Morbidity profile of elderly admitted to a medical ward of a tertiary care hospital of South Gujarat: A prospective observational study.

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Abstract

Background: The altered spectrum of diseases in geriatric age group and atypical manifestations of these conditions make geriatric health care truly unique. The challenge ahead for health care in the coming years is to ensure the quality of life to a large group of the elderly population. In spite of the recognition that the elderly has specific medical conditions, a dedicated health care policy to improve geriatric health care is yet to be developed India.

Objectives: To study the disease pattern, hospital stay and outcome among the geriatric patients based on age, gender and other variables.

Materials and methods: An observational prospective study done after permission of human research ethics committee. All patients aged 60 years and over admitted to the wards were included into the study. Detailed information about current admission and other history was noted. Thorough clinical evaluation was done by physical examination and investigations and noted in the case record form.

Observations: Total 100 participants included in the study. They were divided into two groups 60-64 years and ≥ 65 years. Nearly 90% patients had more than one aliments or diagnosis. Non-communicable diseases like Cardiovascular disease (48%) was the commonest reason for admission, followed by Respiratory disease (42%), renal disease (40%), gastrointestinal disease, neurological disease and endocrine disease in descending order of frequency.

Conclusion: Non-communicable diseases are common cause of morbidity and mortality with infection are adding the morbidity as well as mortality among the elder population.

Key words: elderly Patients, Non-communicable diseases, morbidity profile

Introduction

The field of Geriatric Medicine has grown in India and globally, to be recognized as a subspecialty of Internal Medicine in its own right. Census 2011 shows India have nearly 104 million geriatric population (age 60 years and above) with male nearly 51 million (7.7%) male and 53 million (8.4%) female[1]. Also it is expected that population of elderly in India going to increase upto 173 million by 2026. And by 2050 world's one sixth older populations will be in India. Life expectancy at birth during 2009-2013 also increased to 69.3 years for female and 65.8 years for male[1]. Physiological changes in the elderly impact on the increased prevalence of non- communicable diseases and the raised burden of disease in this age group. The altered spectrum of diseases in this age group and atypical manifestations of these conditions make geriatric health care truly unique[2]. The challenge ahead for health care in the coming years is to ensure the quality of life to a large group of the elderly population. We need to strengthen geriatric health care services, social support by people, and proper implementation of geriatric related legislation by government and further research to explore the problems of the elderly. With a rapidly ageing population, Asian country like India face a tremendous burden of care for these patients[3,4].

In spite of the recognition that the elderly has specific

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medical conditions, a dedicated health care policy to improve geriatric health care is yet to be developed India. For such a policy to be created, more needs to be known about the causes of mortality and morbidity that contributes to the burden of disease in this age group[5]. To address such health care needs of his growing numbers of the vulnerable heterogeneous population, reliable data about their health problems from different social settings are still lacking in India.

The objective of the study was to evaluate the distribution of disease in the geriatric patients according to gender and assess the common diseases causing admission. Also other objectives were to assess the length of hospitalization according to age, gender and diagnosis. And determine the outcome of these patients according to age, sex and diagnosis either referral to recuperation facility, discharge, or death.

Materials and Methods

This is observational prospective study done over a period of one and half year at tertiary care government hospital of south Gujarat area. Human Research Ethics Committee permission was taken before starting the study. Written inform consent was taken from the participant or legal guardian of the participant before enrolment in the study.

All data extraction sheets were anonymized to maintain the privacy of the study group and the data obtained in relation to their admission. The admission records of the medical admission ward were used to identify all patients aged 60 years and over admitted to the wards. Using the inpatient admission numbers, the inpatient case records of the identified study participants were reviewed in detail by the principal investigator and relevant information was collected with the aid of a data extraction sheet. The age of the patients was recorded from the identifying data entered onto the admission case sheet. Where available the date of birth was used to verify the age. The subjects were further divided into various classes according to age to determine the distribution of subjects within the various classes. Similarly, the gender of the subjects was extracted and the ratio of women to men was calculated. In addition, a history of smoking and alcohol intake where recorded was extracted. Detailed information about current admission and other history was noted from the case record form. Also all patients or close relatives were interviewed for detailed history. Thorough physical examination like Respiratory System, Cardiovascular System, Central Nervous System, Gastro Intestinal systemic examination were done to know which systems was involved. Investigations like Hemoglobin, Total WBC count, Differential Leucocyte Count, Platelet Count and hemolytic profile, Serum Creatinine, Serum Bilirubin, Random Blood Sugar and peripheral smear for malaria were carried out in every patient. The diagnoses at admission were classified into the system involved and the frequency of involvement of the different systems was calculated.

