Dementia in Qatar

Ahmad I. Hamad, FRCP, FAAN, Mohammed A. Ibrahim, MBBS, FRCP (Psych), Essa M. Sulaiti, MBBS, MRCP.

ABSTRACT

Objective: Dementia is a major public health problem among the elderly in developed countries and a growing problem in the underdeveloped countries. There are no published data on dementia in any of the Arabic countries. The aim of this study was to determine the different sub-types of dementia among Qataris.

Methods: A retrospective and prospective ongoing hospital-based study in which all medical records of the patients with diagnosis of dementia seen at the Hamad General Hospital, Doha, Qatar, between June 1997 and June 2003, whether inpatient or outpatient were reviewed. Dementia was defined according to diagnostic and statistical manual (DSM) IV criteria. Those who had dementia were evaluated by a psychologist, psychiatrist, neurologist and a geriatrician. All had brain computerized tomography, magnetic resonance imaging or both and routine blood tests. Finally, they were classified into sub-types according to the cause of dementia.

Results: Out of 300 patients, 134 fulfilled the inclusion criteria, most of them were illiterate, married and non-smokers. Among those dementia sub-types were: Alzheimer disease (AD) 39 (29%), vascular dementia (VaD) 30 (22%), mixed AD and VaD 20 (15%) and Parkinson's disease with dementia 8 (6%) were noted. The rest of them had dementia due to other medical conditions.

Conclusion: Our study showed that AD is more prevalent than VaD. It also showed that patients and their families seek medical help late due to the general belief among the public that forgetfulness and other associated cognitive impairment are part of the normal aging process. The emergence of new drugs and advancement in the prevention of cerebrovascular diseases makes early diagnosis of dementia sub-type important. A community based study, to show the real prevalence and incidence of sub-types of dementia, is highly indicated. These data are necessary for planning and setting up community services and health care programs for demented patients.

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Dementia is a major public health problem among the elderly in developed countries. However, the extent of the problem in the developing countries is not well known due to the lack of good epidemiological studies. Epidemiological studies in developed countries have an estimated prevalence rate of 10.3% for those who are 65 years of age and above.[1-3] This prevalence rate was found to vary with age. Autopsy series have reported figures of 40-75% for Alzheimer's disease (AD), 8-15% for vascular dementia (VaD), and 8-30% for mixed AD and VaD.[4] Differences in diagnostic criteria, genetic and other cultural factors have resulted in considerable variations in the reported prevalence figures in different countries, and also in the type of predominant dementia.[5,6] It is generally believed that VaD is more common in the eastern part of the world while AD is more common in the west.[7-9] There is no published data on dementia in Arab countries. Qatar lies in the east cost of the Arabian Peninsula, with a population of 600,000. Qataris constitute 30% of them. In view of the advanced medical care, the aging population in Qatar is expected to rise sharply. The aim of the present study is to determine the different sub-types of dementia prevalent among cohort of Qatari patients seen in the hospital. Such a study is of paramount importance in

order to establish a comprehensive dementia service, better way of management and health care for this group of patients and support for their families.

Methods. A retrospective and prospective ongoing hospital-based study. The medical records of all patients with a diagnosis of dementia between June 1997 and June 2003, were reviewed retrospectively. Patients received the diagnosis of dementia beyond January 2000 were evaluated prospectively using a special form including all relevant information and tests. The medical history was taken from the patient or from the informants who were well acquainted with the patients by the attending physician and was reviewed by a psychiatrist and a neurologist. Questions regarding the education, occupation, daily life activity, smoking, alcohol consumption, marital status and other medical conditions particularly hypertension and diabetes mellitus were highlighted. Dementia was defined according to diagnostic and statistical manual (DSM) IV criteria as development of multiple cognitive deficits including memory impairment.[10] Patient's cognitive function was graded by modified minimal mental state examination (MMSE).[11] Since there is no standardized Arabic form, it was translated to the Arabic language and adjusted slightly to have a culturally well adapted Arabic version, taking into consideration the high rate of illiteracy among the elderly population and the experience of other workers in this field.[12-14] The cut off point for the presence of cognitive impairment was set at different MMES cut off points according to the corresponding levels of education. A score at 18/30 was set for those with no formal education, 20/30 for those who received 6 years of education and 24/30 for those who had more than 6 years of education. For case ascertainment the family members were interviewed with the short memory questionnaire (SMQ).[15] The cut off point of cognitive impairment for SMQ was ≤39/46. Those who had cognitive impairment were further evaluated by a neurologist or by a geriatrician and the patient and their caregivers were interviewed by a psychiatrist and a psychologist. All had brain computerize tomography (CT) and magnetic resonance imaging (MRI) was carried out to the 35 patients whose CTs were found to be abnormal and they were subjected for further evaluation. Routine blood tests including serum vitamin B_{12} and thyroid function tests were carried out for all of them. Syphilis serology and HIV were carried out when there is a history of non-marital sexual contact. Demented patients were classified into sub-types according to the possible cause of dementia. This was carried out by further neuro-psychological tests in accordance with similar epidemiological dementia studies.[9,12] Alzheimer's disease was defined according to National Institute of Neurological and Communicative Diseases and Stroke/Alzheimer's Disease and Related Disorders Association (NINCDS/ADRDA) criteria.[16-17] Vascular

