

Research Article



COMMON GERIATRIC DISORDERS AND THEIR MANAGEMENT IN SELECTED HOSPITALS OF BANGLADESH

Nishat Nasrin^{*1}, Muhammad Asaduzzaman², K.M. Al-Hasan Imam², Rumana Mowla², Farhana Rizwan¹, and Forhad Monjur³

¹Department of Pharmacy, East West University, Dhaka-1212, Bangladesh.

²Department of Clinical Pharmacy & Pharmacology, Faculty of Pharmacy, University of Dhaka, Dhaka-1000, Bangladesh.

³Dept of Pathology, Institute of Child Health & SSFH 6/2, Barobag, Mirpur-2, Dhaka, Bangladesh.

*Corresponding author's E-mail: nishat@ewubd.edu

Accepted on: 12-02-2012; Finalized on: 20-03-2012.

ABSTRACT

Age-related physiological changes render elderly persons more susceptible to acute and chronic illnesses and prolong recovery from these illnesses. The present study was performed to find out the common geriatric disorders, most common co-morbidities and their management given by the doctors in out-door settings of ten selected hospitals. A prospective study was carried out with the help of a set questionnaire and the prescriptions of the patients. Patients aged 65 year and above were included in the study. A total of 300 patients were interviewed and their prescriptions were collected. The mean age of the patients was 69 (SD = ± 4.51) and the male:female ratio was 3:1. Among the patients, 54% had multiple co-morbidities of which diabetes and hypertension were most commonly present (17%). The two most common diseases were also diabetes (41%) and hypertension (39%). Various types of pain were the most common (55%) complaints. Among the most commonly prescribed drugs include proton pump inhibitors (39%), non-steroidal anti-inflammatory drugs (34%), cardiovascular drugs (28%), antibacterial (27%), antidepressants (22%) and other. Since geriatric patients receive multiple medications for managing different co-morbidities, extensive care should be taken during prescribing to avoid potential adverse drug reactions.

Keywords: Geriatric, Co-Morbidities, Out-Door Settings, Diabetes, Antidepressants.

INTRODUCTION

In the 21st century ageing population and their health has become a growing health- and social care concern all over the world. This is because of an increase in the absolute and relative numbers of older people in both developed and developing countries. There were 600 million people aged 60 years and above in the world in 2000. By 2025, this figure would double to about 1.2 billion people and by 2050 there will be a projected 2 billion aged population, with 80% of them living in developing countries.^{1,2} Despite representing only 13% of the population, elderly patients consume approximately 30% of prescription medications and 40% of over-the-counter medications.³

The fast growing numbers and proportion of elderly is alarming as greater percentage of people will enter a period of life where the risk of developing certain chronic and debilitating illness will be considerably higher.

Age-related illnesses affect the majority of the elderly and seriously impair the quality of life.⁴ Geriatric prescribing is particularly a difficult task for managing multiple chronic conditions that the older population suffers from. The age-related changes in drug pharmacokinetics and pharmacodynamics must be taken into account to minimize adverse drug reactions.^{5,6} Most scientific literature on old age comes from North America and Western Europe. However, very little is known about the geriatric patients in the developing world. Therefore it is of great importance to conduct study on the geriatric population of this part of world.

MATERIALS AND METHODS

The present study was attempted to observe common geriatric disorders and their management among the outdoor geriatric patients in ten selected hospitals of Dhaka city. The hospitals were selected randomly from an alphabetic list of all hospitals of Dhaka city. A total of 300 outdoor geriatric patients aged 65 or above were included in the study. Verbal consents were taken from all the patients and they were interviewed according to a pre-formulated questionnaire about demographic information, major types of the diseases, chief complaints, and about the management of the illness. The number and type of drugs prescribed to them were obtained from the prescription given at outdoor premises by the doctors. All the data were fed into Microsoft Excel 2007 for analysis.

RESULTS AND DISCUSSION

All the patients were aged over 65. The mean age of the patients was found to be 69 with a maximum of 99 years. Among the patients, 73% were male whereas 27% were female with a male:female ratio of almost 3:1 (table 1). Majority (72%) of the patients had education below secondary level, followed by higher secondary (14%), secondary (13%) and only 1% had completed graduation and above. The majority (59%) of the patients were retired from work. The rest were from different occupation as indicated in table 1.

