Physical co-morbidities among patients with Dementia at a tertiary care Hospital in Oman: A Cross Sectional Study

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Abstract

Objectives: The objective of this study is to determine the medical and socio-demographic features of patients with dementia attending neurology and psychiatry clinics along with identifying prescribed medications and physical comorbidities at a tertiary care hospital in Oman.

Methods: A Cross-sectional study was conducted on patients suffering from dementia through evaluating medical records of all dementia patients attending neurology and psychiatry clinics and those who were admitted at the medical wards at Sultan Qaboos University Hospital from May 2011 to May 2013. Basic information regarding patient's age, gender, medical co-morbidity, and lists of medications prescribed were obtained and extracted from the electronic medical records.

Results: A total of 101 patients with dementia (53 Females, 48 Males) attended the service during the study period. The mean age was 72 (9.09±SD) years, while the mean duration of illness was 2 years and median number of medications was 3. Medical co-morbidities among dementia patients were hypertension 56.4%, diabetes mellitus 31.7%, heart disease 23.6%, and dyslipidemia 19.6%.

Conclusion: The commonest type of dementia in this study was Alzheimer's dementia followed by vascular type. The most common co-morbidities were hypertension, cardiac disease, diabetes mellitus and dyslipidemia.

Key words: Dementia, Medical co-morbidity, Oman.
Introduction

Dementia is a persistent and progressive mental disorder. It is marked by impaired reasoning, personality changes and memory disorders. Dementia leads to decline in the reasoning capability of a person and also has an adverse impact on memory. Dementia is also defined as a clinical syndrome which is characterized by global cognitive impairment which represents a decline from previous level of functioning, and is associated with impairment in functional abilities and, in many cases, behavioral and psychiatric disturbances.(1) The diagnostic features include one of the following: apraxia, aphasia, agnosia and various disturbances in the executive functioning of the brain. In addition, impairments which are cognitive in nature are required to be very severe so as to cause the impairment and disturbances in occupational and social functioning. (1) The most common type of dementia is Alzheimer’s disease followed by Vascular Dementia(2).

In most of the developed nations, dementia is considered to be an important public health issue because it occurs mainly in the aging population. In some of the developing countries of the world, an increase in the prevalence of dementia is anticipated along with the rise in the expectancy of life. (2)

It is estimated that 6% of the Arab population were above the age of 60 in the year 2010. This percentage is expected to rise to 17% by the year 2050. (2) Moreover, it is estimated that 1% of those between the age of 65-69 years suffer with dementia. (3) This prevalence increases more than 20% in those between the ages of 85-89 years. (3) In Oman, it is estimated that elderly people make up 4.1% of the total Omani population (Oman National census 2014). (4) At present, through most parts of the Middle East there is no specialized geriatric service that targets this group of patients, and their health and social needs are not fully met by the mainstream services. This statement is further supported by a systematic review of the literature published in October 2014 that included 54 primary studies, 8 reviews and 3 guidelines. This review showed some evidence that people with dementia did not have the same access to treatment and monitoring for conditions such as visual impairment and diabetes as those with similar co-morbidities but without dementia (5).

A study from the Kingdom of Saudi Arabia on co-morbid physical and psychiatric disorders among elderly patients has shown that 63.8% of elderly Saudis had at least one chronic medical condition (6). Another study undertaken in North Carolina to estimate medical co-morbidity in patients, found that 61% of patients with Alzheimer disease had three or more co-morbid medical illnesses and it increased with the dementia severity. (7) While, another study for the predictors of mortality in patients with Alzheimer’s disease found that overall mortality rate was 50% in the first year after diagnosis and diabetes and cardiovascular diseases were independent predictors of death regardless of dementia severity. (8) Similarly, a study on the symptom pattern and co-morbidity in the early stages of Alzheimer’s disease found that patients with Alzheimer’s disease reported common symptoms of co-morbid illnesses compared to control group with similar co-morbidities but without dementia (9). In the Arabic countries, very few studies have been conducted regarding dementia with poor data regarding its prevalence and the presence of physical co-morbidities with this condition. The most common symptoms in patients with dementia are falls, malnutrition, delirium, frailty, sleep disorders, incontinence and visual dysfunction. Therefore, addressing overall wellbeing of these patients is a crucial step in the management and service provision with governments taking into account the growing concerns on measures and remedies to treat this progressive condition, in order to maintain patients’ quality of life and the ability of the services to support families and carers. (10) It is also worth noting that hospitalizing patients with advanced late stage dementia is highly expensive and cumbersome causing tremendous burden on families and carers which understandably has been the focus of concerns for the patient’s family whether to hospitalize their loved ones or not (11). Hence, by adopting a holistic approach in the assessment and management of patients with dementia alongside addressing patient’s physical health needs will provide patients with lesser possibilities of hospital admissions and reduction in burden of care.