dementia was define according to NINDS-AIREN criteria.[18] Frontotemporal dementia (FTD) was defined according to the consensus diagnostic criteria for FTD[19] and dementia with lewy bodies (DLB) according to the consensus guidelines for DLB diagnostic criteria.[20] Other types of dementia were defined according to the DSM IV criteria.[10] The severity of dementia was assessed by the clinical dementia rating scale (CDRS).[21]

Results. A total of 300 patients received the diagnosis of dementia. Of these 166 were excluded, 53 were expatriates and 113 were found with long standing advanced dementia whose files missed their initial presentation and the proper investigations. The remaining 134 fulfilled the inclusion criteria. All were Qataris, most of them illiterate, married and non-smokers. The final diagnosis of the sub-types of dementia was based on the clinical presentation, neuroradiological and laboratory findings and neuropsychiatric tests on these 134 patients, which can be seen in **Tables 1 and 2**. Only cases of AD and VaD were analyzed. The AD was found in 39 (29%), 14 male and 25 female (male to female ratio was 0.6). Their mean age was 72 years and the CDRS was severe in 72% and moderate in 20%, 14% had hypertension, 41% had diabetes mellitus and 18% had both diseases. Vascular dementia was found in 30 (22%); male 17 and female 13 with male to female ratio of 1:1.3. Their mean age was 71 years, the CDRS was severe in 50% and moderate in 33%, focal signs present in 80%, 29% had HTN, 12% had diabetes mellitus and 41% has both diseases and CT scan showed small vessel disease in 62% (**Table 3**). Mixed AD and VaD was found in 20 (15%), 11 male, 9 female with male to female ratio of 1:1.2, and their mean age was 68 years. The CDRS was severe in 70% and moderate in 18%, 32% had HTN, 18% had diabetes mellitus and 22% had both diseases. Computerized tomography showed small vessel

Table 1 - Dementia due to Alzheimer's diesease, vascular dementia and mixed types.

Dementia	n	(%)
Alzheimer's disease	39	(29)
Vascular dementia	30	(22)
Mixed AD and VaD	20	(15)
Parkinson's disease and AD	6	(5)
AD - Alzheimer's diesease, VaD - vascular dementia		

Table 2 - Dementia due to other medical conditions.

Medical conditions	n
Lewy body dementia	2
Huntington's disease	3
Frontotemporal dementia	1
Non specific dementia	3
Neuroinfection	8 pts
HIV	4
Central nervous system tuberculosis, neurosyphilis	1, 1
Post herpes encephalitis, Iatrogenic CJD	1, 1
Metabolic	7 pts.
Hypothyroidism	2
Hypocalcemia, B12 deficiency	1,1
Renal Failure	1
Liver disease	2
Brain tumor	3
Post traumatic head injury	7
Multiple sclerosis	2
Lafora disease	2
Subdural hematoma	1

CJD - Creutzfeldt-Jakob disease, HIV - human immunodeficiency virus

Table 3 - Neuroimaging findings.

