Original Article

The Pattern and Presentation of Myathenia Gravis in Al-Shaab and Omdurman Teaching Hospitals

Mohammed Osman El Hassan Gadour and Mysara Abaker Arbab

ABASTRACT:

Introduction: Myasthenia gravis (MG) is the most common acquired autoimmune disorder of neuromuscular transmission. It has different patterns of presentation.
Objective: to study the pattern and mode of presentation of Myasthenia Gravis in Al-Shaab and Omdurman Teaching Hospitals, Khartoum Sudan.
Methods: The demographic and clinical characteristics of 50 patients of myasthenia gravis (MG) were reviewed in Alshab and Oumdrman Teaching Hospitals for five months period from May to October 2008.
Results: Out of 2400 patients attending neurology clinics 50 were found to have Myathenia Gravis [MG] with female; male ratio of 2.5:1. The age at presentation was the second decade of life in 34%. Most of the patients [42%] were from Khartoum State followed by North Kordofan State [14%]. High occurrence of late onset fatigability and weakness was seen in 92 % of our patients. Ocular muscles involvement was detected in 78%. MG was aggravated by hot weather and fever in 12% of the patients. Quinine represented the most common drug which aggravated the myasthenia symptoms in 4%. Diabetes mellitus and thyroid diseases were the most associated auto immune diseases seen in 12% and 4 % respectively. The diagnosis was made by classic history and neurological examinations in 88% and positive neostigmin test in64%. The majority of patients were treated with steroids. Thymectomy was done in 10% patients. The outcome was excellent as 82% improved and only one [2%] patient died.
Discussion: Going with literature diagnosis of MG was made depending on classical history, full neurological examination and confirmed by tensilon test. Because of different reasons more sophisticated tests were not done in our patients. Only patients with malaria who were treated with quinine showed deterioration of their symptoms in our study. Strikingly, myasthenia crisis which were reported in 27% of patients were not seen in our population. Because of lack of usage of steroid sparing agents the vast majority [96%] of our patients were treated with steroids.
Conclusion:
Generalized myasthenia gravis with ocular involvement is common in our patients. However, pure OMG was not seen. Thymectomy was done in a small number of our patients with reference to other studies.
Keywords: autoimmune, tensilon, neostigmin, thymectomy, diplopia, ptosis.

Myasthenia gravis (MG) is the most common acquired autoimmune disorder of neuromuscular transmission. The hallmark of MG is fluctuating weakness, fatigability of skeletal, ocular, bulbar and respiratory muscles.

The fatigue is manifested by worsening contractile force of muscles due to an antibody mediated T-cell dependant immunological attack. The attack is directed at proteins in post-synaptic membrane of the neuromuscular junction. MG can be classified into two groups: ocular myasthenia gravis (OMG) and generalized myasthenia gravis (GMG).

1. Professor of internal medicine. Department of Medicine, Omdurman Islamic University
E. mail: mgadour@hotmail.com
2. Ministry of Health.

In OMG the weakness is limited to the eyelids and extra- ocular muscles. In GMG the weakness involves a variable combination of bulbar, limbs and respiratory muscles in addition to affections of ocular muscles. When antibodies to acetylcholine receptors (AchRAb) are detected the disease is called seropositive myasthenia gravis (SPMG). About half of the patients with pure ocular OMG are seropositive compared with four-fifth of those with GMG. 10-20% of patients with MG have an underlying thymoma[1].

Objective of the study:
The objective is to study the pattern and mode of presentation of myasthenia gravis in Al-Shaab and Omdurman Teaching Hospitals Khartoum Sudan.

Research methods:
This is a cross sectional hospital based descriptive retrospective study. It was conducted at Al-Shaab and Omdurman Teaching Hospitals during the period from May to October 2008. All patients attending neurology clinics were seen and the targeted patients were selected. Only the patients who were confirmed to have MG and whose ages were above 16 years were selected.
The patients were consented about the study and each patient was interviewed. Files of the patients were retrieved and questionnaires that contain information about the personal data, presentation, aggravating factors, associated autoimmune diseases, diagnostic tools, treatment and the outcome were filled. The data were analyzed and discussed.

The result;
Out of 2400 patients attending neurology clinics in the period of May to October 2008; 50 were confirmed to have MG. Females were 36 [72%]; the majority 36 (72%) of the patients were singles. The patients presenting in the first decade of life constituted 10% of the total number (Fig.1). It was found that 21 [42%] of the patients were from Khartoum states while the rest were from other parts of Sudan. The Late onset of weakness and fatigability occurred in 92% of patients (table1). Bilateral ocular muscles involvement was seen in all 39 of the patients who developed eye symptoms.

