Original Articles

Dementia among Thai Military Retirees

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Objectives: *To evaluate prevalence of dementia among Thai military retirees and explore association of variables influencing on Thai Mental State Examination (TMSE) scores in these population.* ***Material and Method:*** *All military retirees who visited geriatric clinic were randomized and we recruited 316 subjects for our cross-sectional descriptive analytic study. These people were interviewed and assessed their cognitive function by using TMSE. Relationship between risk factors, demographic variables and TMSE scores were evaluated by chi-square, univariate and multivariate analysis using SPSS version 11.5.* ***Results:*** *Of total 316, most subjects were male (91.8%), age 60-70 years were 46.2% and over 70 years 53.8%. Most previous military ranks were between major to senior colonel that equaled 53.5%, education at least bachelor degree was 60.4% and nearly all of them (99.7%) had normal ADL-activity daily living. Most of our participants (91.8%) had no history of head injury, 34.2% had never smoked, while regular smoking was only 1.9% and 63.9% were previous smokers, 98.1% had no family member who was demented, and they had co-morbid diseases comprising diabetes mellitus 18.4%, hypertension 63%, dyslipidemia 64.9%, ischemic heart disease 5.7% and cerebrovascular disease 2.5%. Among enrolled subjects, female, age over 70 years and forgetful complaint were significantly related to poor TMSE scores with p = 0.048, 0.013 and <0.0001 respectively. According to TMSE < 24 and DSM IV criteria, dementia was recognized 2.2% in our study.* ***Conclusion:*** *Crude prevalence of dementia among Thai military retirees in this project was 2.2% and the following variables including female, age over than 70 year-old and memory complaint were negativelyaffected on poor TMSE performance. Dementia should be screened in military retirees and TMSE was an effective tool.*

Key Words: ● *Dementia* ● *Thai Mental State Examination (TMSE)* ● *Military retiree*

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Dementia is a syndrome of global cognitive impairment and the most common cause is Alzheimer's disease. Diagnosis is often delayed because of the insidious nature. Prevalence and incidence may vary in different studies. One consistent finding is the dramatic increase with age. Prevalence rates are 25-48% for people over age 85[1,2]. The incidence for all-cause dementia is 3.4 per 100 per year (43% Alzheimer's disease, 30% mixed Alzheimer's and vascular, and 27% other). Incidence rises significantly, through three age intervals; 75 to 79 years (1.3/100 per year), 80 to 84 years

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(3.5), and 85 years and older (6.0). Dementia is highly prevalent among elders over 85 years and resulted in greater mortality and crude prevalence in retirees were 2.65 percentages[1-3]. In China, the overallprevalence of dementia is 3.0% in individuals aged 55 years and above, 4.32% in those aged 65 years and 5.29% in those aged 70 years and above. The age-adjusted prevalence rates of dementia are 2.03%, 3.78% and 5.48% respectively among the age groups mentioned above[4]. Prevalence of dementia is 33.6 per 1000in India[5].

Prevalence of dementia is 3.3 percent of Thai elders[6]. After adjusting to geographic and municipal area, the prevalence is 3.4 percent. Age-specific prevalence increases dramatically from 1.0 % in the 60-64 age-group to 31.3 % in the 90+ age-group. The prevalence of dementia among Thai elders found do not differ from the prevalence among the elders in other Asian and developed countries[1-6].

There is also a substantial burden of mental health disorders in early retired men in Britain[7]. This study aims to estimate the prevalence of dementia in specific population of military retirees using Thai Mental State Examination (TMSE) as a screening tool and explore association of factors influencing on TMSE performance[8].

Materials and Methods

This study was a cross-sectional descriptive analytic study and was approved by the ethic committee of Phramongkutklao hospital.

During January to December 2004, all military retirees who visited the geriatric clinic of Phramongkutklao hospital for annual physical check-up or follow -up were randomly enrolled in the ratio of 1:5 persons. We recruited 316 subjects according to the calculated sample size. Known dementia, severe systemic illness, alcoholism, psychiatric problems and in-cooperation were excluded. All subjects were well cooperative and signed the consents. They were interviewed and their medical records were analysed. Demographic data were recorded including gender, age, last military rank, education and activity daily living. Risk factors and medical history were also noted, which consisted of smoking, history of head injury, dementia in family members, diabetes mellitus, hypertension, hypercholesterolemia, ischemic heart disease and cerebrovascular disease. TMSE was applied to all participants.

TMSE variably assessed orientation, registration, attention, calculation, language and recall. The scales ranged 0-30 and subjects who got 24 scores and below were categorized as cognitive impairment[8]. Dementia were clinically diagnosed by using DSM IV (Diagnostic and Statistical Manual of Mental Disorders 4th edition) criteria and NINCDS-ADRDA (National Institute of Neurological and Communicative Diseases and Stroke/ Alzheimer's Disease and Related Disorders Association) criteria[9,10]. Relationship between risk factors, demographic variables and TMSE scores were evaluated by chi-square, univariate, and multivariate analysis using SPSS version 11.5.