With increasing age there is an increasing vulnerability to develop diseases and, in the elderly, there is a tendency



to acquire multiple and chronic diseases. In the present study, 54% had multiple co-morbidities (table 2) with 28% patients having two diseases and 23% having three diseases. A survey in Indonesia showed that 78% of elderly suffered up to 4 medical illness, 38% of them had more than 6 diseases and 13% suffered from more than 8 diseases.⁷

Table 1: Age, sex, occupation and educational background of the patients

| A. Age | | C. Occupation | | |
|--------------|------------------|---------------------------|------------|------------|
| | Years | | No. | % |
| Mean | 69 | Retired | 177 | 59 |
| Max | 99 | Housewife | 76 | 25 |
| Min | 65 | Business | 36 | 12 |
| SD | 4.51 | Service | 9 | 3 |
| | | Farmer | 2 | 1 |
| | | Total | 300 | 100 |
| B. Sex | | D. Educational Background | | |
| | No. (%) | | No. | % |
| Male | 219 (73) | Graduate and above | 2 | 1 |
| Female | 81 (27) | Higher Secondary | 43 | 14 |
| Total | 300 (100) | Secondary | 39 | 13 |
| | | Below Secondary | 216 | 72 |
| | | Total | 300 | 100 |

Table 2: Types of disease suffered by geriatric patients and common co-morbidities

| A. Single vs Multiple Disorders | | |
|--|-----|----|
| Number of diseases | No. | % |
| Single | 137 | 46 |
| Multiple | 161 | 54 |
| Two | 83 | 28 |
| Three | 70 | 23 |
| Four | 7 | 2 |
| B. Common diseases of Geriatric patients | | |
| Disease | No. | % |
| Diabetes | 124 | 41 |
| Hypertension | 116 | 39 |
| Rheumatoid Arthritis | 39 | 13 |
| Kidney disease | 33 | 11 |
| Skin disease | 27 | 9 |
| Liver disease | 25 | 8 |
| Asthma | 20 | 7 |
| C. Most common co-morbidities | | |
| Common co-morbidities | No. | % |
| Diabetes, HTN | 51 | 17 |
| Diabetes, HTN, liver disease | 23 | 8 |
| Diabetes, HTN, kidney disease | 16 | 5 |
| Diabetes, HTN, RA | 15 | 5 |
| HTN, kidney disease | 9 | 3 |
| HTN, kidney disease, RA | 7 | 2 |
| Diabetes, HTN, asthma | 6 | 2 |
| HTN, kidney disease, gall bladder stone | 6 | 2 |
| HTN, liver disease | 4 | 1 |
| Asthma, hypertension | 3 | 1 |
| Diabetes, kidney disease | 3 | 1 |
| HTN, RA | 3 | 1 |

HTN = hypertension, RA = rheumatoid arthritis

There are considerable differences between the East and the West in the prevalence of certain diseases in aged persons.^{8,9} In a study surveyed by Saks et al (2001), more than half of the elderly had hypertension (63.2%), musculoskeletal disorders (61.3%) and ischemic heart disease (56.5%). Other frequent diagnoses were heart failure (41.4%), depressive symptoms (40.3%), heart rhythm disorders (37.5%), hypercholesterolemia (25.4%), cognitive disorders (23.1%), and disorders of kidney and urinary tract (20.5%).¹⁰

In the present study, most common diseases include diabetes (41%), hypertension (39%), rheumatoid arthritis (13%), kidney disease (11%), skin diseases (9%), liver diseases (8%) and asthma (7%). The incidence of depressive illness and cognitive dysfunction was totally absent in our study. These types of diseases are more prevalent among the geriatric patients in the developed world.^{11,12} Such variations in disease pattern between the developed and developing countries may be due to socio-economic, demographic and environmental factors.

In a study done by Kronish et al. (2006), it was found that the most common medical co-morbidities included hypertension, dementia, osteoarthritis, depression, and diabetes. The most commonly clustered co-morbidities were hypertension and dementia (25%), hypertension and osteoarthritis (25%), dementia and osteoarthritis (21%), and osteoarthritis and depression (16%).¹³

We found diabetes, hypertension, kidney and liver diseases, rheumatoid arthritis and asthma as the most prevailing co-morbid situations (Table 2). Diabetes and hypertension were the most commonly (17%) occurring diseases. Along with these two diseases, liver and kidney diseases, rheumatoid disease and asthma were reported in 8%, 5%, 5% and 2% cases, respectively.