Dementia in Oman

Very few studies have been conducted on the population of Oman with respect to dementia. Furthermore, dementia in Oman is not only restricted to the older generation, but younger generations are also adversely affected by this condition. According to a local study the most common type of Dementia is Alzheimer’s disease, followed by vascular dementia and frontotemporal dementia (12). While another study concluded that for identification of the frontotemporal dementia, the combination of various cognitive and behavioral assessments is essential in early diagnosis of the patients in Oman (13). Moreover, another study of patients suffering from vascular dementia, revealed that conditions like hyperlipidemia, inflammatory diseases, hypertension and diabetes are primarily responsible for cognitive impairment in this group of patients. (14) Most of the population in Oman does not consider personal distress as a constituent of illness and they do not prefer seeking medical help; such an attitude has led to the increase in the number of patients of this disease and slowly it has taken the form of an epidemic. (14) The objective of this study was to assess the socio-demographics of patients with dementia attending psychiatry and neurology clinics at a tertiary care hospital in Oman and identifying the physical co-morbidities and medications prescribed.

Method

A Cross-sectional study was conducted over the period (May 2011-May 2013). Medical records were reviewed for all patients diagnosed with dementia, attending neurology and psychiatry clinics, including those who were admitted at the medical wards at Sultan Qaboos University Hospital. Basic information regarding patient’s age, gender, medical...
comorbidity, lists of medications prescribed, were obtained from the electronic medical records. Patients with delirium or those with missing data were excluded from the study. Ethical approval was granted by the Ethics Committee at College of Medicine and Health Sciences, at Sultan Qaboos University. Descriptive and analytic statistics were used to analyze the data.

Results

A total of 101 patients (43 males, 58 females) were included in this study. The mean age for patients was 72 years (8.3± SD). Mean duration of illness was 2 years (range 1-19 years). Median number of medications was 3. Patients with Alzheimer type dementia constituted 44.6% of the total sample, followed by vascular type dementia (27.7%), while in 20.8% of the total sample, the type of dementia was not recorded in the medical record.

The remaining 20.8% were distributed among other types of dementia including Lewy body, mixed type, and Frontotemporal dementia (FTD) (Figure1).

Figure 1: Distribution of patients according to type of dementia
In this study, the most common medical co-morbidities among dementia patients were hypertension (56%), followed by diabetes mellitus (32%), heart disease (24%), and dyslipidemia (20%). Other conditions such as stroke, musculoskeletal, genitourinary, and gastroenterology disorders were less prevalent as shown in Figure 3.

**Figure 2: common medical co morbidities among all dementia types**

**Figure 3: medical co-morbidities in Alzheimer type dementia**
The main medical co-morbidities in Alzheimer type dementia were hypertension (58%), diabetes mellitus (27%), dyslipidemia (22%), heart disease (22%) and stroke (7%), as shown in the Figure 5.

**Figure 4: Comorbidities in Vascular Dementia**

The main medical comorbidities in vascular type dementia were hypertension 57.8% (17 patients), diabetes mellitus 26.7% (12 patients), dyslipidemia 22.2% (4 patients), heart disease 22.2% (8 patients) and stroke 6.7% (5 patients) as shown in the Figure 4.