In addition, the frequency of admission diagnoses was compared in men and women to determine whether there was any difference and the possible reason for this where possible. The prevalence of the admission diagnoses was compared across the different age groups, namely between patients aged 60 to 64 years and those aged 65 years and above to determine whether there was any differences in presentation with advancing age. In addition to the admission diagnosis, each chart was carefully reviewed to determine the presence of co-morbid diseases, namely those conditions that co-existed with the admission condition/s, but which were stable at the time of admission, to determine the overall disease burden. These were generally chronic diseases obtained from the past medical history. These conditions were also verified from the clinical evaluation of the patient, results of investigations and medications prescribed. The clinical notes, investigations and medications were systematically reviewed to detect the presence of disease, the frequency of the known complications associated with the condition and the possible predisposing cause. The outcome of each admission was documented according to whether the patient died, was transferred to another health care facility or discharged home.

Results

Table 1: Frequency of admissions in the 100 patients aged 60 years and above admitted to the medical wards.

Frequency of Admissions	No. of Patients
1	89
2	8
3	2
4	1

It was a prospective observational study. Total 100 participants included in the study during study period time. Out Of the 100 patients, 89 had one admission during the study period, 8 patients had two admissions, 2 had three admissions and one patient had four admissions. (Table 1)

Table 2: Age wise distribution of all participants in study

Age in (years)	No. of patients	Total% of Patients
60-64	22	22%
65-74	48	48%
75-84	24	24%
>85	6	6%

All patients were divided in two age group 60 to 64 years and 65 years and above. The mean age of the patients was 70.5 ± 7.4 years (range 60 - 90 years) with majority being in between 65 to 74 years age group (Table 2).

Table 3: Association between age and admission diagnosis

Admission diagnosis	60-64 (years)	>= 65 (years)	p value
Cardiac disease	13	35	0.251
Respiratory disease	10	32	0.714
Renal disease	16	14	0.0000018
Gastrointestinal and liver disease	7	19	0.490
Neurological disease	6	18	0.680
Endocrine disease	5	17	0.907
Rhematological disease	1	6	>0.999

The admission diagnosis was compared in two age groups; those between 60 to 64 years and those aged 65 years and above in table 3.

Renal disease was more common in the younger age group i.e. 60 - 64 Years, compared to in those aged 65 years and over. In particular, chronic renal failure was significantly more common in the 60 - 64 year age group compared to the older group (p 0.0000018). There was no difference in the other admission diagnosis. (Table 3)

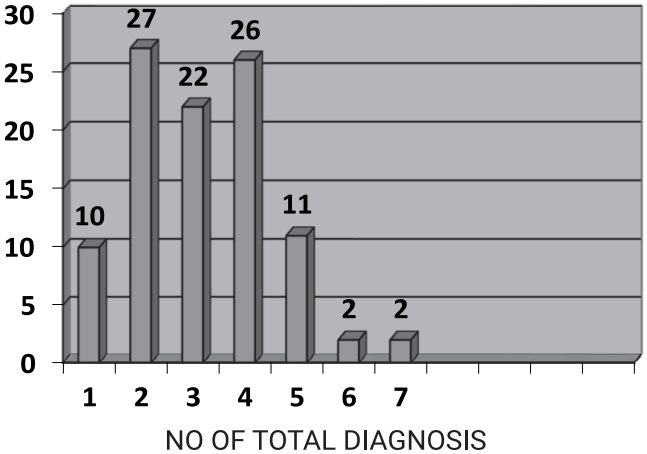

Figure 1: Percentage of patients with numbers of diagnoses

Figure1- shows percentage of patients with numbers of diagnosis at the time of admission. The majority of patients had more than one diagnosis. Only 10% of patients had single diagnosis, while 26% patients have four diagnoses in total 11% of patients have five diagnosis in total.

