition and social support. Studies have documented that selected conditions such as diabetes mellitus, hypertension, coronary disease, cerebrovascular disease, osteoporosis and smoking are associated with worse functional outcomes. Dependency and decreased functionality increase the operative risk.[7] Factors such as frailty, nutritional status, functional ability and cognition are especially important in elderly patients compared to the younger patients as these factors specifically increase the likelihood of postoperative morbidity, complications and increased length of hospital stay.8Pre-operative frailty as assessed by shrinking, decreased grip strength, exhaustion, low physical activity and low walking speed has been found to be an independent predictor of postoperative complications.[9,10] Systematic reviews also suggest that frailty assessment is a valuable tool in peri-operative assessment.[10]

PRE-OPERATIVE GERIATRIC ASSESSMENT

Pre-operative assessment of the older patients should include cognition and depression screening, decision making capability, frailty or functional assessment, nutritional assessment, co-morbidity assessment, medication review and availability of support system.These are found to be key areas and problems identified in any of these aspects are associated with increased post operative complications, morbidity and mortality.[11] Pre-operative assessment is a vital step and the use of validated tools for risk assessment enables optimal assessment thereby minimizing adverse events during or after surgery.[12] Comprehensive geriatric assessment (CGA) is a validated and a good tool to assess physical, mental and social status with inclusion of factors like multi morbidity and frailty assessment, nutritional status and polypharmacy.[12-14]

Nutritional status should be assessedthoroughly. Body mass index (BMI)<18.5 kg/m^2, serum albumin levels <3gm and unintentional weight loss >10-15% have increased risk of postoperative complications like infections, delayed wound healing and increased length of hospital stay.[15] Malnutrition is also associated with pressure ulcers, postural hypotension, confusion and anemia.The strongest evidence on nutritional supplementation for the elderly indicate that oral protein and energy feeds is effective and enteral route is the route of choice in the elderly unless contraindicated as it is more physiologic and appropriate.[7] Pre-operative enteral supplementation of protein, iron and multivitamins have been foundto be simple interventions supporting wound healing in the postoperative period.[8]

Pre-operative assessment should include routine hematological and biochemical investigations. Prothrombin time with INR should be included. Cardiopulmonary assessment should include Chest radiographs (CXR), Electrocardiogram (ECG) and non-invasive stress testing. Pulmonary function testing (PFT) may be required in selected patients. Patients with active cardiac conditions like unstable coronary syndrome, decompensated heart failure, significant arrythmias and severe valvular diseases should be corrected, stabilized and then taken up for surgeries with moderate to high risk. In those, with good functional capacity (>4 METs) can undergo the surgery.[6,7,15] Vital capacity, maximum voluntary ventilation and respiratory compliance are lower in ageing individuals. But age-related deterioration does not produce symptoms in unstressed individuals. Important measures include pre-operative deep breathing maneuvers and incentive spirometry. Cessation of smoking 4 to 8 weeks before surgery is helpful. Older patients with COPD should be treated appropriately before surgery with bronchodilators, steroids and antibiotics if required.[7]

PERIOPERATIVE MEDICATION MANAGEMENT

Polypharmacy might be common in the elderly and it is good to review the patient's complete medication list including over the counter medicines and supplements, vitamins and herbal agents. Non-essential medicines that have the possibility of interacting with anesthetic agents can be discontinued after considering withdrawal effects.[11,16]

Angiotensin Converting Enzyme (ACE) inhibitors and Angiotensin Receptor Blockers (ARBs) are withheld on the day of surgery to avoid risk of hypotension on

induction of anesthesia. It can be restarted within 48 hours postoperatively if there is no risk of hypotension or acute kidney injury.[17,18]

Beta blockers should be continued for patients already taking it.[17] Perioperative use of betablockers such as atenolol is recommended in patients with coronary artery disease or risk factors for it, provided there is no contra-indications such as asthma. Studies suggest that appropriate use of perioperative beta blocker decreases mortality in those at risk of coronary artery disease.[7,15,17] It should not be started during acute perioperative period or on the day of the surgery or at high doses.[17] Betablockers if prescribed should be started days to weeks prior to surgery at a small dose and gradual dose adjustment to achieve resting heart rate of 55-60 beats/ minute considering its effects of causing bradycardia and hypotension. Beta blockers should be continued throughout perioperative period till 30 days postoperatively. Perioperative beta blocker prophylaxis to prevent atrial fibrillation is not recommended in non-cardiac surgery patientsdue to risk of bradycardia and hypotension.[17]

Calcium channel blockers can be continued perioperatively if there is no hypotension. Use of dihydropyridine calcium channel blockers must be reviewed in those with risk of postoperative urine retention as it compounds the risk of urine retention.[17]

Perioperative diuretic management should be individualized based on the indication for use, fluid status, blood pressure, nature of surgical procedure and expected volume shifts. There are no definitive recommendations for its use peri-operatively. Diuretics may be continued for heart failure and can be withheld 24 hours prior to surgery in those taking it for hypertension.[17]

Peri-operative use of antiplatelet drugs depends on the indication and risk of bleeding during surgery. Antiplatelet drugs are associated with risk of perioperative bleeding while interrupting it may be associated with harm. Aspirin monotherapy can be continued perioperatively for surgeries with low bleeding risk. It should be withheld 5 days prior for procedures with high bleeding risk. It should be resumed as soon as possible post operatively. For those on dual antiplatelet therapy, aspirin can be continued unless there is high risk of bleeding. Ticagrelor should be withheld 5 days prior to surgery. Clopidogrel and Prasugrel should be withheld 7 days prior to surgery. It should be resumed as soon as possible postoperatively at surgeon's discretion after considering patient condition.[17]

Statins should be continued in older patients with cardiovascular risk factors as its discontinuation is associated with major adverse cardiovascular events (MACE). It can be started in those undergoing vascular surgery or having elevated Low-Density Lipoprotein (LDL) cholesterol or have ischemia on testing, if not prescribed earlier.[17]

Perioperative use of anticoagulants can be slightly challenging.International Normalized ratio (INR) should be checked one day prior and on the day of surgery.Surgery can be done if INR is <1.5 on the day of the surgery. If INR is above target reversal should be done with Vitamin K (1 mg IV or 2.5mg orally). Warfarin can be continued perioperatively in patients with high thrombotic risk, but undergoing surgeries with low bleeding risk. Warfarin can be discontinued 5 days prior to surgery in those with low thrombotic risk, but undergoing surgeries with moderate to high bleeding risk.Patients with high thrombotic risk and in whom heparin must be stopped perioperatively, should be given bridging therapy with low molecular weight heparin(LMWH) when INR <2. INR should be checked every day and heparin should be stopped 24 hours prior to surgery. Apixaban is the preferred directly acting anticoagulant preferred in frail patients. Perioperative management is based surgical bleeding risk and renal function.[17]

Perioperative guidelines for hypoglycemic agents are not specifically available for the older cohort and it is considered that data available for young patients for these drugs can be reasonable applied to the older people. Metformin and insulin secretagogues (sulfonylureas) should be withheld on the morning of the surgery.Metformin can be resumed 24 hours after surgery in the absence of renal injury. Sulfonylureas should be restarted when normal diet is resumed post-surgery. Glucagon like peptide 1 (GLP-1) receptor agonistsand Dipeptidyl peptidase 4 inhibitors (DPP4) can be safely continued throughout. Sodium Glucose Co-transporter 2 should be withheld 2 days prior to surgery as it can cause euglycemic ketoacidosis.[17,18,19] The dose of basal insulin (glargine or detemir) can be reduced by 25% the evening before surgery. If the patient takes the basal insulin in the morning, 80% of the usual dose is given. if the patient takes it in the morning. Neutral Protamine Hagedorn (NPH) insulin and premixed insulin are reduced by 20% evening before surgery and by 50% morning of surgery. NPH insulin and premixed formulations should be withheld on the day of surgery if fasting blood glucose levels <120 mg/dl.The target perioperative blood glucose levelsdepend on the duration, type of surgery and type of anesthetic technique. Intraoperative hyperglycemia can be managed with subcutaneous rapid acting insulin analogs

or intravenous (IV) infusion of regular insulin. IV insulin infusion is recommended in patients with anticipated hemodynamic changes, significant fluid shifts, expected change of temperatures, use of inotropes and lengthy operative time of more than 4 hours.These variables alter absorption and distribution of subcutaneous insulin.[19]

Steroids should be maintained perioperatively. Stress dose steroids can be administered perioperatively in those with adrenal suppression from chronic steroid use.[7,20] The regimen is administration of 25- 50 mg IV hydrocortisone administration every 8 hours depending on the type of surgery and tapering it over 2 to 3 days based on the postoperative course.

Drugs with anticholinergic properties should be discontinued as it can increase the risk of delirium during perioperative period. Medications for seizure disorders, Parkinson's disease should be continued throughout the perioperative period.

