ORIGINAL ARTICLE

PREVALENCE OF COMORBIDITIES AMONG ELDERLY PATIENTS IN A GENERAL HOSPITAL OF BANGLADESH

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Abstract:
Background: *The life expectancy of human is increasing worldwide, and the elderly population represents a large group throughout the world and also in Bangladesh. Globally it is a challenge to overcome elderly comorbidities, and now it is also a challenge that how our elder people can lead a good health and we can use that elderly population as a partner of our socio-economic development. The objectives were to find out the most common comorbidities in elderly population in our society and to give more emphasis for prevention and better management of those comorbid conditions and allow them to lead a healthy living.* **Methods***: This prospective observational study was done in a General Hospital in Faridpur of Bangladesh from October 2019 to December 2020 for a period of one year and three month. Patients of age 60 years and above were selected randomly of all sexes and races. All the information was recorded in fixed protocol.* **Results:** *The study was included total 1043 elderly patients, among this male patients were 34.49% and female patients were 65.51%. Most of them presented with single disease in 53.30%. Others presented with two, three and four or more comorbidities (27.99%, 13.32%, and 5.36% respectively). Most common comorbidities were Hypertension (HTN) in 35.37%, Diabetes mellitus (DM) in 28.37%, obstructed airway diseases in 26.84%, Osteoarthritis in 19.94%, Ischemic Heart Diseases (IHD) in 18.88%, Osteoporosis 7.47% and cerebrovascular diseases 4.60%.* **Conclusion***: A large proportion of the population, especially those aged 60, is affected by multicomorbidities. The comorbidities found most of them are preventable.*

Key words: *Prevalence, Comorbidities, Elderly, General hospital*

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Introduction:

Physiological changes occur in human body with increasing age and contribute to multiple health problems. Older adults generally have multiple medical problems, so it is difficult to evaluate and treated elderly patients in a single medical issue[1]. Comorbidities are defined as simultaneous presence of two or more diseases or medical conditions in a patient. The prevalence and number of comorbidities increases with age [2,3]. In a study in USA, among the medical beneficiaries of aged 65 years or older had four or more chronic conditions and the proportion was increases to 31.4% among those persons 85 years or older[3]. Even in healthy older adults and those with a single clinically manifest disease are likely to have subclinical pathology in multiple organ systems[4]. Patients suffering from multiple chronic conditions have higher level of morbidity, poor physical functioning and quality of life, a greater likelihood of persistent depression, and lower levels of social

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wellbeing.[5-8]. Such patients are at increased risks of adverse drug events and mortality[9]. Absence of clinical manifestation of diseases, many older men and women experiences a gradual decline of physical activity, reduces memory and cognitive skills[2,5]. This comorbidity complicates the diagnosis, treatment and natural course of health condition in elderly peoples. Traditionally, co-morbidity assessments primarily include overt diseases; sometime the processes that do not meet current diagnostic criteria for disease, because subclinical dysfunction and impairments are highly prevalent in elderly peoples and con-tribute to health outcomes[2,8], particularly when multiple systems are involved[9,10]. Common comorbidities in elderly are Hypertension(HTN), Diabetes mellitus(DM), Ischemic heart diseases(IHD), Chronic obstructive airway diseases(COAD), Osteoarthritis (OA), Cerebrovascular disease(CVD), Osteoporosis (OP), Malignancy and others.

Methods and materials:

This is an observational study carried out in a general hospital from October 2019 to December 2020 for a period of one year and three month. Patients were selected randomly of age 60years or above including all sexes and races. Only new cases were included and old cases were excluded from this study. After detailed clinical history and thorough physical examination necessary laboratory test was done to reach a clinical diagnosis. Previous medical records were also checked for evaluation. Patients with newly diagnosed hypertension, their blood pressure were rechecked after few minutes in resting condition in both arms with validated sphygmomanometer.

Diabetic patients were included who had history of diabetes, on drug and in new cases with RBS or FBS or two hours after 75 gm glucose load or HbA1c level either alone or in combined parameter compatible with diabetes. Ischemic heart disease patients were selected by compatible clinical history, present or past ECG evidence and by cardiac biomarker. Other diseases were also diagnosed with compatible clinical history, physical examination and necessary laboratory investigations where needed. All the information was recorded in fixed protocol. Collected data were classified; edited and statistical analysis was done accordingly.

Results:

In this study 65.51% patients were female and 34.49% patients were male. (Table I)

Table I
Sex distribution and disease profile (n=1043)

Sex	Number (%)
Male	360(34.49)
Female	683(65.51)

Among comorbidities hypertension was more prevalent as single disease (13.61%) followed by diabetes (5.08%). Diabetic patients have more association with other comorbid condition than hypertension (23.29% vs 21.76%)) and among concomitants comorbidities hypertension with diabetes were more (9.20%) than others. (Table II).