System involved in Gerictrics

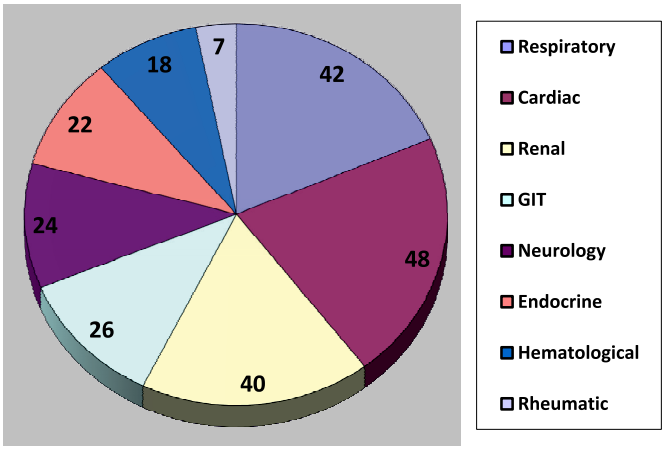

Figure 2: Frequency of admission diagnosis according to the system involved in aged 60 years and above admitted to the medical wards

The acute medical conditions necessitating admission was initially classified according to the system involved. Cardiovascular disease (48%) was the commonest reason for admission (24), followed by Respiratory disease (42%), renal disease (40%), gastrointestinal disease, neurological disease and endocrine disease in descending order of frequency. (Figure 2)

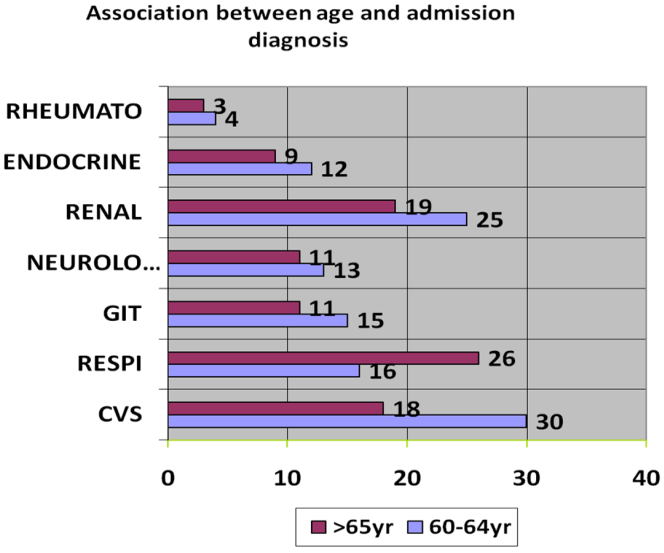

Figure 3: Frequency of admission diagnosis according to the system involved in aged 60 years and above admitted to the medical wards

Men were more likely to be admitted with respiratory disease than women, specifically chronic obstructive

airways disease (COPD) P<0.000080. Renal disease was more common in women than in men, but did not reach statistical significance (p = 0.561) (Figure 3)

In the 48 patients with hypertension, target organ damage was present in 40(83.3%) cases, with hypertensive heart disease in 36 cases (75% of hypertensive cases), renal disease in 17 cases (35.41%), cerebrovascular disease in 14 cases (29.2%), hypertensive retinopathy in 5 cases (10.4%) and peripheral vascular disease in 2 cases (4.1%). The diagnosis of congestive cardiomyopathy or dilated cardiomyopathy (DCM) was recorded in 31 patients. The likely risk or predisposing factor for the cardiomyopathy was hypertension in 28 cases (90.3% of DCM cases) followed by diabetes mellitus in 13 cases (41.9% of DCM cases). Other risk factors documented included ischemic heart disease (3 cases (9.7%) and alcohol intake (2 cases 6.4%)

A diagnosis of infection was made at the time of admission in 63 cases. This was largely a presumptive clinical diagnosis and the rate of bacteriological confirmation of infection was low.