Antibiotic prophylaxis has shown to reduce risk of surgical site infections (SSIs) and also has shown decreased mortality rates. Surgeries that have high risk of SSIs are abdominal operations, those requiring bowel anastomosis, procedures for cancer, prolonged and complex surgeries. Preoperative antibiotics should be given within 60 minutes before surgical incision and also should consider factors like type of procedure, risk factors and hospital's unique pathogen profile. Attention should be paid to the dosing of antibiotics as older patients have compromised renal function.[16]

Old age is one of the risk factors for venous thromboembolism (VTE). Older patients undergoing hip or knee replacements, surgeries for hip fractures, cardiac and spinal surgeries and those having cancer are at high risk of VTE. Prophylaxis consists of givingLMWH either 12 hours preoperatively or 12 hours after surgery and can be continued for a minimum of 10 days up to 35 days.In cases of cancer patients who have undergone surgery, extended duration LMWH is given for 4 weeks after discharge. Intermittent Pneumatic compression (IPC) is done in those undergoing cardiac, craniotomy and spinal surgeries.[16]

INTRAOPERATIVE CARE

Intraoperative checklist consists of anesthetic approach, peri-operative analgesia plan, patient safety, prevention of pulmonary complications and hypothermia and fluid management. Regional anesthesia routes can be considered first in order to avoid postoperative complications and improve pain control. There is no single best anesthesia plan for older people and the type, duration of surgery are few important factors to be considered.[16]

Older adults have skin atrophy and decreased skin integrity. Therefore, proper positioning and padding of bony prominences during surgery will maintain skin integrity and limit peripheral nerve damage. Patient positioning is also important to prevent pressure ulcers.[16]

The possibility of aspiration and pulmonary complications during intraoperative period is high and can lead to significant morbidity. Some of the intraoperative measures to prevent pulmonary complications include use of epidural, avoiding use of intermediate and long-acting neuromuscular blocking agents. If neuromuscular blockade is used, it is important to ensure adequate neuromuscular function prior to extubation. Laparoscopic approachwhere possible especially for bariatric surgery is a good measure to prevent pulmonary complications.[16]

Perioperative hypothermia is temperature less than 36 degree Celsius. All anesthetics inhibit thermoregulatory function and additionally the operating room environment is also cold. This predisposes the elderly to hypothermia due to their low muscle mass, metabolic rate and vascular reactivity. Hypothermia can increase risk of surgical site infections, cardiac events and coagulopathies.In surgeries of more than 30 minutes duration, core temperature should be measuredand older patients should be warmed with forced air warmers or warmed iv fluids.[16]

POST OPERATIVE CARE

Postoperative care should include pain management, delirium monitoring, early ambulation, bowel management, prevention of pulmonary complications, pressure ulcers and falls to prevent complications (Table 3).

Pain management is a crucial aspect of postoperative care. Cognitive impairment, anxiety, fear and fatigue can alter the perception of pain.[15] A multimodal approach consisting of oral, topical and regional analgesia is recommended for synergistic analgesic benefit. Paracetamol is a safe and effective analgesic in older people. Daily dose of 4g is appropriate in older patients considering the age-related risks.[15-17] Short term use of Non-Steroidal Anti-Inflammatory Drugs (NSAIDs), preferably cyclo-oxygenase 2 (COX-2) inhibitors after considering pre-existing conditions is reasonable as a part of multimodal analgesic approach. Opioid sparing techniques are preferred in older patients. If required, starting doses should be lower as compared to younger patients.[7,15,17] Oxycodone is well tolerated by older patients. Morphine,

Table 3: Common postoperative complications

Delirium Nausea and vomiting Constipation Hypothermia	
Infections	Wound Urinary Pneumonia
Cardiac	Myocardial infarction Heart Failure Arrythmias Cardiac Arrest
Pulmonary	Pneumonia Pulmonary Embolism Atelectasis Need for mechanical ventilation

codeine, hydromorphone, tramadol should be avoided in older patients.[17]

Postoperative constipation is common in older patients. Early oral feeding, early mobilization helps in normalization of gastrointestinal function within 48 hours. Prevention, early recognition and treatment is a good practice. Senna is effective for treating constipation, but causes abdominal discomfort. Docusate should not be prescribed as monotherapy as it is ineffective. Bulking agents may be given to patients with good hydration and should be avoided in those with evidence of fecal impaction. Osmotic laxatives are helpful in cases of proximal fecal impaction. Enemas and suppositories can be given if constipation persists and if distal impaction is present.[17]

Delirium is the most common surgical complication especially in the elderly. Delirium may further lead to aspiration, malnutrition dehydration, long term decline in cognitive and physical function and thereby worsen the surgical outcomes.[16,17] Older patients at risk of delirium are those with pre-existing cognitive impairments, depression, alcohol abuse, infections, high surgical stress and medications with higher risk of delirium such as anticholinergics, benzodiazepines, meperidine or use of more than 3 medications.[7,16,17,21] Sometimes delirium may be the only manifestation of serious postoperative illness such as sepsis or myocardial infarction.[7] It may also be present in pulmonary embolism, renal or hepatic dysfunction, respiratory failure and altered glycemic states.[16] Delirium can be diagnosed and evaluated based on history, observation, clinical assessment and use of validated tools such as Confusion Assessment Method (CAM).[16,21] Delirium can be treated by non-pharmacologic interventions such as maintain a calm environment, placing familiar objects in the room, ensuring use of assistive devices (hearing aids, glasses), frequent orientation with voice or clocks and eliminating restraint use. Pharmacologic therapy can be considered after non pharmacologic interventions. Antipsychotic medications such as haloperidol, risperidone, olanzapine, quetiapine should be given at the lowest possible dose.[16,21]

Postoperative pulmonary complications in the elderly include atelectasis, hospital acquired pneumonia and acute respiratory failure. Postoperative strategies to prevent pulmonary complications include aspiration precaution measures such as elevation of the head of the bed at all times with repositioning, sitting upright while eating, instrumental swallow evaluation in select patients with history of dysphagia. Additional measures include use of incentive spirometer, deep breathing exercises and chest physical therapy.[16]

Postoperative fall prevention interventions are important for the older patients as they are at increased risk of falls. Universal fall precautions for the older patients includefamiliarizing patient with the environment, facilities for call light within reach, keeping personal possessions within reach, sturdy handrails on rooms and bathrooms, well fitting anti slip footwear, clean and dry floors, hospital bed positioning to be low during rest and raised to comfortable height while transferring, locking of hospital bed brakes and wheelchairs when stationary.[16,21]

Urinary Tract infections (UTIs) are the most common postoperative complications and is also the one of the causes of iatrogenic infections in the older patients. Precautionary measures should be taken to prevent UTIs prior to and during insertion of catheters. If an older patient has indwelling catheter, review of its ongoing need should be done on a daily basis and the catheter should be removed as soon as possible.[16,21]

Older patients immobilized for a long time after surgery have high risk of developing pressure ulcers and subsequent secondary infections. Preventive measures to avoid pressure ulcers include repositioning the patient every hour, use of lower pressure air mattress, ensure adequate nutrition intake with protein and multivitamin supplementation, treatment of chronic illness and co-

existing conditions like anemia and good wound care.[16,21]

TRANSITIONAL CARE

Transitional care is an important component as it ensures continuum of care post discharge and ensures good health outcomes post-surgery. A good transitional care plan includes post discharge follow up plan, coordinated care with a primary physician and engagement of the caregiver and family.Nutrition, cognition, ambulation, functional status and presence of delirium should be checked prior to discharge. Clear documentation of the instructions and follow up advice with clear communication is essential.[16,21]

CONCLUSION

Elderly cohort is a group with unique challenges especially during the perioperative period. Age related changes and increased prevalence of co-morbidities put them at higher risk of complications. Special focus needs to be given to aspects such as cognition, frailty, nutrition and social support in order to ensure good surgical outcomes. A comprehensive pre, intra and post operative assessment is essential for optimizing the health of older patients.

