Original article

Prevalence and recognition of geriatric syndromes in an outpatient clinic at a tertiary care hospital of Thailand

Panita Limpawattana^a, Kittisak Sawanyawisuth^a, Suvanee Soonpornrai^b, Wilawan Huangthaisong^b ^aMedicine Department; ^bMedicine Outpatient Department, Faculty of Medicine, Srinagarind Hospital, Khon Kaen University, Khon Kaen 40002, Thailand

Background: Geriatric syndromes are a series of clinical conditions in the elderly that do not fit into distinct categories. They affect the quality of life of a patient and are associated with disability.

Objectives: This study determined the prevalence of geriatric syndromes in an Internal Medicine Outpatient setting. It compared the prevalence of each geriatric syndrome when using a comprehensive geriatric assessment versus the routine medical assessment.

Methods: One hundred twenty elderly patients of the Internal Medicine Outpatient Clinic of Srinagarind Hospital Medical School were randomly reviewed between January 2008 and May 2010. Information on baseline characteristics and the presence of a geriatric syndrome was collected. Data for 50 patients assessed using a comprehensive geriatric assessment were reviewed prospectively and data for 70 patients assessed by a routine medical assessment were reviewed retrospectively. The prevalence for each syndrome was compared between two groups. Descriptive statistics and Chi-square test were used to analyze these outcomes.

Results: The mean age and sex were not different between the two groups. Comparing the comprehensive geriatric assessment and routine medical assessment groups, there were, respectively, a prevalence of 30% vs. 1% for falls, 16% vs. 19% for dementia, 24% vs. 9% for urinary incontinence, 50% vs. 17% for functional dependency, and 22% vs. 14% for depression. Each syndrome was more prevalent with increasing age and in females. Falls (RR 2.79; 95% CI, 2.07-3.75), functional dependency (RR 2.24; 95% CI, 1.51-3.33) and urinary incontinence (RR 1.79; 95% CI, 1.18-2.70) had significantly higher prevalence in the comprehensive geriatric assessment group compared with the routine medical assessment group.

Conclusions: Geriatric syndromes were highly prevalent in the elderly outpatient population. Under-recognition of these syndromes with routine medical assessments is common. Therefore, routine screening of these conditions by the comprehensive geriatric assessment is recommended.

Keywords: Geriatric syndromes, gerontology, recognition

The demographic characteristics of the Thai population are changing. The population is ageing. In 1960, there were 1.5 million people aged 60 years and more, or equivalent to 5.4% of the total population. This figure rose to 6.7 million (10.3%) in 2005 and will double in 2025 to 14.0 million people (20%) [1].

Geriatric syndromes include cognitive impairment, depression, incontinence, functional dependence, and falls [2]. These syndromes can lead to significant morbidity and poor outcomes in the frail elderly [2]. They usually involve multiple organ systems. The geriatric syndromes may have a common pathophysiology despite their different presentations, and require interventions and strategies targeted towards the aetiological factors [3].

The prevalence of dementia in Thailand, based on the survey of older persons in 2007, is 11,878 people, affecting women approximately 1.6 times more than men. These figures probably under estimate the true prevalence of dementia in Thailand [2, 4].

Correspondence to: Panita Limpawattana, MD, Medicine Department, Faculty of Medicine, Srinagarind Hospital, Khon Kaen University, 40002, Thailand. E-mail: lpanit@kku.ac.th

Poor recognition of dementia can have significant consequences, including a delay in identifying treatable pathology and patient safety issues, such as financial abuse, wandering, and injury from routine activities [5].

The prevalence of depression in one sample of the community dwelling elderly (n=1713) in Bangkok was approximately 13%, based on the Thai Geriatric Depression Scale (TGDS) and Thai Mental State Examination (TMSE). The main risk factors for depression were financial issues, poor family relationships, and physical illness [6].