Table 4: Admission due to Acute Infection

Type of Infection	No of Admission
Pneumonia	34
Urinary tract infection	15
Septicaemia	6
Infection of skin and subcutaneous tissues	3
Meningitis	2
Gastrointestinal infection	3

Pneumonia was the commonest infection noted in 34 (53.13%) patients, followed by urinary tract infection in 15 (23.8%)patients and septicemia in 6 (9.5%) patients. Less common sites of infection were the skin and subcutaneous tissues, meningitis, gastrointestinal tract. Of the 34 cases of pneumonia admitted, a causative organism was isolated in three patients only; Streptococcus pneumoniae in two and E. coli in one. (Table 4)

Table 5: Age and gender wise distribution of admission outcome

	Outcome			P Value
	Discharge	Transfer	Death	
AGE(YRS)				0.680
60-64	10	4	8	
>_65	42	15	21	
Gender				0.746
Male	19	7	13	
Female	33	12	16	

There was no statistically significant difference in the outcome of admission i.e. discharge, transfer to another facility, or death between the 60 - 64 years age group and those aged 65 years and over. Furthermore, there was no significant difference in the outcome of admissions in men and women. (Table 5).

Discussion

Advanced age is accompanied by physiological changes, which in turn influence changes in disease patterns and presentation.

This study confirms the prevalence and disease burden of non-communicable diseases is high in older patients, with the majority of patients having multiple diagnoses on admission. The physiological changes impact on the burden of disease in the elderly and contribute to the increased prevalence of non-communicable disease. Among them Cardiovascular and neurological systems have more impact on the disease profile, while the gastrointestinal system and endocrine system appears to be less affected by age. Findings were similar with the study done by Vasanth P et al[6], Goudanavar P et al[7] and Reddy APK et al[6]. Both study showed that non-communicable disease prevalence in sequence were cardiovascular, respiratory, endocrinal, neurological, and rheumatological diseases[6,7,8]. Hypertension and other cardiovascular diseases were identified as being most common with a high prevalence of target organ damage. These findings suggest that older patients may present late due to a lack of awareness, limited access to appropriate health care, or lack of adequate treatment and screening programmers. In addition to the burden of non-communicable diseases (NCD), infection (particularly pneumonia) emerged as a common cause for admission and mortality. Also as the age progresses, the numbers of diagnosis or aliments also increases in individual patients.

These findings confirm the high burden of non-communicable diseases and their complications in the older population and highlight the need screening programs to improve detection and better management of these conditions. Furthermore, the association of a high mortality with infections, finding underscores the need for implementation and adherence to treatment guidelines, and to develop and adhere to vaccination guidelines. Furthermore, training of health care personnel at all levels should be intensified in an attempt to decrease the burden of disease in older persons and to improve their quality of life[9].

Respiratory and cardiac disease being an important cause for hospital admission in older patients. However, this study differed in that infection

was a common admission diagnosis, as well as being associated with a high mortality, with pneumonias featuring prominently. Hypertension and cardiomyopathy were also identified as being a major problem among the elderly. The majority of cases had four or more diagnoses necessitating admission which supports previous findings of a higher disease burden in the elderly. The increasing number of older persons brings unique challenges for health care provision. The high prevalence of target organ damage especially from hypertension suggests that the diagnosis may have been delayed; the Condition may not have been adequately treated or may just reflect the natural progression of NCDs. Another possibility is a delay in the referral of patients from the primary health care centers to the secondary and regional hospitals.

The presence of multiple co-morbid diseases which complicates the management of these patients. This high burden of NCDs with older age has implications for the patients their communities and on the delivery and the cost of health care services. High burden of NCDs is bound to increase the dependency of older individuals and affect functional capacity. The major emphasis of the current health system is on curative management with little or no services for rehabilitative medicine.

Infection was also a common reason for admission to hospital and a cause of mortality in older patients. Pneumonia featured as a diagnosis significantly associated with mortality. It was found that various factors such as proper nutrition, implementation of pneumococcal and influenza vaccines may assist in reducing the prevalence of these infections.

Conclusion:

The majority of cases had nearly three or more diagnoses at the time of admission, which contribute to higher disease burden in the elderly. Non-communicable diseases are common cause of morbidity and mortality with infection are adding the morbidity as well as mortality among the elder population.

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