REFERENCES

1. Ageing and Health. World Health Organization. 2022 October. Available from https://www.who.int/news-room/fact-sheets/detail/ageing-and-health#:~:text=Common%20health%20conditions%20associated%20with%20ageing&text=Older%20age%20is%20also%20characterized,falls%2C%20delirium%20and%20pressure%20ulcers.
2. Shifting Demographics. United Nations. Available from https://www.un.org/en/un75/shifting-demographics.
3. ELDERLY in INDIA 2021 [Internet]. Ministry of Statistics and Programme Implementation. Government of India. Available from: https://mospi.gov.in/web/mospi/reports-publications
4. Senior care reforms in India-Reimagining the Senior Care Paradigm: A Position Paper. New Delhi:NITI Aayog-2024 February.119p.
5. Bhandarkar P, Gadgil A, Patil P, et al. Estimation of the Surgical Needs in India by enumerating the surgical procedures in an urban community under universal health coverage. World J Surg.2021;45:33-40.
6. Baquero A G, Rich W M. Perioperative care in older adults. J Geriatr Cardiol. 2015. 12:465-469.
7. Cheng S P, Yang T L, Jeng K S, et al. Perioperative Care of the Elderly.International Journal of Gerontology. 2007;1:89-97.
8. Mistry P K, Gaunay G S, Hoenig DM. Prediction of surgical complications in the elderly: Can we improve outcomes? Asian Journal of Urology. 2017;4:44-49.
9. Makary M A, Segev D L, Pronovost P J, et al. Frailty as a predictor of surgical outcomes in older patients. J Am Coll Surg.2010;210(6): 901-908.
10. Lin H S, Watts J N, Peel N M, Hubbard R E. BMC Geriatrics.2016;16:157.
11. Kumar C, Salzman B, Colburn J L. Preoperative Assessment in Older Adults: A comprehensive approach. American Academy of Family Physicians.2018;98(4): 214-220.
12. Schipa C, Luca E, Ripa M, et al. Preoperative evaluation of the elderly patient. Saudi Journal of Anesthesia. 2023;17:482-90.
13. Comprehensive Geriatric Assessment Part 1 for CHO/SN. New Delhi. National Health Mission.
14. Comprehensive Geriatric Assessment Part 2 for CHO/SN. New Delhi. National Health Mission.
15. Ersan T, Schwer W. Perioperative Management of the Geriatric Patient. Emedicine.medscape.285433.
16. American College of Surgeons, American Geriatrics Society. Optimal Perioperative management of the Geriatric patient: Best Practices Guideline.2016.61p.
17. Johnson S, Haywood C. Perioperative medication management for older people. Journal of Pharmacy Practice and Research. 2022;52-391-401.
18. Naji A, Stolin G B, Ahmed A, Gatling J. Preoperative Assessment of Geriatric Patients Undergoing Elective IntracranialSurgery.Cureus.2020;12(12):e12284.
19. Levy J H. Perioperative Hyperglycemia Management. Anesthesiology.2017;126:547-60.
20. Knott L.Precautions for patients on steroids undergoing surgery.2022. Available from https://patient.info/doctor/precautions-for-patients-on-steroids-undergoing-surgery.
21. Wolfe J D, Wolfe N K, Rich M W. Perioperative care of the geriatric patient for noncardiac surgery. Clinical Cardiology.2020;43-127-136.

Why Geriatric Heart Failure Education Matters?

R.K. Gupta[1], A. Agarwal[2] S. Gupta[3], P. Gupta[4], M.S.S Priya[5]

ABSTRACT

Background: Geriatric heart failure (HF) presents a significant public health concern, affecting approximately 36.6% of the elderly population worldwide. The increasing prevalence of chronic diseases among the ageing population underscores the urgency of addressing HF, a leading cause of morbidity and mortality in older adults. However, managing HF in geriatric patients is complicated by various challenges and complications, including multimorbidity, frailty, polypharmacy, cognitive impairment, and social isolation. Hence, it is very crucial to address these issues.

Aim: This study emphasizes the significance of geriatric heart failure education for early detection and management, addressing specific challenges in older adults.

METHODS AND RESULTS (CASE SUMMARY)

A comprehensive literature review was conducted to explore the challenges and complications associated with managing heart failure (HF) in older adults. Searches across multiple databases were performed, and key themes were extracted to emphasize the significance of education in facilitating early detection and effective management of HF in this population. Results revealed significant associations between advancing age, frailty, and mortality rates in geriatric HF patients, with an 87% mortality rate observed during the follow-up period, peaking at 63% within the first year. The annual incidence of congestive heart failure (CHF) was found to be 10 cases per 1000, with females exhibiting a higher prevalence of cardiovascular disease than males. HF in older adults was strongly correlated with cognitive decline, frailty, and malnutrition, significantly compromising their quality of life. Multifaceted challenges including comorbidities, polypharmacy, and disabilities further complicated HF management, contributing to heightened hospital readmission rates. The typical age of participants in clinical trials was notably younger than the average age of CHF patients, suggesting a need for more comprehensive data to guide treatment decisions. Additionally, findings highlighted that elderly patients with heart failure with reduced ejection fraction (HFrEF) often do not receive guideline-directed medical therapy (GDMT) as recommended, leading to increased rates of hospitalization and mortality, emphasizing the need for increased awareness and education among healthcare providers. In the discussion, Gorodeski et al's comprehensive framework emphasizes addressing medical, cognitive, physical, and social domains in managing HF in geriatric patients, advocating for deprescribing strategies, nutritional assessment, and routine screening of cognitive impairment and depressive symptoms. Moreover, they stress the importance of multidimensional non-pharmacological approaches, such as exercise training and fall prevention, to preserve physical function and mitigate risks. Kitko. highlight the critical role of caregiver education, including daily monitoring of vital signs like BP, pulse, SpO_2, temperature, and weight, along with swelling checks and tracking serum electrolytes and creatinine levels, essential for patients on ARNI or K-sparing drugs, emphasizing support with daily activities and navigation of the healthcare system.

[1]Consultant Preventive and Clinical Cardiologist, AGRA MEDICITY HOSPITAL, Agra, UP, India
[2]Ex-Assistant Professor Cardiology, J.L.N. Medica College, Ajmer, Rajasthan, India.
[3]Assistant Professor (Gynec & Obst Dept), SNMC, Agra, UP, India.
[4]Student Government Autonomous Medical College, Firozabad, UP, India
[5]Junior Researcher, Agra Medicity Hospital, Agra, India.

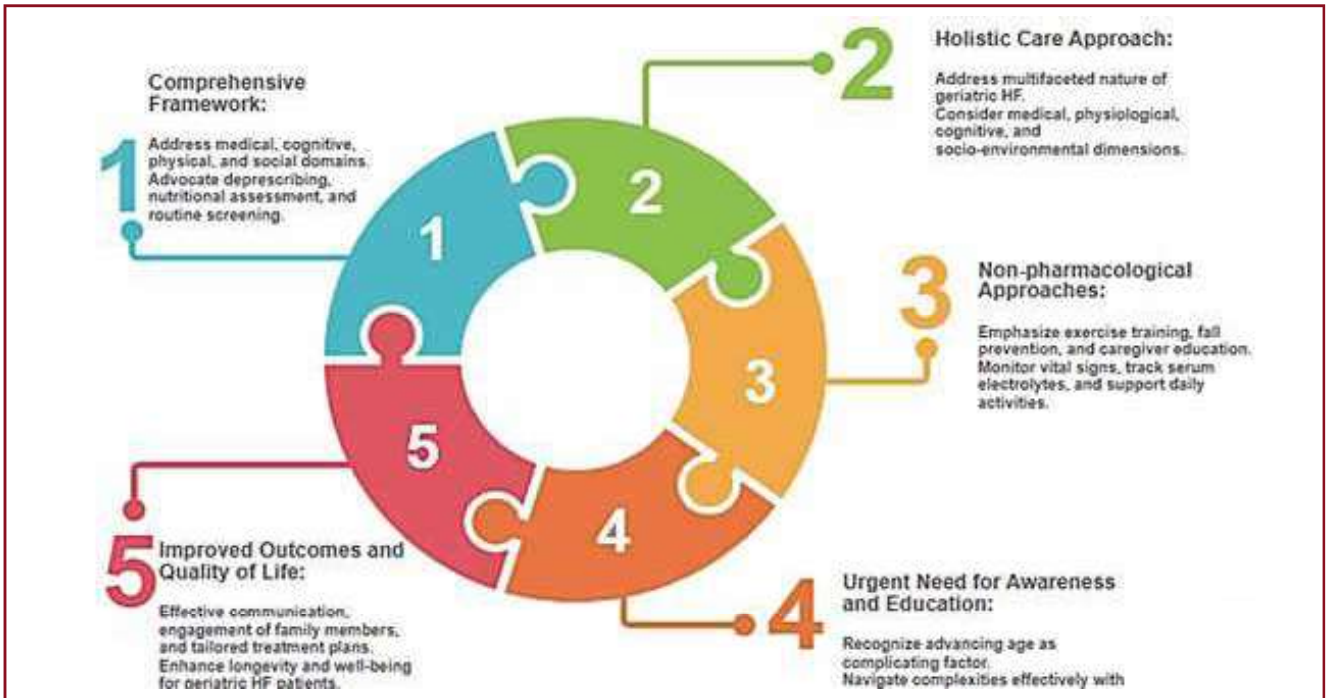


Table 1: Enhancing Geriatric Heart Failure Care: A Holistic Approach for Improved Outcomes

CONCLUSION

In conclusion, prioritizing geriatric heart failure (HF) education among healthcare professionals and caregivers emerges as a pivotal strategy in optimizing care and mitigating mortality risks within this vulnerable population. Beyond the conventional focus on pharmacological interventions, embracing a holistic approach that addresses the multifaceted nature of geriatric HF, encompassing medical, physiological, cognitive, and socio-environmental dimensions, stands as imperative. The recognition of advancing age as a complicating factor underscores the urgency of increased awareness and education among healthcare providers to navigate the complexities of managing HF in elderly patients effectively. By fostering effective communication, engaging family members, and devising tailored treatment plans, clinicians can significantly improve outcomes and quality of life for geriatric HF patients. Thus, emphasizing geriatric HF education is paramount in confronting the escalating burden of HF within ageing populations, ensuring comprehensive and compassionate care delivery that enhances longevity and well-being.

