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A MULTI-DISCIPLINARY COMPREHENSIVE GERIATRIC ASSESSMENT OF ELDERLY SUBJECTS IN A SUPERSPECIALITY TERTIARY CARE HOSPITAL, DELHI.

Medicine

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ABSTRACT

Introduction: The comprehensive assessment of elderly people who requires health and social care is becoming of increasing importance. The study was conducted to detect various morbidities in elderly people based on their physical, psychological, and socio-environmental assessment.
Material & Methods: history of any underlying disease of each subject was obtained. General physical examination and wherever required, relevant laboratory investigations were performed, followed by comprehensive geriatric assessment (CGA) which consisted of three components namely physical, psychological and socio environmental assessment.
Results: Among 150 subjects, 37% had suspected respiratory, 33% musculo-skeletal and 27% gastrointestinal system diseases. Symptoms were less prevalent among those subjects who had regular health checkups. Depression was noted in 43% and impaired memory in 12%. Socio environment impairments that were present were unsafe homes (13%), absence of social support (6%) and lonely living (7%).
Conclusion: The family physician should always perform careful CGA along with required laboratory diagnosis which can help in proper rehabilitation of the patient and unnecessary sufferings can be avoided.

KEYWORDS

Geriatrics; Holistic approach; Multidimensional assessment; Rehabilitation

INTRODUCTION

Older people are at highest risk of acquired disability, cognitive decline, or admission to residential care, either as a consequence of illness or as an unfortunate consequence of treatment. Older people's problems are more complex with potentially coexistent medical, functional, psychological, and social needs. This can lead to an atypical presentation that can often be misunderstood and requires a different approach to care. (1-4)

A holistic approach needs to be adopted by geriatricians mainly because of the complex medical history of elderly patients: older patients tend to have multiple organic, psychological, and social problems. Their functional and physiological capacities are often diminished and the adverse effects of drugs are more pronounced. The concept of Comprehensive Geriatric Assessment (CGA) has evolved because of the many problems of elderly subjects. (5,6)

CGA is an accepted tool to evaluate an elderly person in order to provide him a holistic assessment so as to give a better quality of life based on improved mental and physical functioning. Proper CGA helps reduced mortality, decreased use of hospital services and effective long-term care. CGA is a widely used method for assessment of older person particularly in western countries and is employed for a variety of functional state e.g. frail elderly, ambulatory elderly, hospitalized elderly, recently hospital discharged elderly etc.

With India also having a hugely rising geriatric population, utilizing CGA techniques is important. Present study was undertaken to carry out multidimensional assessment of elderly subjects and thereby detect various morbidities in them.

MATERIALS & METHODS:

The study was carried out on 150 elderly subjects aged ≥60 years during 2 years at St. Stephen's Hospital, Delhi. Elderly subjects for this study were enrolled from 3 groups namely indoor from medical wards (n=50), outdoor from medical OPD (n=50) and from Health Checkup OPD (n=50).

Demographic details including recording of age, sex and residence and a statement on socioeconomic status of the patient were obtained. Socioeconomic status was derived as follows.

Socioeconomic Status:

High if at least 2 out of 3 following parameters are high, medium if at least 2 out of 3 following parameters are medium, low if at least 2 out of 3 following parameters are low

	High	Medium	Low
Education	Up to college or university level	Up to secondary school level	Up to primary level or illiterate
Occupation	Professional, senior level, independent business	Supporting profession e.g. regular salaried employee	Supporting services only e.g. laborer/casual wagner/nil occupation
Monthly Family Income	>Rs 32000	Rs 13800 to 32000	<Rs 13800

Each case was then subjected to thorough history taking regarding complaints of any type (i) medical e.g. (somatic or functional), (ii) social e.g. loneliness, neglect by family, no privacy or (iii) financial e.g. financially dependent on others.

Medical History:

History was also taken for any medical attention sought during last one month and for any physical/medical handicap already present such as visual, locomotion, hearing or memory handicap. This was followed by eliciting history of past and associated diseases, if any e.g. hypertension, diabetes, heart disease, COPD, hypothyroidism, stroke, kidney disease, eye disease, arthritis, urological and gastrointestinal diseases or any other significant past disease.

Physical examination:

General examination with emphasis on parameters such as body mass index, blood pressure, pallor, icterus, oedema or cyanosis, lymphadenopathy were performed. Systemic examination included examination of cardiovascular, neurological, abdominal, respiratory and other system assessment. Laboratory investigations like CBC, blood sugar, S. lipids, urine examination, RFT, USG, Chest X Ray and ECG as per requirement were performed.