Table-II
Pattern of comorbidities

No. of comorbidities	Single disease	556(53.30)
	Two diseases	292(27.99)
	Three disease	139(13.32)
	Four or more diseases	56(5.36)
Types of comorbidities	Hypertension	369(35.37)
	DM	296(28.37)
	Chronic obstructive airway diseases	280(26.84)
	Osteoarthritis	208(19.94)
	Ischemic heart disease	197(18.88)
	Osteoporosis	78(7.47)
	Cerebrovascular disease	48(4.60)
	Hypothyroidism	45(4.31)
	Senility and dementia	42(4.02)
	Post-menopausal syndrome	36(3.45)
	Malignancy	31(2.97)
	Benign enlargement of prostate	23(2.20)
	Parkinson's disease	19(1.82)
	Chronic renal failure	09(0.86)
	Others	171(16.39)

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Table III
Different forms of common comorbidities (n=1043)

Single disease condition without any comorbidities	Number (%)
HTN	142(13.61)
DM	53(5.08)
IHD	51(4.88)
CVD	09(0.86)
Hypertension and diabetes with other comorbidities	Number (%)
DM	243(23.29)
HTN	227(21.76)
Concomitant common comorbidities	Number (%)
HTN with DM	96(9.20)
HTN with DM with IHD	66(6.32)
DM with IHD	42(4.02)
HTN with IHD	38(3.64)
HTN with DM with CVD	27(2.58)
DM with CVD	12(1.15)

Discussion:

Single disease condition is usually rare and multiple comorbidities are commonly expected in elderly persons[11]. This study has focused on common comorbid conditions and in some extent of other health conditions in elderly patients. Risk factors of diseases are common worldwide but demographic characteristics may vary in common diseases[12], so the relationship of comorbidity to mortality should consider[13]. In this study female patient were predominant (65.51%) which is nearly two-third of total cases. Most of the patients have single disease condition (53.3%), followed by two or more conditions. The most prevalent health condition was hypertension (35.37%), followed, in descending order, by diabetes (28.37%), COAD (26.84%), OA(19.94%), IHD(18.88%), OP (7.47%), CVD (4.60%), Hypothyroidism (4.31%), Senility and dementia(4.02%) , PMS (3.45%), cancer (2.97), PD (1.82%), CRF(0.86%). And a large group (16.39%) was presented with other disease conditions like tuberculosis, SLE, rheumatoid arthritis, pancreatitis, anxiety neurosis, BPPV, ILD, CLD, hyperthyroidism, gouty arthritis, side effects of poly-pharmacy and others. A study done by Gerda G. Fillenbaum and colleagues [14], found one third patients were elderly, two third patients were female, 42% reported one condition, 29% reported more than one. The most prevalent health condition was Hypertension (57%), Diabetes (20%), CAD (15%), Cancer (9%), and CVD (9%); 29% reported none of these conditions, whereas 29% reported two or more comorbidities. Hypertension, CVD, and Diabetes were risk factors for CAD, whereas diabetes was a risk factor for CVD. They found that increased age, female gender, lower education, and black race are risk factors for hypertension[15]. Risk factors for heart disease include increased age, female gender, and white race, with gender and race differences decreasing with increased age[16].There is similarity of this study regarding sexual distribution but some variation to others parameter. Single disease condition is more in my study than other study (53.30% vs 42%) . Here hypertension is most prevalent than other condition but incidence is less than western study(35.37% vs 57%), probably genetic factors, racial factors, dietary habit may be the cause of high incidence of hypertension in developed country. Incidence of diabetes is more in this study than western study (28.37% vs 20%) probably due to more stressful and sedentary life style and dietary factors of consuming more refined carbohydrate. Incidence of CAD is nearly same of both studies. Incidence of malignancy is less in this study than western study (2.97% vs 9%) this may due to genetic factors, dietary factors and diagnostic facilities. Chronic obstructive airway disease occupied third health condition in this study, due to more smoking, air pollution and unhealthy lifestyle. And another condition osteoarthritis also common in this study due to harder working, improper weight bearing activities, poor posture and lack of exercise. Ischemic heart diseases and cerebrovascular diseases is less in this study because both of this condition is acute catastrophic and patients usually attend directly to respective center rather a general hospital. Another cross sectional study was done by H H sara[17]in Bangladesh they found overall prevalence of comorbidity among the elderly was 56.4% and the prevalence was higher among females (64.18%) than male. The most prevalent conditions were hypertension (33.0%), diabetes (27.6%), ischemic heart disease (12.0%), and chronic obstructive pulmonary disease (9%). This study is almost similar to my study.

In this study common multicomorbidities were hypertension and diabetes (9.2%), followed by hypertension, diabetes and ischemic heart disease (6.32%). Diabetic patients have more association with other comorbidities like ischemic heart disease and cerebrovascular disease. Other western study also shows the same result [14]. Prevalence of hypertension alone is more common in elderly patients. Though hypertension and diabetes is established risk factors cerebrovascular disease and ischemic heart disease but it also can occur independently.

Limitations:
The number of study population was small and risk factors of individual diseases were not evaluated properly. All categories population may not include and all comorbidities could not evaluate properly due to lack of diagnostic facilities. Further study also needed in a large scale in community base to find out actual figure of comorbid condition in elderly populations.

Conclusion:
Single disease condition of elderly patients who have hypertension, diabetes, CAD, is at risk of developing other comorbidity. Particularly patient with CAD should search for hypertension, and diabetes; and reversely patient with hypertension and diabetes should search for concomitant ischemic heart disease. Most of them are preventable and when single condition is found then attention should be kept for other comorbidities to reduce mortality and morbidity from above health conditions.

Conflict of Interest:
The author stated that there is no conflict of interest in this study

Ethical consideration:
The study was conducted after approval from the ethical review committee. The confidentiality and anonymity of the study participants were maintained

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