Lin and Armour (2004) reported that several co-morbidities are more common and more complicated in older persons with diabetes¹⁴. These include depression,¹⁵ cognitive impairment,¹⁶ urinary incontinence,¹⁷ falls,¹⁸ and neuropathic pain.¹⁹

Elderly patients present with combination of non-specific, seemingly unrelated and apparently minor complaints. Sometimes they have no complaint at all.²⁰

Table 3: Chief complaints of Geriatric patients

| Complaints | No. | % |
|--------------|-----|----|
| Pain | 166 | 55 |
| GIT problem | 37 | 12 |
| Chest pain | 31 | 10 |
| Itching | 25 | 8 |
| Joint pain | 20 | 7 |
| Less sleep | 20 | 7 |
| Bronchospasm | 17 | 6 |
| Headache | 17 | 6 |
| Weakness | 16 | 5 |
| Muscle pain | 13 | 4 |
| Tremor | 13 | 4 |



Different types of undefined pain was mostly (55%) experienced by the patients in this study (Table 3). Among the other common complaints include GIT problem (12%), chest pain (10%), itching (8%), joint pain and less sleep (7%). In a previous study at a private hospital, it was found that the most common complaints of geriatric patients were chest pain (41%). Joint pain (34%), muscle pain (31%) and respiratory distress (25%) were also found as other common complaints in the same study.²⁰

The prescriptions of the geriatric patients contained drugs from different therapeutic class (Table 4) such as proton pump inhibitors (39%), non-steroidal anti-inflammatory drugs (34%), cardiovascular drugs (28%), antibacterial (27%), antidepressants (22%), antidiabetics (17%), H₂-receptor blockers (13%), multivitamins (12%) and lipid-

lowering agents (10%). Among the PPIs, omeprazole was found in 32% of the prescriptions whereas diclofenac was the mostly (8%) prescribed NSAIDs.

The most commonly used medications in the geriatric population are cardiovascular drugs, non-narcotic analgesics, non-steroidal anti-inflammatory drugs (NSAIDs), cathartics, and sedatives.²¹ Of these, the medications most commonly associated with drug-drug interactions are amiodarone, digoxin, quinidine, warfarin, cimetidine, rifampin, NSAIDs, antifungal agents (eg, ketoconazole), and macrolide antibiotics (eg, erythromycin).²²

Table 4: Common drugs prescribed to geriatric patients

| Therapeutic Class | No. | % | Mostly prescribed drugs (%) |
|---------------------------|-----|----|---|
| PPIs | 118 | 39 | Omeprazole (32%) |
| NSAIDs | 102 | 34 | Diclofenac (8%) |
| CV Drugs | 85 | 28 | Amlodipine and carvedilol (4% each) |
| Antibacterial | 81 | 27 | Cephadrine and ciprofloxacin (5% each) |
| Antidepressants | 66 | 22 | Carbamazepine, gabapentin and nortriptyline (3% each) |
| Antidiabetics | 50 | 17 | Metformin (7%) |
| H ₂ -Blockers | 38 | 13 | Ranitidine (8%) |
| Multivitamin | 37 | 12 | - |
| Lipid-lowering | 30 | 10 | Atorvastatin (8%) |
| Antihistamine | 22 | 7 | Loratadine (3%) |
| Antifungal | 17 | 6 | Clotrimazole (2%) |
| Glucosamine + chondroitin | 17 | 6 | - |
| Antiasthmatics | 8 | 3 | Salbutamol (>1%) |
| Antiprotozoal | 8 | 3 | Metronidazole (2%) |
| Steroids | 7 | 2 | Baclofemethasone (>1%) |
| Antiviral | 4 | 1 | Zidovudine (1%) |

Older patients often have numerous co-morbidities for which they are prescribed multiple medications, thereby increasing the risk of adverse drug reactions (ADRs). This risk is compounded by age-related changes in physiology and body composition, which influence drug handling and response. Therefore, utmost care is needed during prescribing for geriatric patients. The study emphasizes on comprehensive geriatric assessment to be done before implementing therapeutic decision.