Laboratory investigations:

each subject was assigned to a diagnostic category namely (i) chronic degenerative disease like diabetes, hypertension, coronary heart disease, cerebral vascular accident, chronic obstructive pulmonary disease, chronic kidney disease, chronic liver disease, benign prostrate hypertrophy and psychiatric diseases or (ii) infection related disorder like respiratory, gastro intestinal, urinary infection, viral, protozoal and other bacterial diseases including tuberculosis. Any other disease was placed under the category of (iii) others and if not clear, placed under (iv) indeterminate.

This was followed by comprehensive geriatric assessment (CGA) which consisted of three components namely physical, psychological and socio environmental assessment.

Physical assessment was done by general examination of vision, hearing, arm and leg function and by finding status of urinary continence, nutrition, body mass index, activities of daily life and instrumental activities of daily life.

Psychological assessment was done on the basis of mental status based on memory testing and depression whether this was present.

Socio environmental assessment was done by taking history of different parameters like home environment, social support, living arrangement, financial dependence, marital status, family headship and family position in house. Unsafe home environment, absence of social support, lonely living, widowhood or unwantedness by the family were noted if present.

RESULT

Out of 150 patients, 80 were males and 70 were females. Maximum number of patients belonged to age group 60-69 years (Graph 1.). From 50 Indoor patients 38% (n=19) were males and 62% (n=31) were females, from 50 outdoor patients 54% (n=27) were males and 46% (n=23) females and Health checkup had 68% (n=34) males and 32% (n=16) female patients..

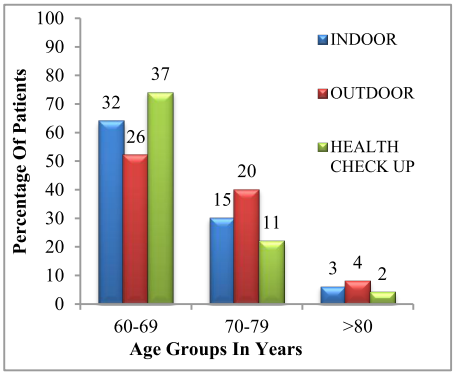

Fig. 1. Age group of Patients from different category.

Residence wise, 130 patients' i.e. 87% were urban based while the remaining 20 (13%) patients came from rural areas. Such urban/rural distribution was common to all the three groups of patients' i.e. indoor, outdoor and health checkup patients.

Out of 50 patients from Indoor, 64% (n=32) were from low status, 32% (n=16) were from medium status and only 4% (n=2) patients were of high socioeconomic status. Outdoor patients consisted of 50% (n=25) from low socioeconomic status patients, 40% (n=20) from medium status and 10% (n=5) patients from high socioeconomic status. Health checkup patients had of high socioeconomic status in 42% (n=21), medium status in 52% (n=26) and low status in 6% (n=3) of patients.

Table 1. shows the complains wise distribution of the patients. Majority of patients came with complains of respiratory (n=55), locomotive (n=50) and gastro-intestinal (n=40) while least with cardiac complains (n=6).

Table. 1. Complain wise distribution of patients from different category.

Types of Complaints	Total N (%)	Indoor N (%)	Outdoor N (%)	Health Check Up N (%)
Respiratory (Cough, Dyspnea, Pleuritic pain)	55 (37)	18 (32)	22 (40)	15 (28)
Joints & Locomotion (Shoulder & joint pain, Neck Pain, Arthritis, Walking difficulty, Bodyache)	50 (33)	15(30)	22 (44)	13 (26)
Gastrointestinal (Diarrhea, Anorexia, Dyspepsia, Oral Ulcers, Constipation, Nausea, Vomiting, Pain Abdomen)	40 (27)	17 (42)	11 (27)	12 (30)
Infective (Fever)	30 (20)	18 (60)	7 (23)	5 (17)
Neurological (Neuro-weakness, Paresis, Numbness, Headache, Tingling, Altered sensorium)	25 (16)	11 (44)	6 (24)	8 (32)
Renal (Dysuria, Edema, Oliguria, Polyuria)	17 (11)	8 (47)	6 (35)	3 (18)
Cardiac (Chest Pain, Palpitation)	6 (4)	3 (50)	2 (33)	1 (17)
Others (Wt. Gain, Wt. Loss, Skin Rashes, Weakness, Bleeding, Vertigo, Insomnia)	39 (26)	17 (44)	14 (36)	8 (20)

There were overall 92 patients (61%) who sought medical attention during last one month. Among them 42 (84%) were from Indoor category 84% (n=42), 35 (70%) from Outdoor category and 15 (30%) from Health checkup patients.

