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Clinical characteristics of patients with multiple sclerosis enrolled in a new registry in Egypt

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ABSTRACT

Background: Epidemiological studies of multiple sclerosis (MS) are lacking in Egypt.
Objective: To study the characteristics of Egyptian patients with multiple sclerosis in a new registry in a major tertiary referral centre in Cairo, Egypt.
Subject and methods: Patients were from the project MS database of the Multiple Sclerosis Unit at Ain Shams University Hospitals (N=950). We conducted a detailed medical history and examination including the Expanded Disability Status Scale (EDSS).
Results: Females represented 72% of subjects (female: male ratio 2.57:1). The mean age of disease onset was 26.1 ± 7.6 years. Relapsing-remitting MS (RRMS) was the most common presentation (74.6%). Visual or sensory symptoms were the most common at presentation with RRMS, while motor symptoms were the most common presentation in other types of MS. Time to diagnosis was delayed up to 2 years in 27.8% of patients. The mean EDSS score was 3.6 ± 2.1; 55% had EDSS ≤ 3. About half (49%) received a disease-modifying drug. Progressive MS and motor presentation were associated with higher disability.
Conclusions: This is the first documented MS registry from Egypt. The clinical characteristics of MS in Egypt was similar to other Arab countries and western countries. MS is more common among females in Egypt, with RRMS being the most common presentation. Visual symptoms and motor symptoms were the most common presentations in RRMS and progressive MS, respectively. Our findings also highlight the value of establishing registries in Egypt in order to be able to study, prospectively, the clinical course of the disease, the response to various DMD's and the epidemiology of MS in Egypt.

1. Introduction

Multiple sclerosis (MS), a progressive inflammatory disease of the central nervous system, is the most common cause of neurological disability in young adults. The onset of symptoms generally occurs at the age of 15–40 years (Fernando, 2009). The prevalence and characteristics of MS are believed to differ between populations; this requires study, as most of the data come from studies on Caucasian population, and so, it is important to understand whether MS behaves differently in non-Caucasian population.

The epidemiologic, clinical, radiological and laboratory features of MS are well documented among the Caucasian population (Benamer et al., 2009) and a number of studies have characterised the incidence, prevalence and clinical patterns of MS in different Arab populations such as those of Kuwait, Jordan, Libya, Saudi Arabia, Iraq, Lebanon and Oman (Yamout et al., 2008; Benamer et al., 2009; Alroughani et al., 2012). These studies showed only minor differences from other western studies, e.g. a higher family history of MS in The kingdom of Saudi Arabia, Qatar and Dubai which is probably related to more consanguineous marriages, (Daif et al., 1998; Deleu et al., 2013; Inshasi and Thakre, 2011) but the overall pattern of the disease was similar.

Although Egypt is the largest Arab country, with a population of nearly ninety million, yet, the clinical characteristics and epidemiology of MS are not properly documented (Hashem et al., 2010).

The aim of this study is to identify if the pattern of MS in Egypt is different from other Arab countries or from western countries.

To achieve this aim, we present the results of the first documented registry of MS in Egypt, where the clinical features of a sample of MS patients, including analysis of different disease types, clinical presentations and the use of disease-modifying drugs are presented. The data was collected from the MS database

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of the Multiple Sclerosis Unit at Ain Shams University Hospitals, a major tertiary referral centre for MS in Egypt.

2. Subjects and methods

This was a cross-sectional, hospital-based study. Patients were recruited from the Project MS database, an Egyptian registry of MS patients established in 2013 at the MS unit at Ain Shams University Hospitals, one of two tertiary referral centres in Cairo. The unit includes seven neurologists; one professor, one assistant professor, two lecturers and three assistant lecturers. The three senior neurologists in the unit have participated in the phase three trial of Fingolimod (TRANSFORMS), and two of the members are certified EDSS raters.

The registry included all patients with a diagnosis of MS or clinically isolated syndrome (CIS) who had attended the unit at least once. Data predating 2013 was entered retrospectively using clinical history and patients records, while the clinical evaluations of patients were entered prospectively into the iMED Electronic MS Patient Monitoring System. Any patient with missing data according to the standardised patient evaluation sheet for the database (see online Supplementary Appendix 1) was not included.

Baseline visits were scheduled every six months but shorter visits were done in cases of relapse. Information was double checked with the patient and close family members, regarding symptoms at onset and disease course, for patients diagnosed with MS more than 10 years previously. The diagnosis and type of MS was based on the 2010 McDonald criteria (Polman et al., 2011). The course of the disease based on these criteria was classified as relapsing-remitting MS (RRMS), primary progressive MS (PPMS), progressive relapsing MS (PRMS), secondary progressive MS (SPMS) and clinically isolated syndrome strongly suggestive of MS (CIS). The Expanded Disability Status Scale (EDSS) score (Kurtzke, 1983) was used to assess neurological disability among patients and was recorded during the patient's first visit. Disability was defined as irreversible when a given score persisted for at least 6 months, to exclude transient disability associated with relapses. Individual patient's records included demographic data, medical history, and key episodes in the course of MS including dates and symptoms of relapses and prescription of disease-modifying drugs (DMDs).