REFERENCES

- Rahmawati F, Pramantara DP, Rohmah W, and Sulaiman SAS. Polypharmacy and Unnecessary Drug Therapy on Geriatric Hospitalized Patients in Yogyakarta Hospitals, Indonesia. *Int J Pharm Pharm Sci.* 1-1:2009; 6-11.
- Older Americans Update 2006: Key Indicators of Well Being, Federal Interagency Forum on Aging Related Statistics. Available at: <http://www.agingstats.gov>.
- Medications and Older People, US Food and Drug Administration. Available at: http://www.fda.gov/fdac/features/1997/697_old.html.
- Park JH, Lim S, Lim JY, et al. An Overview of the Korean Longitudinal Study on Health and Aging. *Psychiatry Investig.* 4:2007; 84-95.
- Hanlon JT, Schmader KE, Gray S. Adverse drug reactions. In: Delafuente JC, Stewart RB, eds. *Therapeutics in the Elderly*, 3rd Ed. Cincinnati: Harvey Whitney Books. 2000, 89-314.
- Hamilton HJ, Gallagher PF and Mahony DO. Inappropriate prescribing and adverse drug events in older people. *BMC Geriatr.* 9:2009; 5.
- Mustofa. Drug Use in Elderly. *ISFI Bulletin Yogyakarta.* 2(2):1995; 1-10.
- Ginter E. High cardiovascular mortality in postcommunist countries: participation of oxidative stress? *Int J Vitam Nutr Res.* 66:1996; 183-9.
- Bobak M, Hense HW, Kark J, Kuch B, Vojtisek P, Sinnreich R, et al. An ecological study of determinants of coronary heart



- disease rates: a comparison of Czech, Bavarian and Israeli men. *Int J Epidemiol.* 28: 1999; 437-44.
10. Saks K, Kolk H, Allev R, Soots A, Kõiv K, Paju I, Jaanson K, Schneider G. Health Status of the Older Population in Estonia. *Croat Med J.* 42(6):2001; 663-8.
 11. D'Ath P, Katona P, Mullan E, Evans S, Katona C. Screening, detection and management of depression in elderly primary care attenders. I: The acceptability and performance of the 15 item Geriatric Depression Scale (GDS15) and the development of short versions. *Fam Pract* 11:1994; 260-6.
 12. Schulz R, Beach SR, Ives DG, Martire LM, Ariyo AA, Kop WJ. Association between depression and mortality in older adults: the Cardiovascular Health Study. *Arch Intern Med.* 160:2000; 1761-8.
 13. Kronish IM, Federman AD, Morrison RS, Boal J. Medication Utilization in an Urban Homebound Population. *J Geront Med Sci.* 61A(4):2006; 411–5.
 14. Lin JL, Armour D. Selected Medical Management of the Older Rehabilitative Patient. *Arch Phys Med Rehabil.* 85(3):2004; S76-S82.
 15. Gavard JA, Lustman PJ, Clouse RE. Prevalence of depression in adults with diabetes. An epidemiological evaluation. *Diab Care.* 16:1993; 1167-78.
 16. Gregg EW, Yaffe K, Cauley JA, et al. Is diabetes associated with cognitive impairment and cognitive decline among older women? Study of Osteoporotic Fractures Research Group. *Arch Intern Med.* 160:2000; 174-80.
 17. Brown JS, Seeley DG, Fong J, Black DM, Ensrud KE, Grady D. Urinary incontinence in older women. Who is at risk? Study of Osteoporotic Fractures Research Group. *Obstet Gynecol.* 87:1996; 715-21.
 18. Schwartz AV, Sellmeyer DE, Ensrud KE, et al. Older women with diabetes have an increased risk of fracture: a prospective study. *J Clin Endocrinol Metab.* 86:2001; 32-8.
 19. Greene DA, Stevens MJ, Feldman EL. Diabetic neuropathy: scope of the syndrome. *Am J Med.* 107:1999; 2S-8S.
 20. Asaduzzaman M, Nasrin N, Rizwan F, Monjur F, Mowla R. Trends of prescribing for out-door geriatric patients in a private hospital of Bangladesh. *J App Pharm Sci.* 1(10):2011; 123-25.
 21. Hale WE, May FE, Marks RG, Stewart RB. Drug use in an ambulatory elderly population: a five-year update. *Drug Intell Clin Pharm.* 21:1987; 530-5.
 22. Podrazik PM, Schwartz JB. Cardiovascular pharmacology of aging. *Cardiol Clin* 17:1999; 17-34.