REFERENCES

1. Suresh Kishanrao et al; (2023), Congestive Heart Failure in Indian Elders, Clinical Cardiovascular Research.1(3). doi: 10.58489/2836-5917/006
2. Nanda H, et al; Gender prevalence of cardiovascular diseases in the geriatric population of India: A meta-analysis using R. World J Meta-Anal 2020; 8(1): 15-26 [doi: 10.13105/wjma.v8.i1.15]
3. Wang, X. et al,(2018). Prognostic Value of Frailty for Older Patients with Heart Failure: A Systematic Review and Meta-Analysis of Prospective Studies. BioMed Research International, 2018, Article ID 8739058, 9 pages. https://doi.org/10.1155/2018/8739058
4. Azad N, et al;. Management of chronic heart failure in the older population. J Geriatr Cardiol. 2014 Dec;11(4):329-37. doi: 10.11909/j.issn.1671-5411.2014.04.008
5. Dodson JA, Chaudhry SI. Geriatric conditions in heart failure. Curr Cardiovasc Risk Rep. 2012 Oct;6(5):404-410. doi: 10.1007/s12170-012-0259-8.
6. Gorodeski EZ, et al;. Domain Management Approach to Heart Failure in the Geriatric Patient: Present and Future. J Am Coll Cardiol. 2018;71(17). doi: https://doi.org/10.1016/j.jacc.2018.02.059
7. Kitko, L. et al; (2020). Family Caregiving for Individuals With Heart Failure: A Scientific Statement From the American Heart Association.Circulation, 141, e864–e878. doi: 10.1161/CIR.0000000000000768

Case Report: Facial Nerve Palsy Secondary to Multiple Bee Stings

Anjali R Metgudmath,[1] Yashoda Tushar Maladkar[2]

ABSTRACT

Bee stings can induce local or systemic symptoms that are usually moderate, but can also be severe and fatal. Simple bee stings are responsible for mild reaction such as skin rash and urticaria, even occasionally with anaphylaxis, and multiple stings cause toxic shock syndrome with systemic symptoms. The complications following bee stings are broadly divided into early and late reactions. Early reactions occur within 15 minutes to 5 hours, can vary from simple allergic reactions to anaphylactic shock. Late reactions can be delayed up to 10 days. Facial nerve palsy is a rare late complication of multiple bee stings. Our case report is about a couple who had experienced multiple bee sting induced anaphylactic shock and angioneurotic edema with facial nerve palsy, which showed complete recovery in 2 weeks with steroids, anti-histaminics and physiotherapy

INTRODUCTION

Insect stings can induce local or systemic symptoms that are usually moderate, but can also be severe and fatal. The reaction to bee stings is one of the most common causes of anaphylaxis and sudden death. Each year, approximately 3% of adults experience anaphylaxis as a result of insect bites. The incidence of deadly anaphylactic reactions caused by insect stings, like bees, is between 0.03 to 0.48 deaths per million annually, accounting for approximately 20% of deadly anaphylactic reactions. Bee sting allergy is observed in 26% of adults. The prognosis and severity of the bee sting envenomation are directly related to the number of stings. Therefore, 50–500 stings can cause the death of an adult man. Simple stings are responsible for mild reaction such as skin rash and urticaria, even occasionally with anaphylaxis, and multiple stings cause toxic shock syndrome with systemic symptoms.

The complications following bee stings are broadly divided into early and late reactions. Early reactions occur within 15 minutes to 5 hours, can vary from simple allergic reactions to anaphylactic shock. Late reactions can be delayed up to 10 days and their manifestations could vary according to the system involved. The clinical outcome and the extent of the reactions differ with IgE levels. Some are IgE-dependent and others are IgE-independent reactions. IgE-related mediators like histamine, proteases and thromboxane play a role in IgE-dependent reactions.

Facial nerve palsy is a rare late complication of multiple bee stings. Our case report is about a couple who had experienced multiple bee sting induced anaphylactic shock and angioneurotic edema with facial nerve palsy, which showed complete recovery in 2 weeks with steroids, anti-histaminics and physiotherapy.

CASE REPORT

A 75-year-old male, known hypertensive was at his farmhouse with his wife when he had encounter with a swarm of honey bees which bit him over his whole body, “not even one inch of his skin was spared by honey bees and some were found in his ears and oral cavity” as described by his wife. He presented to the emergency department in unconscious state with angioneurotic edema and in shock. He was resuscitated with intravenous fluid, was started on ionotropic support and systemic steroids were administered and was shifted to intensive care unit. In the intensive care unit with the help of IV fluids, steroids, adrenaline nebulisation, antihistaminic and antibiotics

[1]Professor of Medicine, [2]Resident, Department of Medicine, Jawaharlal Nehru Medical College, KLE Academy of Higher, Education and Research Belagavi

patient improved over the course of 48 hours. He developed right lower motor neuron palsy of facial nerve on the 3rd day of admission due to extensive edema. The facial nerve palsy recovered with steroids and physiotherapy.

His wife was also admitted with angioneurotic edema secondary to multiple bee sting bites. She also developed bilateral lower motor neuron facial nerve palsy (right sided on day 3 and left sided on day 4). The palsy recovered with steroids, valacyclovir and physiotherapy.

The blood investigation revealed secondary polycythaemia due to severe dehydration and pre renal acute kidney injury with severe bacterial sepsis. With adequate antibiotics, fluid resuscitation, steroids and anti-histaminic the patient improved there was resolution of pre renal Acute kidney injury, secondary polycythemia and the lower motor neuron facial palsy and patient was discharged on 8th day of admission and follow up also was uneventful.

INVESTIGATIONS

Name	Result
Haemoglobin	**18.8 g/dl**
Haematocrit	**61.9 %**
Total leucocyte count	13,900 /microL
Platelet count	3,42,000/ microL
HsCRP	**153 mg/L**
Serum Procalcitonin	**71.60 ng/ml**
Urea	48.2 mg/dl
Creatinine	**1.74 mg/dl**
Sodium	138 mEq/L
Potassium	**5.93 mEq/L**
Chloride	103 mEq/L
Bicarbonate	10.4 mmol/L
ECG	Normal sinus rhythm with tachycardia
CXR	NORMAL
USG (A+P)	NORMAL

DISCUSSION

Bee venom consists of various enzymes and biologically toxic substances such as mellitin, phospholipase A2, hyaluronidase, histamine, and apamin. The main component of bee venom (50%) is mellitin, which causes inflammatory reactions, cytolysis, intravascular hemolysis, and rhabdomyolysis, all of which can exacerbate and lead to acute kidney injury. Phospholipase A2 can cause disseminated intravascular coagulation (DIC). Hyaluronidase with increased capillary permeability facilitates the spread of toxins. Apamine is neurotoxic. Histamine is a chemical compound that dilates blood vessels, promotes fluid secretion, and stimulates nerves that cause bronchospasm and local muscle spasms. Therefore, phospholipase A2 and mellitin with destruction of the cell membrane cause hemolysis, thrombocytopenia, liver damage, kidney failure, cardiac arrest, and death.

Several case reports of neurological manifestations, including peripheral neuritis, cerebral infarction, Guillain-Barre syndrome, ocular myasthenia gravis, optic neuropathy, and encephalopathy have been described in the literature despite the rarity of these symptoms.

A case reported in Sri Lanka of facial paralysis occurred within 24 hours of the bee sting as reported by Izzathunnisa.[2] Another case was reported in Turkey by Yıldız where facial palsy occurred within 2 hours of the bee sting. In contrast, a case reported in China by Tang,[1] facial palsy was delayed until the 7th day of the bee sting in contrast to our cases which developed at day 3. Early onset of facial weakness in the above-mentioned former two studies was probably IgE mediated compared to delayed complication in that of Tang et al is attributable to non-IgE mediated reactions.

Steroids, antivirals and physiotherapy are recommended to treat primary facial paralysis. In addition to steroids our patient was treated with antihistamines to decrease IgE-mediated histamine production. In two weeks, both our patients made a complete recovery without any further neurological deficits.

CONCLUSION

Multiple bee stings can lead to severe anaphylaxis, rare cases sudden cardiac arrest and delayed neurological complication. Severe anaphylaxis is more common in elderly age groups similar to the cases reported above. The incidence of peripheral facial nerve palsy secondary to multiple bee stings is very rare, but it has complete recovery with prompt administration of steroids and physiotherapy. The prognosis of lower motor neuron facial nerve paralysis is very good and 85% have complete recovery in 4 weeks. In cases of bee stings treating clinicians should be mindful of the uncommon but potential neurological complications and their consequences.