There were 90 patients who were noted to have different types of handicap. Among the indoor patients 30 had impaired vision, 22 with impaired mobility, 12 with impaired memory while 2 had hearing problem. Among the indoor patients impaired mobility was noted in highest patients (n=24) followed by impaired vision (n=21), impaired memory (n=5) and hearing problem (n=1). People visited health checkup had majorly impaired vision (n=17) and impaired mobility (n=12). Hearing problem was noted in three people and one person with impaired memory.

Most of the patients had hypertension (n=53) as co-existing disease, followed by Diabetes mellitus (n-40) and COPD or bronchial asthma (n=36). Table 2 illustrates the co-existing diseases including history of past diseases in these 150 patients.

Table 2. Co-existing diseases or the past diseases in the patients from all three categories.

Types of illness	Total n (%)	Indoor n (%)	Outdoor n (%)	Health check upn (%)
Hypertension	53 (35)	22 (41)	17 (32)	14 (26)
Diabetes Mellitus (DM)	40(27)	18(45)	9(23)	13(32)
COPD/Br. Asthma	36(24)	8(22)	17(47)	11(31)
G.I Disease	21(14)	8(38)	6(29)	7(33)
Coronary Heart Disease	14(9)	3(21)	3(21)	8(58)
Koch's Infection	11(7)	4(36)	3(28)	4(36)
Arthritis (RA/OA)	10 (7)	2 (20)	3 (30)	5 (50)
Stroke	7(5)	3(43)	2(28)	2(28)
Hypothyroidism	7(5)	3(43)	1(14)	3(43)
Prostate/BPH	7(9)	2(29)	1(14)	4(57)
Renal Diseases	6 (4)	3 (50)	3 (50)	0 (0)
Anemia/IDA	6(4)	3(50)	3(50)	0(0)
Chronic Liver Disease	2(1)	2(100)	0(0)	0(0)
Others	12 (8)	1 (8)	3 (25)	8 (67)
No. of patients without any co-existing disease	26 (17)	6 (23)	7 (27)	13 (50)

The most common diagnostic cluster was chronic and degenerative diseases such as (Diabetes, Hypertension, Coronary heart disease, Cerebral vascular accident/Transient ischemic attack, Chronic obstructive pulmonary disease, Chronic kidney disease, Schizophrenia, Seizure, Chronic liver disease, Benign prostrate hypertrophy) which was present in total of 101 (67%) patients (Graph 2). The next most frequent diagnostic cluster was Infective diseases which include (Viral Fever, Acute gastroenteritis, Urinary tract infections, Lower respiratory tract infections, Pneumonia, Enteric, Pleural Effusion, Hepatitis, Koch's, Malaria, Dengue, Hydro pneumothorax etc) and was present in 49 (37%) patients.

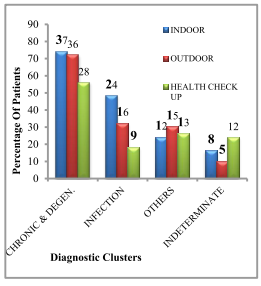

Fig. 2. Diagnostic clusters of Patients from different categories.

Psychological assessment of 150 patients indicated that 18 (12%) patients had impaired memory (forgetfulness) out of which 24% (n=12) were indoor patients, 10% (n=5) patients were outdoor and only 2% (n=1) patient was a Health checkup patient. Depression was seen in 65 (43%) patients out of which 46% (n=23) patients were from indoor ward, 38% (n=19) being outdoor and 46% (n=23) patients being Health checkup patients.

The socioenvironmental assessment in 150 Geriatric patients in which 20 (13%) patients had unsafe home environment 12% (n=6) patients being from indoor, 22% (n=11) being from outdoor and only 6% (n=3) patients were from Health checkup. No social support from their family members was recorded in 9 (6%) patients out of which 8% (n=4) patients belonged to indoor, 6% (n=3) to outdoor and 4% (n=2) to Health checkup sections Number of patients living alone without their family were 10 (7%), out of whom 2% (n=1) were from indoor, 6% (n=3) patients from outdoor and 12% (n=6) patients were from Health checkup. Financially dependency was recorded in 106 (71%) patients out of which 80% (n=40) were indoor patients, 70% (n=35) were outdoor and 62% (n=31) patients were from Health checkup.

The summary of investigations in 150 geriatric patients is depicted in table 3.

Table 3. Diagnostics tests performed and abnormal values of patients of all three categories.