Findings	Pure VaD %	Mixed %	AD %
Multiple lacunar infarcts	41	11	
Leukoencephalopathy	19	55	
Large cortical	18	17	
Strategic single infarct	16	0	
Intracerebral hemorrhage	6		
Brain atrophy	Not reported	Not reported	68

AD - Alzheimer's disease, VaD - vascular dementia

Table 4 - Symptomatology of VaD and AD dementia.

Symptoms	VaD %	AD %
Paranoid and other delusional ideation	18	42
Hallucinations	24	54
Psychomotor activity disturbance	24	58
Aggressiveness	24	33
Diurnal rhythm disturbances	29	75
Affective disturbances	41	8
Anxiety and phobias	6	16
Appetite and eating disorders	18	20
Limited vocabulary	47	50
Limited ambulation	70	42
Urine and stool incontinence	45	50

AD - Alzheimer's disease, VaD - vascular dementia

disease in 85% (**Table 3**), Parkinson's disease with dementia was found in 8 (6%), 5 male and 3 females (male to female ratio was 1:6). Their mean age was 70 years. Clinical dementia rating scale was severe in 70% and moderate in 20%. Two of these fulfilled the criteria of DLB. Differences in symptomatology were noticed between AD disease and VaD dementia. In AD, delusions, hallucinations, aggression and sleep disorders predominated with loss of insight and confabulation; while in VaD, ambulatory problems and affective disorders especially depression predominated (**Table 4**).

Discussion. This study was the first of its kind in this part of the world showed that AD is more prevalent than VaD to the best of our knowledge. This pattern is similar to the publications from the western countries in which AD constitutes 50-60% of demented patients while VaD constitute 25-30%.[1] Seventy percent of our patients presented late to their physician in geriatric or psychiatric service with severe CDRS score, mainly for long term inpatient care. Approximately 30% of patients had early dementia, (by CDRS score) and most of them presented with memory disturbance or inability to manage their financial affairs. The late presentation of patients could be due to the general belief that forgetfulness and cognitive impairments were part of the normal aging process. This was noticed from family interviews and was also reported in other studies.[22] People know little about dementia and only when abnormal behavior appears, they become concerned and bring their patients to the physician. This could explain the high percentage of patients with severe CDRS during initial presentation. It could also explain the high incidence of mixed dementia for whom the initial presentation could not be determined, and it is difficult for these without initial neuroimaging, to differentiate between dementia sub-types.[23-24] Another factor for the high incidence of mixed dementia is the high prevalence of the cardiovascular risk factors as a HTN and DM among our patients, which make elderly AD patients at high risk for vascular insults. This high prevalence of vascular risk factors should alert health authorities for improvement of methods for detection and control of these factors. There were few surgically treatable lesions (normal pressure hydrocephalus, brain tumor and subdural hematoma) and few medically treatable causes such as hypothyroidism, metabolic encephalopathy and neuroinfection. Such examples show the importance of detailed examination and investigations for the demented patients looking for treatable causes at presentation. The emergence of the new drugs for treatment of dementia such as Acetyl cholinesterase inhibitors[25] and the advances in management and prevention of cerebrovascular diseases[26,27] calls for an early and accurate diagnosis of dementia. Understanding the symptoms of dementia,

its progression and how to deal with demented patients can alleviate a lot of sufferings of caregivers. Interviewing physician who was taking care of admitted patients showed lack of interest with general belief that nothing can be carried out apart from nursing care. This was seen clearly in the large number of patients with advanced dementia excluded from our study due to lack of proper investigations and inappropriate documentation in patient's medical files. There are few limitations in our study: First, it is hospital-based and it included all patients whether new or old, nevertheless it is an ongoing study and we will continue collecting data. We are also planning to do a community based study, to show the real prevalence and incidence of dementia in Qatar. Such data are necessary to plan and set up community services and health care system. This study also shows the necessity for a validated modified Arabic version of MMSE due to the high prevalence of illiteracy among old population taken into consideration.

Dementia is expected to be a growing problem in Qatar and other Arab countries. Physicians need education on the detection of early cognitive impairment and to include MMSE in their routine clinical examinations. The public needs awareness through the media, by informing them on the diseases causing dementia and the possible preventive measures by early detection, proper management of HTN and DM. The public societies, which give support to the demented patients and encouragement to the caregivers, should be encouraged.

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