The prevalence of urinary incontinence rises with age and functional dependency [7, 8]. The prevalence in Thai patients varies from 40 to 75%, depending on the settings and research methodology [9]. Risk factors include impaired cognition, limited daily activities, prolonged institutionalization in nursing homes, stroke, diabetes, obesity, poor general health, parity, anal trauma, vaginal prolapse in women, and urological surgery and radiation for prostate cancer in men [7].

Functional dependence is associated with poor health and frailty, and is defined by the need for assistance for the basic activities of daily living (bADL's) and instrumental activities of daily living (iADL's) [10]. The survey of Older Persons in Thailand (2007) found more than a third of the elderly having at least one functional limitation. The prevalence was significantly higher in persons 70 years of age or older, and in females [11].

Falls in the elderly are a major health problem with medical and economic consequences to the individual, families, and society. The prevalence of falls increases with age [12]. Annually, more than a third of persons 65 years of age or older experience a fall and more than half have recurrent falls. About 10% will suffer a serious injury [13]. The survey of Older Persons in Thailand (2007) demonstrated that 10% of the elderly experienced a fall over the previous six months, 55.7% falling once, 23.7% falling twice, and 7.7% falling more than five times [1].

Geriatric syndromes significantly affect quality of life and disability and early recognition can assist in the implementation of strategies to minimize morbidity. A third of the patients receiving care at Srinagarind Hospital, a Tertiary Care Hospital, are elderly. Unfortunately, the prevalence of geriatric syndromes in the Srinagarind Hospital population is unclear. The majority of the elderly patients at the Outpatient Clinic of the Internal Medicine Department are assessed using a routine medical assessment that focuses on the presenting problems only. In comparison, the Geriatric Medicine unit (part of the Internal Medicine Department and consisting currently of one geriatrician) uses the comprehensive geriatric assessment. We believe the prevalence of geriatric syndromes is likely to be underestimated amongst the majority of elderly patients being assessed through the Internal Medicine Outpatient Clinic.

The primary objective of this study is to determine, in an internal medicine outpatient setting of Srinagarind Hospital, the prevalence of the geriatric syndromes including cognitive impairment, depression, functional limitation, urinary incontinence, and falls. The secondary objective is to compare the prevalence of each geriatric syndrome using a routine medical assessment versus a comprehensive geriatric assessment in the same setting.

Materials and Method Study participants

A retrospective medical record audit was carried out in 70 patients, 60 years of age or older, who attended the Internal Medicine Outpatient Clinic of Srinagarind Hospital between January 2008 and May 2010. These 70 records were randomly selected from those assessed using a routine medical assessment by General Physicians in the outpatient clinic. In the comparator group, a Geriatrician prospectively assessed randomly selected patients using the comprehensive geriatric assessment. Most of these clinic patients were referred from other departments and other hospitals for assessment of problems associated with chronic disease and physical frailty.

The comprehensive geriatric assessment includes, in addition to the usual assessment, a detailed functional, social, and environmental assessment. As part of the assessment, patients were screened for dementia, depression, functional dependency, urinary incontinence, and falls.

The diagnosis of dementia was based on DSM-IV criteria (American Psychiatric Association, 1994) and the MMSE-Thai 2002 was used as a screening tool. Depression was defined as a mental state characterized by a pessimistic sense of inadequacy and a despondent lack of activity. The basic and instrumental activities of daily living were used to determine the functional dependency of the participants. The person with functional dependency was defined as having at least one dependent activity of daily living. Urinary incontinence was defined as a self-reported presence of involuntary urine loss.

All subjects (or their proxies) gave informed written consent. Baseline characteristics such as age, sex, marital status, and living environment, as well as data on co-morbidities, including vision, hearing impairment, and number of teeth left intact, was collected. Data on the geriatric syndromes was also collected. Based on this, the prevalence of each geriatric syndrome was compared between those people that were assessed with the routine medical assessment by a General Physician and those that were assessed with the comprehensive geriatric assessment by a Geriatrician. This study was approved by the Ethics Committee of Medicine Faculty, Khon Kaen University.