REFERENCES

1. Li TJ, Xiang M, Lv X. Analysis of a Case of Facial Nerve Injury Caused by Bee Sting in a Child. Risk Manag Healthc Policy. 2023; 31:247-253.
2. Izzathunnisa R, Umakanth M, Sundaresan KT, Mayurathan P. Bee sting induced facial nerve palsy. Journal of the Ceylon College of Physicians. 2023;54(1):44-46. DOI: https://doi.org/10.4038/jccp.v54i1.7972
3. Rao Anagha P. et al. A rare case of facial nerve paralysis by apical bee stings. Med Toxicol Curr Res 2024; 7(1):1-3

Case Report Hidden Giants: Acromegaly Uncovered In An Elderly Patient With Diabetes Mellitus

Pradnya Diggikar,[1] Bhavya Sri Yammanuru,[2] Tushar Pancholi,[3] Hansini Raju Reddy,[4] Mayank Mundada[5]

CASE PRESENTATION

A 65-year-old male, farmer by profession, presented to the OPD with complaints of polyuria for the past 1.5 months, fatigue for the past 7 months, slipping of footwear without knowledge for the past 1-year, bilateral knee and lower back pain for the past 4 years. The patient is a known case of Diabetes Mellitus for 5-6 years, Hypertension for 6 years and was on regular medication. He has a history of Prolapsed intervertebral disc operated via decompression and spinal fixation 7 years ago. On examination, his Pulse rate was 90 bpm, Blood Pressure was 120/80 mm Hg, respiratory rate was 18 cpm, and oxygen saturation (SpO_2) was 98% on room air. Body sugar level Random was 345 mg/dl. Physical examination revealed an enlarged tongue, prognathism, enlarged hands, and frontal bossing (figure 1&2). On CNS examination patient has decreased vibration and touch sensation till tibial tuberosity, rest of the central nervous system examination was within normal limits. Other system examination showed no obvious abnormality.

Laboratory investigations showing deranged glycated hemoglobin along with clinical findings was highly suggestive of Acromegaly. Further laboratory investigations revealed raised Prolactin, and elevated Insulin like Growth Factor-1, while other parameters were normal (Table 1). Electrocardiogram revealed sinus rhythm.

[1]Professor, Department of General Medicine, [2]Second year Resident, [3]Second year Resident, Department of General Medicine, [4]Third year Resident, Department of General Medicine, [5]Third year Resident, Department of General Medicine, Dr. D. Y. Patil Medical College, Hospital and Research Centre, Dr. D. Y. Patil Vidyapeeth, Pune, Maharashtra, India.

Figure 1: A) Patient Features showing prominent facial bones, enlarged nose and madarosis. B) Showing enlarged and swollen hands.

Chest X-ray revealed no obvious abnormality (Figure 3). Lateral Skull x-ray showed prognathism, prominent facial bones and enlarged sinuses (Figure 4). Ultrasound abdomen and pelvis revealed no obvious abnormality. 2D echocardiogram showed mild concentric left ventricular hypertrophy. Perimetry was performed which showed normal field of vision.

Based on the above clinical and laboratory investigations, patient was diagnosed with acromegaly. Patient was started on injection. Regular insulin and symptomatic management was given. MRI brain with dynamic contrast with Pituitary protocol showed microadenoma (figure 5). On Day 5, the patient was transferred to the Neurosurgery department and underwent transsphenoidal resection of pituitary microadenoma. Intra operative and Post operative was uneventful.

Patient was on regular follow-up for the same. On follow-up, patients blood sugar levels came down to normal and was off anti diabetic medications.

Figure 2 : A) Lateral view of the face showing Prognathism, big ears and enlarged nose.

DISCUSSION

Acromegaly is a condition resulting from an excess production of growth hormone (GH) in the body. GH, primarily synthesized in the pituitary gland, regulates the physical growth of the body. In adults, an overabundance of this hormone leads to enlargement of bones, cartilage, body organs, and other tissues.[1]

Acromegaly is a relatively rare condition, with an estimated annual incidence of three to four cases per one million individuals.[2] Acromegaly typically manifests in middle-aged adults, although symptoms can emerge at any stage of life. In children, an excess of growth hormone leads to a condition known as gigantism rather than

Figure 3: Chest Xray PA view with no obvious abnormality

Figure 4: Lateral Skull Xray showing Prognathism, Prominent Facial bones and Prominent Frontal and Maxillary Sinuses.

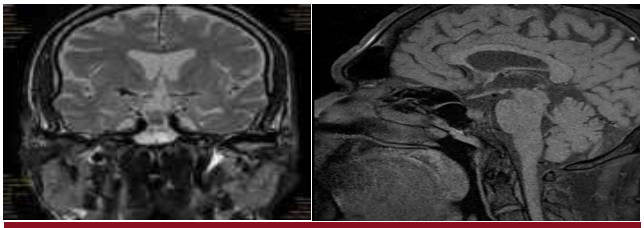


Figure 5: MRI brain plain with dynamic contrast for pituitary in coronal and sagittal section showing small hypo enhancing lesion in anterior pituitary gland along its posterior aspect on dynamic contrast study likely Pituitary microadenoma.

acromegaly. Gigantism occurs when the surplus GH acts before the closure of growth plates during puberty. This premature exposure to excessive GH results in unusually tall stature in children.[1]

The etiology of acromegaly encompasses three main categories: primary GH excess, ectopic or iatrogenic GH overproduction, and excessive growth hormone-releasing hormone (GHRH) secretion. The most prevalent cause of acromegaly involves somatotroph GH-secreting adenomas located in the anterior pituitary gland.[3] Mutations most commonly linked to this condition involve the activation of the alpha subunit of the guanine nucleotide stimulatory protein gene. Additional primary GH excess sources include pituitary adenomas secreting multiple hormones

Table 1: Laboratory investigations on presentation

INVESTIGATIONS	VALUES	NORMAL VALUES
Haemoglobin	14.1 gm/dl	13.2-16.6 gm/dl
Total leukocyte count	5100	4000-10000mcL
Platelet	178000/mm^3	150000-410000/mm^3
Total Bilirubin	0.75mg/dl	0.22-1.2mg/dl
Direct Bilirubin	0.26mg/dl	Upto 0.5mg/dl
Aspartate transaminase	14U/L	8-48U/L
Alanine transaminase	13U/L	7-55U/L
Urea	29md/dl	17-49mg/dl
Creatinine	0.6mg/dl	0.6-1.35mg/dl
Serum Sodium	136mEq/L	136-145mEq/L
Serum Potassium	4.11mEq/L	3.5-5.1mEq/L
T3	0.69ng/ml	0.64-1.52ng/ml
T4	7.56mcg/dl	4.87-11.72mcg/dl
TSH	0.72mcg/dl	0.35-4.97mcIU/ml
Prolactin	39ng/ml	3.46-19.4ng/ml
Insulin like Growth Factor-1 (IGF-1)	566ng/ml	60-110ng/ml
Adrenocorticotrophic hormone(ACTH)	37.5pg/ml	10-60pg/ml
Cortisol	13.3mcg/dl	3.7-19.4mcg/dl
Follicular stimulating hormone(FSH)	28.8mIU/ml	25.8-134.8mIU/ml
Luteinizing Hormone (LH)	11.9IU/ml	1.24-7.8IU/ml

and GH-cell carcinomas. Familial syndromes associated with acromegaly include Multiple endocrine neoplasia type 1, familial acromegaly, McCune-Albright syndrome, and Carney complex. GH excess may also originate ectopically, often from tumors such as lymphoma and pancreatic-islet cell tumors. Iatrogenic GH overproduction can occur due to excessive GH administration.[3]

The effects of acromegaly, stemming from both tumor mass and systemic hormonal imbalances, manifest across various bodily systems. Tumor mass often leads to headaches, visual field defects, hyperprolactinemia, pituitary stalk sectioning, and subsequent hypopituitarism, resulting in hormonal deficiencies such as hypothyroidism, hypogonadism, and hypocortisolism. Systemic effects of excess growth hormone (GH) and insulin-like growth factor-I (IGF-I) include visceromegaly, alterations in soft tissues and skin, thickening of extremities, hyperhidrosis, and the development of skin tags and acanthosis nigricans. Cardiovascular complications arise in the form of hypertrophy, congestive heart failure, coronary artery disease, arrhythmias, hypertension, and cardiomyopathy. Metabolic disturbances include impaired glucose tolerance, diabetes mellitus, and insulin resistance. Respiratory manifestations may include macroglossia, jaw malocclusion, upper airway obstruction, sleep disturbances, and various forms of sleep apnea. Skeletal issues encompass increased articular cartilage thickness, joint pain, carpal tunnel syndrome, and osteopenia. Additionally, acromegaly can lead to other endocrine consequences such as goiter, hypercalciuria, galactorrhea, decreased libido, erectile dysfunction, and menstrual irregularities.[4]

The diagnosis of acromegaly involves several key approaches. Firstly, analyzing facial features, including subtle characteristics, can provide initial clues. Serum IGF-1 measurement plays a critical role, with consistent monitoring essential, while considering age-related variations and influencing factors like adolescence or pregnancy. Serum GH levels, although not recommended for diagnosis alone, contribute to treatment decisions, particularly through a suppression test after oral glucose load. Imaging studies, notably pituitary MRI, are pivotal in confirming acromegaly by detecting adenomas, with computed tomography serving as an alternative for MRI contraindications. In rare cases without evident pituitary tumors, additional investigations such as serum GHRH levels and cross-sectional imaging may be required to identify ectopic sources. This comprehensive diagnostic approach aims for accurate and timely identification of acromegaly to facilitate appropriate management strategies.[5]