Type of Test	Total	Abnormal Values	Indoor	Outdoor	Health CheckUp
Hemoglobin	97	42	21	11	10
Urine (Abormal WBC/EC/Pus cells>4/hpf)	45	4	4	0	0
X Ray Chest	92	38	15	14	9
ECG	63	9	6	2	1
Fbs (Abnormal >126mg/Dl)	35	12	0	2	10
Ppbs (Abnormal >200mg/Dl)	32	12	1	2	9
Lipid Profile	27	7	2	2	3
BUN	26	6	3	1	2
Serum Creatinine	25	2	1	1	0
Ultrasound Abdomen	35	28	5	2	21

DISCUSSION

The geriatric assessment differs from a standard medical evaluation in three general ways: it focuses on elderly individuals with complex problems, (7) it emphasizes functional status and quality of life, (8) and it frequently takes advantage of an interdisciplinary team of providers. (9)

In the present study majority of cases belonged to urban settings. Relative distribution of the elderly subjects in the current study among the three age groups (60-69, 70-79, and >80 years) appears to reflect a pattern of general age distribution of elderly subjects namely, maximum in 60-69 years and least in the ≥ 80 years age bracket. More numbers of males (68%) than females (32%) as well as 75% (n=28) cases in the present study were from health checkup facility. The reason for the same must be due to the fact that most organizations which are sponsoring health care checkup for their employees seem to have male staff on their role in large number than the female staff and the health checkup charges are paid by their corporate employees.

It was observed in the present study that prevalence of various type of presenting complaints related to gastro intestinal, central nervous, cardiovascular and renal systems, or infections due to were higher among indoor patients when compared to outdoor patients or those who came for health checkup. The only exceptions were respiratory or musculo skeleton complaints, which were more frequent (40% and 44% respectively) in outdoor patients possibly because many such patients do not require hospitalization. The prevalence of all type of complaints was lower in health checkup subjects than among outdoor patients. Previous studies have reported were related to gastro intestinal complaints quite often among emergency patients. (10,11)

Medical attention sought by these cases during last one month and presence of handicap among them was same. It may however be noted that difference between these two parameters between indoor and outdoor settings was only modest but health checkup cases faired very well because only 15% of them sought medical attention and only 18% of them had a handicap. Visual impairment was the most common, followed by mobility, memory and hearing problem with maximum cases among indoor patients and minimum among health checkup cases. Visual impairment as the commonest impairment, followed by hearing, arm and leg function impairments have been reported previously. (10,11)

Pattern of coexisting diseases was somewhat divergent in present study. Comparing outdoor with indoor patients, appreciable differences were lower prevalence of diabetes, CVA, hypothyroidism and BPH but a higher prevalence of COPD when compared to indoor patients. Similar lower prevalence with regard to diabetes and CVA as well as lower prevalence of anemia, renal and liver diseases was seen in health checkup cases but these cases had a high prevalence of CHD, arthritis, hypothyroidism, BPH and other miscellaneous diseases. Proportion of cases without any coexisting disease was highest among health checkup cases. Guralnik JM respectively found that hypertension and diabetes were few of the major comorbidities associated with elderly. (12)

Chronic degenerative diseases and infections can be serious enough to require hospitalization but many of them could be asymptomatic and infection could be mild enough as to need only OPD care. Present study showed that maximum number of patients seen were of chronic degenerative diseases (n=101), followed by infections (n=49) and others (n=40). In 25 cases, no diagnosis could be made. Comparing the three streams of cases, indoor and outdoor patients had similar prevalence of chronic degenerative and infective illnesses. Infective illnesses however were less frequent among outdoor and health checkup cases.

Activities of daily living and instrumental activities of daily living were impaired equally in indoor and outdoor patients, whereas in health checkup cases they were very few in number. Other observations indicated that total cases of urinary incontinence were only in 9 out of all the 150 cases.

Many cases (n=65) on psychological assessment showed depression (43%), out of which most of the patients were from indoor and health checkup facility. The increased prevalence of depression in elderly while lower prevalence of other cognitive deficits (forgetfulness) was reported by previous studies. (13)

A high degree of integration of elderly within the family was found as judged by acceptance level (94% loved and welcomed by family) and living arrangements (93% with family). Moreover, 41% of elderly were still enjoying status as head of family but 22% belonged to widowed category. 87% had congenial home environment while 94% felt secure from view point of social support from family and friends.

Prior investigational recorded reveals that majority of indoor patients (50%) were anemic while outdoor and health checkup cases of anemia were few in number. Other abnormal findings included X Ray chest and ECG abnormalities which were more prevalent in indoor patients as compared to outdoor patients and health checkup cases. To some extent, same was true with blood sugars, lipid profile and renal function tests.

CONCLUSIONS

It is important for the physician to assess patients on the basis of the particular functions related to immobility, visuality, hearing, memory and medical complaints along with social (loneliness, neglected by family or no privacy) and financial (dependent on others) conditions. It is important that CGA along with required laboratory diagnosis to be performed carefully so that rehabilitation potential of each patient can be known utmost and by this way optimum use of limited resources can be used to reduce the unnecessary suffering.

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