Sample size

Sample size calculations were based on the estimated prevalence of the geriatric syndromes among the geriatric outpatient clinic population. The estimation of a population proportion with a specified absolute precision formula was used to calculate this [14]. A sample size of at least 50 participants in each group was sufficient to achieve this at the significance level of 0.05.

Statistical analyses

The prevalence of the geriatric syndromes was analyzed using descriptive statistics, and a comparison of the prevalence of the geriatric syndromes between the groups was made. The results were expressed both as percentages and as relative risks with 95% confidence intervals using the Chi-square test and we regarded a two sided p-value less than 0.05 or a 95% confidence interval excluding the value 1.0 for the relative risk as significant. All analyses were undertaken using STATA version 10 (StataCorp. College Station, Texas, USA).

Results

There were 120 participants, 50 assessed by a Geriatrician using the comprehensive geriatric assessment (Group 1) and 70 assessed by a General Physician using a routine medical assessment (Group 2). Baseline characteristics of the two groups are shown in **Table 1**. In Group 1, the top five common underlying diseases were hypertension (43%), diabetes (23%), dyslipidemia (21%), rheumatic disease (16%), and cerebrovascular disease (10%). In Group 2, the most common underlying diseases were hypertension (28%), cerebrovascular disease (20%), dyslipidemia (19%), diabetes (18%), and rheumatic disease (17%).

In Group 1, 58% assessed their health as fairly healthy, a third had concerns about physical problems, and one-fifth suffered from social problems. Visual impairment was present in 80% and hearing impairment was found in 40%. Forty-four percent had less than 20 teeth. Most of the participants had no history of smoking or alcohol intake. On average, participants would have been classified as obese stage 1 (average BMI=25.39+4.27 kg/m²).

Table 1. Baseline characteristic of geriatric outpatients

Characteristics	Group 1 (n=50)	Group 2 (n=70)		
Age (years+SD)	72.4 (6.27%)	72.38(7.78%)		
Female	30 (60%)	39 (55.71%)		
Marital status				
Single	2 (4%)	4 (5.71%)		
Couple	28 (56%)	38 (54.29%)		
Widower	20 (40%)	15 (21.43%)		
Divorce	0	1 (1.43%)		
No answer	0	12(17.14%)		
Education				
Illiteracy	1 (2%)	5 (7.14%)		
primary school/ lower	33 (66%)	27 (38.57%)		
>primary school-secondary school	15 (30%)	6(8.57%)		
Bachelor degree/ over	1 (2%)	3 (4.29%)		
No answer	0	29 (41.13%)		

Group 1: data from comprehensive geriatric assessment, Group 2: data from routine medical assessment

Table 2 shows the prevalence of the geriatric syndromes in Group 1, including falls, dementia, urinary incontinence, functional dependency, and depression. The most common syndrome was limited function, found in half of the participants. This included impairments in basic activities of daily living or instrumental activities of daily living, such as dressing, toileting, bathing, mobilizing, financial and medication management. Eighteen percent of the participants had limitation of only one activity of daily living and approximately a third of the participants had limitations of at least two activities. Higher proportions of persons age 70 and over had difficulty doing these activities without assistance from others. Women (68.74%) were more likely than men to report difficulties in doing each of these activities on their own. The top three limited activities were using transportation, using the telephone, and doing household tasks.

Falls over the previous 12 months were reported in about a third of the participants in Group 1, with 67% being women. Eighty-seven percent of the fallers were 70 years and older. Twenty-four percent of Group 1 had urinary incontinence and three-quarters were aged 70 years or over. Seventy-five percent of those with urinary incontinence were women. Depression was detected in 22% and dementia in 16%. Eighty-two percent of depressed patients and 63% of demented patients were 70 years of age and older. Depressed mood over the past week was reported from 73% of older women and 75% of demented participants were women.