Treatment options for acromegaly encompass surgical, medical, and radiation therapies. Transsphenoidal surgery remains the preferred treatment option for the majority of patients diagnosed with acromegaly.[6] This surgical procedure involves accessing the pituitary gland through the nasal passages and removing the tumor responsible for

excessive growth hormone production. Transsphenoidal surgery is the primary surgical approach, offering rapid control of GH excess in most patients with microadenomas and decompression of the optic chiasm in those with macroadenomas. However, surgical intervention may be less effective in achieving biochemical control for patients with macroadenomas, and while recurrence risk is low, complications such as epistaxis, bleeding, CSF leak, meningitis, stroke, hypopituitarism, and hyponatremia can occur, albeit infrequently in experienced hands.[5] Medical therapy includes somatostatin receptor ligands (SSTR agonists), which effectively achieve biochemical and tumor control but carry adverse effects such as diarrhoea, dyspepsia, and diabetes mellitus. Cabergoline, a D2 receptor agonist, is more effective in patients with lower baseline IGF-1 levels but presents side effects like nausea and orthostatic hypotension. Pegvisomant, a GHR antagonist, rapidly controls IGF-1 levels but lacks tumor control and may cause injection site reactions and rash. Radiation therapy, though not applicable for all cases, achieves tumor control in most patients and biochemical control over time, but risks of anterior hypopituitarism, cranial neuropathies, and secondary tumors or stroke are present.[5]

CONCLUSION

In conclusion, this case underscores the importance of maintaining a high index of suspicion for acromegaly in elderly in clinical practice, particularly when encountering patients with refractory symptoms, even in the presence of common comorbidities such as diabetes mellitus and hypertension. The clinical presentation, including characteristic physical features and associated symptoms, should prompt clinicians to consider further evaluation for acromegaly. Early recognition and multidisciplinary management, involving endocrinology and neurosurgery, are pivotal for optimizing outcomes in patients with this complex endocrine disorder. This case highlights the critical role of collaborative care in addressing the diagnostic and therapeutic challenges posed by acromegaly, ultimately leading to improved patient outcomes and quality of life.

REFERENCES

1. Acromegaly - NIDDK [Internet]. [cited 2024 May 6]. Available from: https://www.niddk.nih.gov/health-information/endocrine-diseases/acromegaly#
2. Tamban CA, Sandoval MAS, Lantion-Ang FL. Case report: Where is the culprit? A case of acromegaly that defied the management algorithm. BMJ Case Rep [Internet]. 2013 [cited 2024 May 6];2013:1–5. Available from: /pmc/articles/PMC3604022/
3. Adigun OO, Nguyen M, Fox TJ, Anastasopoulou C. Acromegaly. Pituitary Adenomas: The European Neuroendocrine Association's Young Researcher Committee Overview [Internet]. 2023 Feb 2 [cited 2024 May 6];127–71. Available from: https://www.ncbi.nlm.nih.gov/books/NBK431086/
4. Lugo G, Pena L, Cordido F. Clinical Manifestations and Diagnosis of Acromegaly. Int J Endocrinol [Internet]. 2012 [cited 2024 May 6];2012. Available from: /pmc/articles/PMC3296170/
5. Ershadinia N, Tritos NA. Diagnosis and Treatment of Acromegaly: An Update. Mayo Clin Proc [Internet]. 2022 Feb 1 [cited 2024 May 6];97(2):333–46. Available from: http://www.mayoclinicproceedings.org/article/S0025619621008454/fulltext
6. De P, Rees DA, Davies N, John R, Neal J, Mills RG, et al. Transsphenoidal Surgery for Acromegaly in Wales: Results Based on Stringent Criteria of Remission. J Clin Endocrinol Metab [Internet]. 2003 Aug 1 [cited 2024 May 6];88(8):3567–72. Available from: https://dx.doi.org/10.1210/jc.2002-021822

GERIATRIC PEARLS

PART-I. ELDERLY AND HYPERTENSION- TIPS

Dr TUSHAR SHAH

If There's An Elderly Hypertensive with Severe, *Difficult-to-Control* High BP....think of the following situations as the various causes of secondary hypertension :

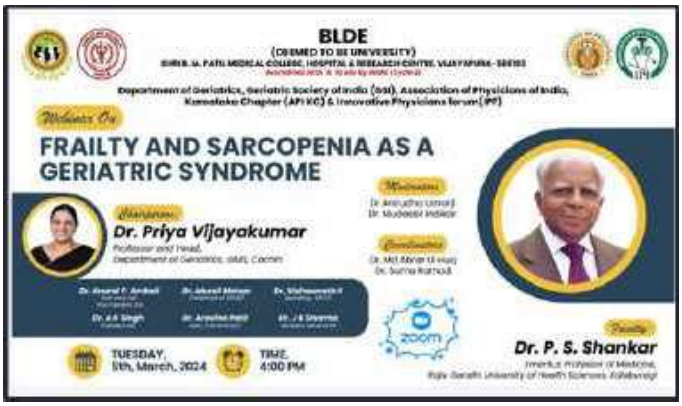
- Associated recurrent episodes of *flash pulmonary oedema,* think of bilateral atherosclerotic renal artery stenosis.
- Associated *one small kidney* on ultrasound, think of unilateral atherosclerotic renal artery stenosis.
- Associated *isolated systolic hypertension with irregularly irregular pulse* (atrial fibrillation), think of thyrotoxicosis.
- Associated *diastolic hypertension with lethargy, weight gain, dry skin,* think of hypothyroidism.
- Associated history of taking pain medicines for long, think of *NSAID-induced* hypertension.
- Associated extensive skin disease for which local creams have been applied for long, think of *steroid-induced* hypertension.
- Associated night-time *snoring* and day-time somnolence even in obese / non obese elderly, think of OSA.

News from Vijayapura

BLDE University Hosts Successful Webinar on Geriatric Health under the leadership of Dr. Anand P Ambali

BLDE (Deemed to be University) recently organized a webinar on March 5, 2024, focusing on the critical topic of geriatric health- Frailty and Sarcopenia as a geriatric syndrome. The event, hosted by the Department of Geriatrics at the SMI B.M. Patil Medical College, Hospital & Research Centre in Vijayapura, saw an impressive turnout with a total of 84 delegates participating.

The webinar featured Nadoja Dr. P S Shankar, an Emeritus Professor of Medicine at RGUHS, Bangalore, as the resource person, Dr . Priya V chaired the session.. Dr. Shankar delivered an insightful discussion on frailty and sarcopenia in older individuals, emphasizing the importance of early identification and prevention of these geriatric syndromes. He also provided valuable clinical tips regarding the management strategies for these conditions,



highlighting their impact on the quality of life and increased morbidity in older people.

The session was chaired by Dr. Priya Vijayakumar, HoD Geriatrics at AIMS Cochin, who is an alumna of the institute. The event also saw the presence of esteemed professionals, including Dr. Anand P. Ambali, the Prof & HoD of the Department of Geriatrics, and Dr. Aravind Patil, the Dean FoM, who graced the program with their participation.

The Department of Geriatrics at BLDE University continues to demonstrate its dedication to fostering academic discourse and enhancing the understanding of geriatric health. The university's efforts in organizing such impactful events serve as a testament to its commitment to excellence in healthcare education and research.

Dr. Anand P. Ambali Leads Geriatric Care Seminar Organised By Ima Kerala State Branch and GSI Kerala Chapter

Prioritising Geriatric Care in Emergency Settings

In an enlightening endeavour to enhance geriatric care, the Indian Medical Association's Kerala State Branch Committee for Healthy Aging together with the Geriatric Society of India orchestrated a pivotal series of Continuing Medical Education (CME) sessions on geriatrics. The session addressed crucial strategies in "Approach to Older Persons in Emergency Department." The webinar was jointly organized by the Indian Medical Association Kerala Chapter and the Geriatric Society of India Kerala Chapter.

This educational assembly spotlighted Prof. Anand Ambali, a distinguished professor in the Geriatrics Department and Vice President of the Geriatrics Society of India. Prof. Ambali, also a lauded Commonwealth Scholar, served as the guest of honour, bringing invaluable insights into the complex needs of the elderly in emergency medical scenarios.

Joining him were Dr. Joseph Benoyan and Dr. Sasidharan, who served as the IMA State President and State Secretary respectively. Their collective expertise

was expected to significantly contribute to the dialogue, driving forward the agenda of improving emergency care protocols for the ageing population. The welcome address was delivered by Dr. Joseph K, and Dr. Sajesh Ashokan introduced the guest faculty. Dr. Sasidharan concluded the event by proposing the vote of thanks.

Such initiatives are essential, as they not only provide continuous learning opportunities for healthcare professionals but also aim to refine the quality of care provided to our elderly, ensuring that their critical needs were met with both compassion and efficiency.

News from Odisha

GSICON Odisha 2024 Marks A Milestone in Promoting Healthy Ageing

The first Annual State Conference of the Geriatric Society of India - Odisha State Branch (GSICON - ODISHA 2024) successfully concluded on the 23rd of March 2024 at Hi-Tech Medical College and Hospital, Bhubaneswar. The conference, under the theme "Promoting Healthy Ageing: Challenges and Need for Future Action", drew wide participation from medical professionals focused on geriatric care.

The event commenced with a warm welcome address by Dr Lisa Sarangi, the Organising Chairperson, followed by an enriching inauguration session graced by luminaries such as Dr Tirupati Panigrahi and Dr RM Tripathy.

The lighting of the lamp symbolised the bright future of geriatric care in the region.