Results

Of total 316, most subjects were male (91.8%), age 60-70 years (46.2%) and over 70 years (53.8%). Most previous military ranks were between major to senior colonel that equaled 53.5%, education at least bachelor degree was 60.4% and nearly all of them (99.7%) had normal ADL-activity daily living (as shown in Table 1). Most of our participants (91.8%) had no history of head injury, 34.2% had never smoked, while regular smoking was only 1.9% and 63.9% were previous smokers, 98.1% had no family member who was demented, and they had co-morbid diseases comprising diabetes mellitus 18.4%, hypertension 63%, dyslipide-

Table 1 Basic characteristics of retired military subjects

Characteristics of study population		N	Percentage
Gender:	male	290	91.8
	female	26	8.2
Age :	60-70 years	146	46.2
	over 70 years	170	53.8
Rank :	major general and above	106	33.5
	major to senior colonel	169	53.5
	second lieutenant to captain	29	9.2
	lower than second lieutenant	12	3.8
Education :	less than bachelor degree	125	39.6
	bachelor degree and above	191	60.4
Activity daily living :	normal	315	99.7
	abnormal	1	0.3

Table 2 Risk factors and co-morbid diseases of the population

Risk factors and co-morbid diseases		Number	Percentage
Smoking :	never smoking	108	34.2
	previous smoking	202	63.9
	regular smoking	6	1.9
History of head injury			
no		290	91.8
yes without loss of consciousness		3	0.9
yes with unconsciousness		23	7.3
Dementia in a family member			
yes		6	1.9
no		310	98.1
Diabetes Mellitus:	present	58	18.4
	absent	258	81.6
Hypertension :	present	199	63
	absent	117	37
Hypercholesterolemia :	present	205	64.9
	absent	111	35.1
Coronary artery disease :	present	18	5.7
	absent	298	94.3
Cerebrovascular disease:	present	8	2.5
	absent	308	97.5

mia 64.9%, ischemic heart disease 5.7% and cerebrovascular disease 2.5% (Table 2).

Among enrolled subjects, both female and age over 70 years were significantly related to poor TMSE scores with p=0.048 and 0.014 respectively by univariate analysis (Table 3). By multivariate, variables including female, age over than 70 year-old and forgetful complaint were negatively affected on TMSE < 24 with p=0.048, p=0.013 and p<0.0001 respectively (Table 4). No association between co-morbid diseases, military rank, educational level, smoking, history of head injury, dementia in family members and TMSE scores were found. According to TMSE < 24 and DSM IV criteria, dementia was recognized 2.2 % in our study and did not differ from those found in general population and other countries after age adjusted.

Discussion

Prevalence and incidence of dementia were varied among several studies. One consistent finding was thedramatic increase with age; prevalence rates were 25-48% for people over age 85. The two most consistent risk factors for AD were age and positive family history. Another likely risk factor was head trauma[1,2].

The prevalence of dementia was 3.3-9.8 percent in Thailand[6,11]. There was correlation between age, education and TMSE (r=-0.345, r=0.473, p<0.001) in that study but found no correlation between TMSE, mean arterial blood pressure (BP), systolic BP, diastolic BP, haematocrit, cholesterol, triglyceride, blood sugar and syphilitic serology. Multiple cut off points of TMSE were proposed to utilise the twenty fifth percentile in each five-year age interval[11]. Comparing to the healthy subjects, poorer nutritional status in lower cognition individuals might explain a lower of BP in the demented subjects[12].

In a study using MMSE-T (Mini-Mental State Exam -Thai) found that elderly, undergraduate, female, dementia in family members and unemployed were negatively correlated to the test performance in Thai subjects[13]. However TMSE was practical, effective and useful for dementia screening.

This work was a hospital-based study and participants were retired military population. This might not represent the prevalence of community population, however our results were as similar as those had been studied. Prevalence and age-specific prevalence rate among Thai elders did not differ from those found in other Asian and developed countries[6]. In the US retrospective research demonstrated crude prevalence of dementia in municipal retirees age 60 and older, was 2.65 per 100 population and age-adjusted US population, age 60 to 80, the prevalence was 1.85 per 100 population[3]. In our study age-adjusted prevalence was 2.2 % estimately. Several factors consisting of socioeconomic components, biological markers, physical factors, and population differences affected the cognitive assessment up to varied studies. For example; education, social class and sex affected on performance of the MMSE scores dementia in elderly[14,15]. The distinguished factor was age in all studies. In our work the following variables including female, age over than 70 year-old and forgetful complaint were negatively affected on poor TMSE scores (<24). Self-rated health and hearing problems might influence memory complaints, which might indicate cognitive decline[16].