In this study the percentage of medications prescribed to Dementia patients were anti-hypertensive 48.5% (49 patients), anti-platelet 39.6% (40 patients), statins 31.7% (32 patients), anti-depressants 26.7% (27 patients), oral-hypoglycemic 20.8% (21 patients), atypical-anti-psychotics 14.9% (15 patients) as shown in Figure 5.

**Figure 5**
Discussion

Dementia is one the common disorders which is related to the functioning of the brain. The aim of this study was to examine the occurrence of various medical co-morbidities in the patients who are suffering from dementia among the Omani population and analyze the correlation of dementia with the age, gender and the diagnosis of the patient.

This study found that the commonest type of dementia is Alzheimer’s disease, followed by vascular and mixed type of dementia. This was reported by a similar study by Al adawi et al from Oman(14) and is consistent with international epidemiological findings(15).

It also reported that the most common comorbidities were hypertension followed by diabetes mellitus and heart disease respectively, while dyslipidemia was reported among 20% of the total sample. Previous international studies reported that hypertension and diabetes are risk factors in middle aged populations but not in old aged people(16). Likewise, several longitudinal studies showed a nonlinear relationship between hypertension and cognitive decline, suggesting that the prevalence of hypertension in dementia may be due to its frequency instead of some pathogenic mechanisms. This is consistent with our findings which showed that Hypertension and diabetes are the most common disorders found in the dementia patients. On the basis of bivariate analysis showed no statistical differences between the number of males and females suffering from Alzheimer diseases (P Value 0.175) and vascular dementia (P value 0.231). This finding was also reported by Ruitenberg et al(17). However, they also reported that among patients 90 and above, the incidence of Alzheimer’s was higher in females. With regards to the impact of gender on the rate of progression of the disease, Michelle M et al reported that women were more likely to experience faster progression than men. These findings can be attributed to difference in intellectual lifestyle such as education and occupation, habits such as smoking and other social factors(18). In terms of pharmacological treatments, this study found that a total of 27 patients with dementia were on antidepressant therapy (6 males and 21 females) which was calculated by implementing bi-variate analysis with a statistically significant result (P=0.02). The study also revealed that there was a statistically significant difference between the two genders in respect of the intake of statins and antiplatelets with more male patients being prescribed these medications ( P<0.05). This difference may be explained by gender-related morbidity(19). This finding was consistent with previous meta-analysis regarding prescribing for dementia patients (20). Conversely, there was no significant statistical difference between the genders in other types of medications. It is worth highlighting that some of the studies showed that using Statin resulted in reducing the risk of dementia,(20-25) a topic worth exploring in patients from the gulf region. With regards to the relationship between medical co-morbidities and type of dementia this study found no correlation (P<0.05). This was also reported by Vassilakli et al, who found that patients with Hypertension and cardiac disease had high risk of having dementia and Mild Cognitive impairment,(21) while other studies found that patients suffering from cardiovascular diseases, COPD and diabetes mellitus had higher mortality, regardless of the levels of cognitive impairment.(3) According to the World Alzheimer Report, 2015, hypertension in middle age leads to dementia in later life. Moreover, the study revealed that diabetes is also a cause of the inception of dementia(26). These findings reiterate the need for developing and establishing a robust community and primary care services with easy access to care for the population of Oman in order to reduce morbidity and the mortality from the direct effect of these conditions as well as the secondary psychiatric co-morbidities which could potentially develop in later life.

Conclusion

This study reported that Alzheimer’s disease is the most common dementia type, followed by a vascular type. Most common medical co-morbidities were hypertension, DM, Dyslipidemia, and Cardiac disease. Gender was not a risk factor for a specific type of dementia and also no specific comorbidity was found to be a risk for dementia. These findings suggest that prevention, detection and control of obesity, hypertension, diabetes, and dyslipidemia are likely to have maximum positive impact on health and reduce the possibility of acquiring dementia in later life.

Limitations

The limitation of this study includes missing data in some of the records. Missing final diagnosis of some patients. Small sample size.

References

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