Throughout the day, a series of presentations and discussions addressed key issues and innovative solutions in elderly care. Notable sessions included Dr Sunil Dash's insights on robotic joint surgery and Dr Purna Chandra Dash's keynote address on managing chronic diseases in the elderly, which were particularly well-received.

The conference also served as a platform for the exchange of latest scientific and clinical practice advancements. Dr Kasturi Bharadwaj's talk on surgical emergencies in the elderly and Dr Hiranmaya Mohapatra's discussion on mental health balance provided practical

strategies for enhancing elderly patient care.

The event not only fostered learning and discussion but also enabled participants to earn Continuing Medical Education (CME) credits, enhancing their professional qualifications. The Geriatric Society of India's Odisha State Branch has indeed set a high standard for future conferences, significantly contributing to the field of geriatric medicine in India.

Successful Health Camp for the Elderly Organised in Malanda, Jagatsinghpur

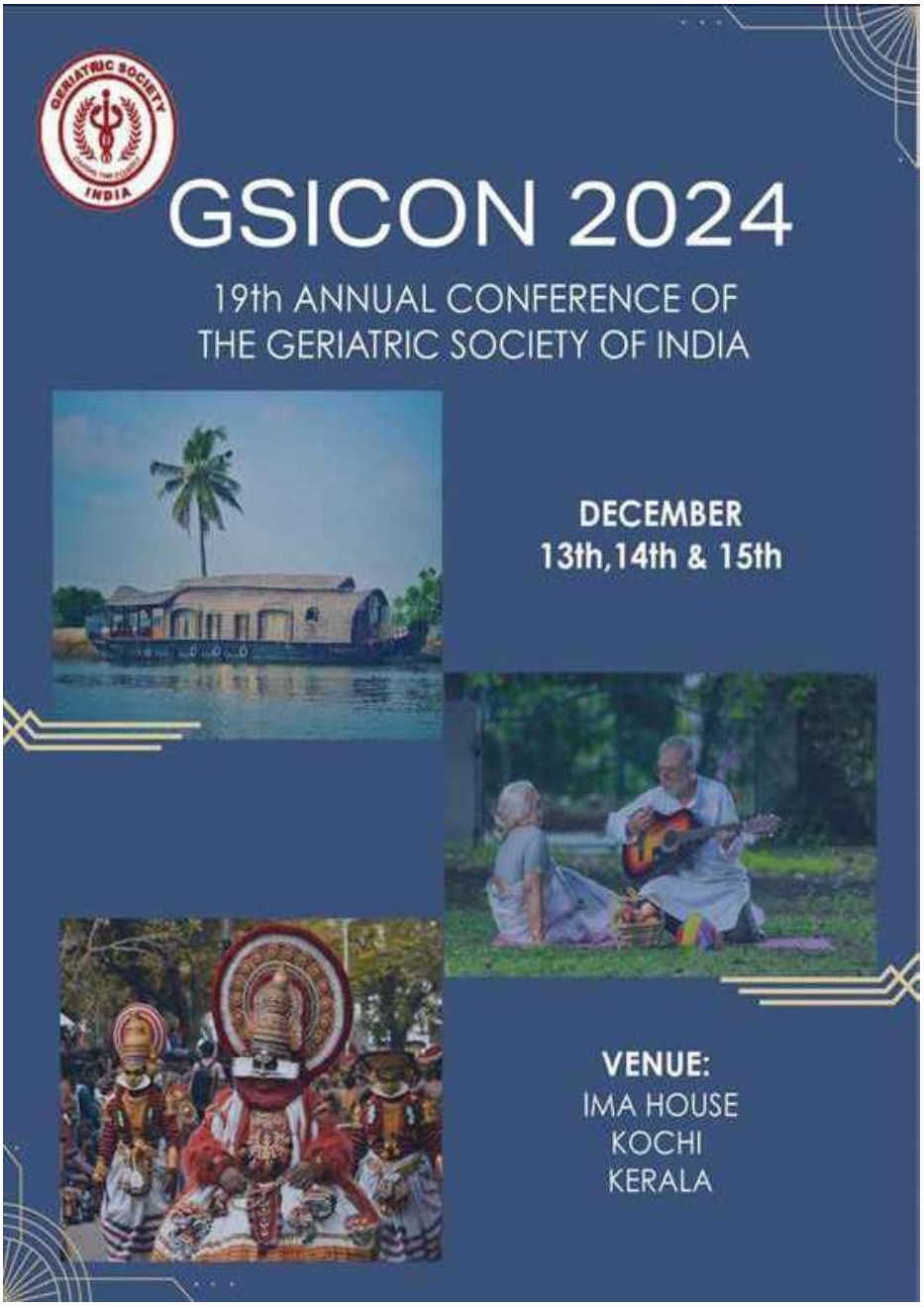
In a commendable initiative to promote healthcare accessibility, the Geriatric Society of India (Odisha State Branch) in collaboration with SCB Medical College and Hospital, Cuttack, organised a dedicated health camp for the elderly in the remote village of Malanda, Jagatsinghpur district on 4th February 2024. The camp successfully treated around 250 elderly patients, providing expert medical attention to those aged over 60.

Specialists from various fields including medicine, cardiology, nephrology, orthopaedics, urology, and neurology participated in the camp, offering their expertise

to address the complex health needs of the elderly. In addition to the specialist consultations, free medicines were distributed according to individual needs, ensuring that no patient left without the necessary treatments.

The event also included counselling sessions where the elderly were given tips on maintaining a healthy lifestyle. The initiative was highly praised by the local community, acknowledging the significant impact of such healthcare access in their region.

The camp was graced by the presence of the superintendent and registrar of SCB Medical College, Cuttack, who lauded the efforts and success of the health camp. This event not only provided essential medical services but also highlighted the importance of healthcare accessibility in rural areas. The overwhelming positive response from the community confirms the camp's success and the pressing need for such initiatives



CERTIFICATE COURSE IN GERIATRIC MEDICINE & GERONTOLOGY (VERSION IV)

(JULY 16TH, 2024 - OCTOBER 29TH, 2024)

Increase Your Expertise in Geriatric Care:
The Geriatric Society of India® (GSI) is proud to offer its acclaimed Certificate Course in Geriatric Medicine & Gerontology (Version IV). This comprehensive online program provides a valuable opportunity for healthcare professionals interested in geriatric care to gain in-depth knowledge and skills.

COURSE HIGHLIGHTS

- Endorsed by Khwaja Bandanawaz University, Kalaburagi
- Convenient online format
- Course Director - Dr. A. K. Singh, Past President GSI

Registration Fees – Rs. 10000/-
Contact - certificatecourseversion4@gmail.com
For more Details, please visit http://www.geriatricindia.com/

PHOTO REPORT OF MID-TERM GSICON 2024 AT TUMKUR

International Geriatrics Conference 2024 Promotes Healthy Aging and Advances in Care

Tumkur, India - April 2024 - The International Mid-Term Conference of Geriatrics 2024, held under the theme "Healthy Aging, Age Gracefully," brought together healthcare professionals for a comprehensive exploration of geriatric care and research. Organized by Sri Siddhartha Medical College in collaboration with the Geriatric Society of India and Associations of Physicians of India, the event aimed to equip participants with the latest knowledge and best practices in geriatric medicine.

The conference featured a diverse range of activities, including workshops on geriatric emergencies, comprehensive geriatric care, and palliative care. Scientific sessions focused on intrinsic capacity in older adults, geriatric oncology, laparoscopic surgery, stroke management, and medicolegal considerations in elderly care.

Over 400 participants attended the event, including delegates, Geriatric Society of India and Associations of Physicians of India members, and nursing college representatives. A pre-conference workshop trained participants on managing cardiac, respiratory, neurological emergencies, and comprehensive geriatric care.

Keynote speakers like Dr. Prashanth Reddy addressed neurodegenerative disorders in the elderly, while other experts like Dr. Dominic Benjamin, Dr. Jagannath Dixit, and Dr. Anirudh v Kulkarani shared insights on various geriatric health topics, including psychosocial effects of loneliness and advanced stroke management.

Discussions throughout the conference addressed challenges and advancements in geriatric care, covering topics like amendments for elderly rights, preventive care, diabetes treatment, epilepsy management, dementia, fall prevention, and exercise prescription for older adults.

A multidisciplinary approach was evident, with sessions on recent advances in geriatric neurodegenerative disorders, orthopedics, and values in geriatric care. A

paper and poster presentation competition showcased research from various institutions, with prizes awarded to the winners. Dr. Garima Handa was also felicitated at the conference.

The event concluded with the distribution of certificates and mementos to paper and poster competition winners. Feedback from delegates and Geriatric Society of India representatives highlighted the success of the conference in promoting healthy ageing and advancing geriatric care practices.

PROCEEDINGS

Day 1(18-4-24): Pre-conference workshop

A pre-conference workshop at Sri Siddhartha Medical College provided hands-on training for 65 participants in managing common medical emergencies and received positive feedback.