Conclusion

In our study, factors including female, age over 70 years and memory complaint negatively influenced on TMSE performance among Thai military retirees. The prevalence of dementia was 2.2 % estimately. TMSE was practical and effective as an assessing instrument

Table 3 Association between variables and TMSE scores by univariate analysis

Variables		TMSE < 24	TMSE ≥ 24	P value (chi-square)
Gender	female	7	24	0.048*
	male	0	285	
Age	over 70 years	7	163	0.013*
	60-70 years	0	146	
Rank	major general and above	2	105	0.267
	major to senior colonel	5	164	
	second lieutenant to captain	4	29	
	lower than second lieutenant	3	11	
Education :	lower than bachelor degree	7	121	0.44
	bachelor and above	0	188	
Smoking	regular smoking	7	6	0.84
	previous smoked	0	198	
	never	3	105	
History of head injury				
	yes with unconsciousness	0	3	0.725
	yes without loss of consciousness	0	23	
	no	7	283	
Dementia in a family member :	yes	7	303	0.71
	No	0	6	
Diabetes Mellitus :	present	7	251	
	absent	0	58	0.357
Hypertension :	present	2	115	
	absent	5	194	0.639
Hypercholesterolemia :	present	4	107	
	absent	3	202	0.23
Coronary artery disease :	present	7	291	
	absent	0	18	0.511
Cerebrovascular disease :	present	7	301	
	absent	0	8	0.662
Memory complaints :	present	3	308	
	absent	4	1	<0.0001*

Table 4 Factors influencing on poor TMSE scores (< 24) by multivariate analysis

Factors	Number of subjects/total	Percentage	P value
Female sex	2/26	7.69	0.048*
Age over 70 years	7/170	4.12	0.013*
Memory complaints	4/5	80	<0.0001*

**Statistically significant*

for dementia. And dementia screening should be concerned and performed among the retired military elders especially in who had memory complaint.

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ภาวะสมองเสื่อมในนายทหารนอกและพันราชการ

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กองตรวจโรคผู้ป่วยนอก, *กองอายุกรรม โรงพยาบาลพระมงกุฎเกล้า

วัตถุประสงค์: *เพื่อศึกษาความชุกของภาวะสมองเสื่อมในนายทหารนอกและพันราชการ และความสัมพันธ์ของตัวแปรซึ่งส่งผลต่อคะแนน TMSE* ***วัสดุและวิธีการ:*** *เป็นการศึกษาเชิงวิเคราะห์แบบตัดขวางเชิงพรรณนา ดำเนินการวิจัยตลอดปี พ.ศ.2547 โดยสุ่มนายทหารเกษียณนอกและพันราชการ ที่มาตรวจสุขภาพที่คลินิกผู้สูงอายุโรงพยาบาลพระมงกุฎเกล้าเลือก และได้ประชากรเป้าหมาย 316 คนเข้าร่วมการวิจัย ซึ่งผู้วิจัยได้สัมภาษณ์และตรวจเชาวน์ปัญญาโดยใช้ TMSE รวมทั้งได้บันทึกประวัติและเวชระเบียนด้วย การศึกษานี้ใช้ chi-square, univariate and multivariate analysis : SPSS version 11.5 เพื่อประเมินความสัมพันธ์ของตัวแปรต่างๆ ความเสี่ยงและคะแนน TMSE* ***ผลการศึกษา:*** *จากผู้เข้าร่วมการศึกษาทั้งหมด 316 คน ส่วนใหญ่ (91.8%) เป็นเพศชาย มีอายุ 60-70 ปี 46.2% อายุมากกว่า 70 ปี 53.8% ส่วนใหญ่ (53.5%) ครองยศก่อนเกษียณพันตรีถึงพันเอก มีการศึกษาปริญญาตรีหรือสูงกว่าประมาณ 60.4% และ เกือบทั้งหมด (99.7%) มีกิจวัตรประจำวันปกติ พบ 91.8% ไม่มีประวัติอุบัติเหตุศีรษะ และ 34.2% ที่ไม่สูบบุหรี่ แต่สูบสม่ำเสมอ 1.9% ส่วน 63.9% เคยสูบมาก่อน ส่วนใหญ่ 98.1% ไม่พบประวัติสมองเสื่อมในครอบครัว ส่วนโรคที่พบร่วมมีดังนี้คือ เบาหวาน 18.4% แรงดันเลือดสูง 63% ไขมันสูง 64.9% โรคหัวใจขาดเลือด 5.7% และโรคหลอดเลือดสมอง 2.5% จากการศึกษาพบว่า เพศหญิง อายุที่มากกว่า70 ปี และ อาการหลงลืมสัมพันธ์กับคะแนน TMSE ที่ต่ำ (p=0.048, 0.013 และ <0.0001) และตาม DSM IV criteria ร่วมกับ TMSE < 24 พบความชุกของภาวะสมองเสื่อมคือ 2.2%* ***สรุป:*** *จากการศึกษานี้พบภาวะสมองเสื่อม 2.2% ในกลุ่มข้าราชการทหารที่เกษียณอายุ และ ตัวแปรต่อไปนี้ได้แก่ เพศหญิง อายุมากกว่า 70 ปี และอาการหลงลืมส่งผลต่อค่า TMSE ที่ต่ำ ฉะนั้นควรคัดกรองภาวะสมองเสื่อมในนายทหารนอกราชการหรือพันราชการและ TMSE สามารถใช้ได้ดีในการตรวจนั้น*

Key Words: ● *Dementia* ● *Thai Mental State Examination (TMSE)* ● *Military retiree*

เวชสารแพทย์ทหารบก 2549;59:23-30.