The prevalence of the geriatric syndromes was significantly lower in Group 2 compared with Group 1 on univariate analysis as shown in **Table 2**. The relative risk (RR) of finding a diagnosis of falls in Group 1 compared with Group 2 was 2.79 (95% CI, 2.07-3.75), functional dependency 2.24 (95% CI, 1.51-3.33), and urinary incontinence 1.79 (95% CI, 1.18-2.70).

Discussion

This cross-sectional study provides the prevalence of the geriatric syndromes of falls, dementia, functional dependency, urinary incontinence, and depression, in the geriatric outpatient clinic of the Internal Medicine Department of the Srinagarind Hospital. Functional dependency was the most prevalent geriatric syndrome and about one-third of the participants experienced difficulties in at least two essential daily activities. A greater proportion of those diagnosed were older or female. This is consistent with previous data [1]. In Thailand, the nuclear family has been increasing, the extended family has been declining, and life expectancy is higher, particularly in women [1]. This may result in elderly women being more vulnerable from functional dependency.

The second most common geriatric syndrome was falls. A greater proportion of fallers were older, and this may be because older people have a greater prevalence of physical and mental decline in health. The participants in this study tended to have a higher disease severity than what would be expected from a community sample, as this was a tertiary referral clinic sample. The higher prevalence of urinary incontinence, depression, and dementia than previous studies may be for this reason.

The prevalence of the geriatric syndromes in retrospective data was much less than in the prospective data. In particular, falls, functional dependency and urinary incontinence were significantly statistically different between the groups. The reason for this may be that Physicians may have difficulty recognizing the presence of a geriatric syndrome when using a routine medical assessment. This may be due to a lack of a holistic approach by the Physicians, who may mainly focus on a single complaint, ignoring the presence of a geriatric syndrome. Secondly, some conditions can cause embarrassment to the patients and this is then an

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Geriatric syndrome	Group 1 Number (%)	Group 2 Number (%)	RR	(95% CI)	p-value	
Fall	15(30%)	1(1.43%)	2.79	2.07, 3.75	<0.05	
Dementia	8(16%)	13(18.57%)	0.90	0.50, 1.62	NS	
Urinary incontinence	12(24%)	6(8.57%)	1.79	1.18, 2.70	< 0.05	
Functional dependence	25 (50%)	12(17.14%)	2.24	1.51, 3.33	< 0.05	
Depression	11 (22%)	10(14.29%)	1.33	0.83, 2.14	NS	

Group 1: data from comprehensive geriatric assessment, Group 2: data from routine medical assessment, NS=no statistical significance

obstacle preventing the patients from discussing the condition with the Physician. Lastly, patients with dementia and depression usually attend Psychiatry Clinics rather than Internal Medicine clinics, and, therefore, this will underestimate the prevalence of these conditions in a tertiary care setting.

The limitation of this study is that the retrospective information from the medical record may be inadequate and underestimate the prevalence of the syndromes in the retrospective group. Additionally, misclassification bias may occur in a cross sectional study. For example, dementia may be misclassified in the absence of longitudinal follow-up and brain pathology.

Conclusion

The prevalence of common geriatric syndromes in the Outpatient Department of a tertiary care setting is actually high while the recognition by the internist is low, particularly the recognition of urinary incontinence and functional dependence.

This study provides the prevalence of common geriatric syndromes in the Outpatient Department of a tertiary care setting. The geriatric syndromes are underestimated, particularly functional dependency, falls, and urinary incontinence, unless specifically screened for. Routine screening for these conditions at the age of 70 years and over using a comprehensive geriatric assessment is recommended.

Although the geriatric syndromes are a part of the ageing process, they may be amendable to interventions, such as balance training, medication review, providing appropriate walking aids, and environmental modification for fall prevention, and may improve quality of life.

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