SCIENTIFIC SESSIONS:

Day 2 - 19.04.2024

The conference was held at Sri Gangadharaiah Memorial Hall, SSMC, Tumkur. The conference was inaugurated by Chief Guest, Dr M Maiya, MBBS (Mysore), FRCP(Lond), FRCP(Edin) FRCP(Glasgow), FICP, FICC(India) Consultant Physician, Rangadore Memorial Hospital, Bangalore. The guest of honour was Dr G Parameshwara Hon'ble Chancellor, Sri Siddhartha Academy of Higher Education. The lighting of the lamp was done by several dignitaries including the Vice Chancellor, Registrar, and other officials.

Welcome Address

The welcome address was rendered by Dr Prabhakar GN, Vice Principal, SSMC. He began by welcoming the dignitaries, delegates and the guest speakers.

Dr. Savitha Rani B, the organizing secretary, discussed the theme of healthy ageing and graceful ageing. Dr.

Maiyya, the chief guest, was introduced by Dr. Vinay, followed by felicitation. Dr. Linge Gowda K B and others were also felicitated for their contributions to geriatrics. Dr. Maiyya talked about the challenges faced by the elderly. Mrs. Bhavani Hegde, aged 105, was honored. The vote of thanks was given by Dr. Suma K.R.

SCIENTIFIC SESSIONS:

SESSION - 1

Intrinsic Capacity in Older Adults

Dr. Dominic Benjamin, a senior geriatrician spoke regarding the intrinsic capacity in elderly population highlighting the importance of including endurance building activities like walking, cycling etc. in improving the overall health of the elderly

Session - 2

Panel Discussion: Geriatric Oncology – What Everyone Should Know

A panel of experts in oncology from Aster CMI Bangalore discussed regarding various aspects of management of common cancers in geriatric population with the help of case scenarios which was moderated by Dr. Jagannath Dixit. The session was interactive with active participation from the audience.

Session - 3

Laparoscopy in Geriatric Patients

Dr. Ashish R Shah from Apollo Hospitals Bangalore enlightened the audience regarding Laparoscopic, minimal access, bariatric and robotic surgeries in the elderly and the unique problems faced during the same

Session – 4

Advanced Management of Stroke

Dr. Anirudh v Kulkarani from the department of Neurology, Apollo Hospital Bangalore gave an in-depth insight into the newer therapies and advances in the management of stroke.

Session 5

Advances in Geriatric Medicine

Dr. Anoop Amarnath from Manipal Hospitals Bangalore briefed the audience regarding the advanced and upcoming therapies for common geriatric disorders.

Session - 6

Solitary Road to Old age

Dr Varsha Reddy (Senior Geriatric Specialist, University Hospital, Morecambe Bay, UK) spoke about the psychosocial effects of loneliness in the elderly and the importance of socializing and engaging in community activities in order of have appositive mental health.

Session - 7

Medicolegal Aspects in the Elderly

Dr. Joga Rao a medicolegal expert from Bangalore gave a detailed description of different medicolegal aspects faced during the treatment of elderly including informed consent and advanced directives. He briefed the audience regarding the recent amendments in Niti Ayog which safeguards the rights of the elderly. He also cleared doubts from the audience regarding reverse mortgaging and elder abuse.

Session – 8

Preventive Geriatrics

Dr Ravikeerthy (Senior consultant physician, Gleneagles BGS Hospital, Bangalore) gave some interesting insights into the preventive aspects of geriatric care.

Session - 9

Sri Sunku Subramanyam Memorial Oration: A Novel Concept for the Treatment of Diabetes and Ageing

Dr Atul Kulashrestha (Consultant Geriatrician, Geriatric Society of India) spoke about the challenges and newer drugs in the treatment of Diabetes in the ageing population.

SESSION - 10

Epilepsy in Elderly

Dr Vengamma (Vice Chancellor, Neurologist, Sri Devaraj Urs Academy of Higher Education, Kolar) discussed regarding the challenges while treating elderly epileptic patients.

DAY 2 -19.04.2024

On the 19th of April there were two sessions for the nursing students. The first session was about the clinical

assessment of geriatric patients by Dr Anand P Ambali (Professor and HoD, Department of Geriatrics, BLDE Deemed University, Shri B M Patil Medical College Hospital and Research Centre, Vijayapura & Vice President – Geriatric Society of India.

The second session was Prevention of Falls and Delirium in Hospital by Dr Anita Basavaraj (Professor & HoD, Department of General Medicine, Government Medical College, Satara). About 45 nursing students and staff attended the sessions.

DAY 3 -20.04.2024

Session 1

Exercise Prescription in Geriatric Patients

Dr Kavitha (Consultant Geriatrician, Sparsh Hospitals, Yeshwanthpur, Bangalore) spoke about the importance of exercise and the types of exercise which could be incorporated in day- to-day life which can lead to significant improvement in the general wellbeing of the elderly.

Session 2

Dementia in the Elderly

Dr Prabha Adhikari (Professor and HoD, Geriatric Medicine, Yenepoya Medical College, Mangalore educated the delegates about identification of dementia at an early stage and also highlighted regarding steps to be taken to prevent early-onset dementia. Dr. Prabha Adhikari has rehabilitated many elderly patients with dementia and has also provided support and counselling for their families at her centre.

Session 3

Recent Advances in Geriatric Neurodegerative-Disorders

Dr Shalini M (Consultant Geriatrician, Principal, Sri Siddaganga Medical College and Hospital, Tumkur), gave an in-depth discourse regarding the recent advances in diagnosis and management of neurodegenerative disorders.

Session 4

Orthopaedics in Geriatrics

Dr Alagu Pandiyan (Consultant Orthopaedic Surgeon, Sparsh Hospital, Yeshwanthpur), enlightened the audience about the common orthopaedic problems and their management in the elderly population.

Session 5

Dr Satish Gulati & Dr Rita Gulati Oration: Empty Nest Syndrome

Dr. Vivek Handa (Adjunct Professor, Community Medicine, ESIC Medical College, Faridabad, Haryana) gave an enlightening speech on the psychosocial problems faced by the aged after their children leave their parents house. He also stressed upon the importance of building of meaningful social relationships to avoid depression and feeling of loneliness.

Session 6

Values in Geriatric Care - A Spiritual Approach

Dr Rajeshwari Rao (Medical Officer In-charge, Geriatric OPD BARC, Mumbai, Maharashtra) highlighted the importance of meditation, yoga and participation of the elderly in local community festivals which positively impacts the overall health and wellbeing of the aged.

PAPER & POSTER PRESENTATION

The poster presentation was held in Skill Lab on 19th of April 2024 between 3.30 to 5.30 pm. 28 Students participated in the competition.

The Oral Paper presentation was held on 20th of April 2024 between 8.00 am to 10.00 am at Skill Lab. 10 faculty, 34 post-graduates and 12 undergraduate students participated.

The paper and posters were judged by the members of Medical Education Unit of SSMC.

POSTER PRESENTATION PRIZE DISTRIBUTION

The prize winners for the poster presentation competition were awarded with certificate and mementos.

The prize list is as follows Poster

Hall A

1st: Dr Srujana, Geriatric Resident, D Y Patil MC, Pune

2nd: Dr Pruthvi, PG, Community Medicine, Sri Devraj Urs MC, Kolar 3rd: Dr Yashwant, PG, Dermatology Sri Siddhartha M C, Tumkur

Hall B

PG category

1st: Dr Prasanna Raj Re, PG, General Medicine. SSMC, Tumkur

2nd: Dr Seelam Sai Siddhartha Reddy, PG, General Surgery, SSMC. Tumkur

U G category

1st: Jeevika. 3rd MBBS, SSMC, Tumkur 2nd: Dr. Isha Anwar, Intern, SSMC,

Tumkur aper presentation

Hall A

1st: Dr Radhika Vishweshwar, SR, MGM Medical College, Navi Mumbai

2nd: Dr S Dilip. Asst Professor, Community Medicine. Oxford Medical College, Bangalore

Hall B

1st: Dr Mulugapaka Vinusha, PG, PES Institute of Medical Sciences Kuppam 2: Dr Abhilasha, PG, JSS Med College, Mysore

Hall C

1st: Dr Krishna Harsha, PES Institute of Medical Sciences, Kuppam 2nd: Dr Prathamesh Pawaste, MGM Medical College, Navi Mumbai

Hall D

1st: Bhoomika, 3rd MBBS, SSMC, Tumkur

2nd: Anita Gloria, 1st MBBS, MS Ramaiah International Medical School. Bangalore

PAPER PRESENTATION PRIZE DISTRIBUTION

The prize winners for the paper presentation competition were awarded with certificate and mementos.

VALEDICTORY FUNCTION

Proceeding Report and Vote of Thanks

Dr. Savitha Rani, Organising Secretary concluded the event by appreciating the efforts of the organising team guest speakers and volunteers, leading to the success of the program.

Dr O P Sharma, General Secretary, Geriatric Society of India, summarised the proceedings of the two days of the conference and thanked all the members of the organising committee for hosting the mid-term conference on geriatrics.

During the Valedictory function the prizes for the paper and poster functions were distributed to the winners. Dr. Garima Handa, Consultant Geriatrician, Treasurer, Geriatric Society of India was felicitated

DELENG/2012/42798 Dt. 12 June 2012
Price Rs. 20 per copy

All Members are Requested to
Kindly update their
Email ID / Telephone No:
by sending mail to
secretariat office of GSI.