Data were analysed using IBM-SPSS version 20. Categorical variables were summarised using frequency and percentage. Means, medians, standard deviations and quartiles were computed for quantitative variables. Significance was assessed using Pearson's chi square test for categorical variables and *t*-tests and analysis of variance (ANOVA) for quantitative variables. Non-parametric tests (Mann Whitney *U*-test and Kruskal Wallis test) were used when datasets were found to be not normally distributed.

3. Results

3.1. Demographic and disease characteristics

A total of 950 patients were included in the registry up to the end of November 2015 (Table 1). All were Egyptian, except for three Syrian patients resident in Egypt. The majority of patients were female (72% of the study population, with a female: male ratio of 2.57:1). Mean age was 31.8 ± 8.7 years and mean age at onset of MS symptoms was 26.1 years (range 9–52 years), with a peak at age 20–29 years. While 70% of the patients reported their first symptom before age of 30 years, 6% experienced their first

Table 1
Demographic and disease characteristics.

	All (n=950)	Males (n=266)	Females (n=684)	p
Mean age (y)	31.8 ± 8.7	32.2 ± 8.7	31.6 ± −8.7	0.923
Mean age at onset (y)	26.1 ± 7.6	26.5 ± 7.5	26.0 ± 7.7	0.440[a]
< 20 y	185 (19)	44 (16.5)	141 (20.6)	
20–29 y	480 (51)	139 (52.3)	341 (49.9)	
30–39 y	225 (24)	66 (24.8)	159 (23.2)	
40–49 y	58 (6)	17 (6.4)	41 (6.0)	
≥ 50 y	2 (0.2)	0 (0)	2 (0.3)	
Tobacco Smoking (N, %):				
No	822 (87)	153 (58)	669 (98)	< 0.001[b]
Yes	109 (11)	94 (35)	15 (2)	
Ex-smoker	19 (2)	19 (7)	0	
Mean duration of illness	5.7 ± 5.3	5.9 ± 5.4	5.7 ± 5.2	0.386[c]
Median (IQR)	4.0 (2.0–8.0)	4.8 (2.0–8.0)	4.0 (2.0–8.0)	
Type of MS (N, %)				
Clinically isolated syndrome (n=26)	26 (3)	11 (4)	15 (2)	0.003[b]
Relapsing-remitting MS (n=709)	709 (75)	176 (66)	533 (78)	
Secondary progressive MS (n=154)	154 (16)	53 (20)	101 (15)	
Primary progressive MS (n=28)	28 (3)	13 (5)	15 (2)	
Progressive relapsing MS (n=33)	33 (3)	13 (5)	20 (3)	
Symptoms at onset (N, %)				
Brain stem (n=140)	140 (15)	47 (8)	93 (14)	0.050[b]
Cerebellar (n=53)	53 (6)	21 (18)	32 (5)	
Combined (n=55)	55 (6)	13 (5)	42 (6)	
Focal spinal (n=133)	133 (14)	35 (13)	98 (14)	
Motor (n=199)	199 (21)	56 (21)	143 (21)	
Sensory (n=162)	162(17)	51 (19)	111 (16)	
Uncommon (n=13)	13 (1)	1 (0)	12 (2)	
Visual (n=195)	195 (21)	42 (16)	153 (22)	
Mean time between onset and diagnosis (y)				
Mean	3.4 ± 4.4	3.5 ± 5.0	3.3 ± 4.1	0.488[c]
Median (IQR)	2.0 (0.17–5.0)	1.7 (0.08–5.0)	2.0 (0.25–5.0)	0.067
< 6 months (N, %)	399 (42)	125 (47.0)	274 (40.1)	
6–12 months (N, %)	171 (18)	44 (16.5)	127 (18.6)	
13–24 months (N, %)	116 (12)	37 (13.9)	79 (11.5)	
> 24 months (N, %)	264 (28)	60 (22.6)	204 (29.8)	
Mean EDSS score				
Mean	3.6 ± 2.1	3.7 ± 2.1	3.5 ± 2.1	0.114[c]
Median (IQR)	3.0 (2.0–6.0)	3.25 (2.0–6.0)	3.0 (2.0–5.5)	0.146[b]
EDSS score 0–3 (N, %)	518 (55)	133 (50)	385 (56)	
EDSS score 3.5–6.5 (N, %)	370 (39)	111 (42)	259 (38)	
EDSS score 7–9.5 (N, %)	62 (7)	22 (8)	40 (6)	
Mean total Number of relapses				
Mean	3.9 ± 3.2	3.8 ± 3.3	3.9 ± 3.1	0.062[c]