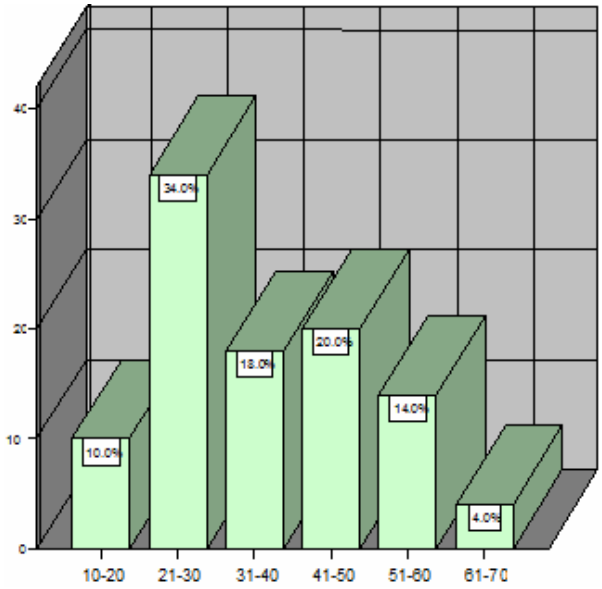

Fig 1 Age distribution

Table 1

Presentation	Frequency (%)
Late weakness	46(92)
O M. envelopment	39(78)
Nasal regurgitation	32(64)
Abnormal speech	33(66)
Chocking	29(58)
S.O.B	9(18)

Diplopia and ptosis were found in 36 and 34 patients respectively. The duration of ocular muscle involvements before presentations was less than two month in12% of patients while difficulty in walking was seen in 84% (table 2).
Shortness of breath was found in only 6 [12%] and was mild in severity. The symptoms were progressive in 34 [64%], fluctuating in 14 [28%] and static in 2[4%] patients. Symptoms were aggravated by hot weather in 12% of patients (table3). Apart from two [4%] patients who had thyroid disease and six [12%] who had type 2 diabetes; no other autoimmune disease was detected. Patients were diagnosed by classical history in 88% (table4). Thymectomy was performed in five [10%] while the rest had only drugs. Improvement occurred in41 [82%], eight [16%] remain static and one [2%] patient died.

Table2

Du Month	OI N (%)	NR N (%)	AS N (%)	BO N (%)	Di N (%)	Pt N (%)	W N (%)	Pr N (%)	R N (%)	Ch N (%)	SOB N (%)
< 2	2 (12)	5 (15.6)	15 (45.4)	0	0	0	2 (4.7)	14 (57)	2 (6.3)	10 (34.3)	
2 – 4	15 (38)	12 (37.5)	10 (30.3)	19 (48.7)	19 (52.7)	20 (58.8)	14 (33.3)	13 (37.2)	14 (43.8)	4 (13.8)	1 (16.7)
5 - 7	2 (5)	3 (9)	4 (12.1)	2 (5.1)	2 (5.5)	5 (14.7)	4 (9.5)	4 (11.4)	4 (12.5)	1 (3.4)	1 (16.7)
8 - 10	2 (5)	1 (3)	3 (9)	2 5.1%	3 (8.3)	8 (23.5)	3 (7.1)	3 (8.6)	1 (3.1)	12 (41.5)	1 (16.7)
> 12	15 (38)	11 (34.3)	1 (3.3)	16 (41.1)	12 (33.3)	1 (2.9)	19 (45.2)	2 (3.7)	11 (34.3)	2 (6.8)	3 (50.1)

N=number. Du= duration. OI=Ocular Involvement. NR=Nasal Reg. AS=AbnormalSpeech. BO=BilatralOcular. Di=Diplopia. Pt= Ptosis. W=Walking. Pr=Praying. R=Running. Ch=Chocking. SOB= Shortness of breath

Discussion:

Myasthenia gravis is the most common understood autoimmune disease. It is relatively common; however the prevalence in Sudan is not studied. In Egypt MG prevalence is about 9.57 per 100.000 while in USA is 100-200 per million[2] affected patients[2].

Table 3

Aggravated By	Frequency (%)
Hot Weather	6(12)
Fever	6(12)
Stress	2(4)
Quinine	2(4)
Total	16(32)

The prevalence of the disease has increased over the last five decades because of good recognition of the disease, aging of the population and the longer life span of the

Going with literature diagnosis of MG was made depending on classical history and full neurological examination and confirmed by tensilon test[3].

Table 4

Diagnosis & tests	Frequency (%)
Classical history	44(88)
Clinical ex	44(88)
Tension test	32(64)
EMG	6(12)
Chest X-RY	9(18)
Ct Chest	12(24)
Total	147

In some other studies AchR-Ab assays[4] which were found to be more specific and sensitive tests were also added[5]. However, somewhere repetitive nerves stimulation and single fiber electro- myography were found even more sensitive and more specific [6, 7]. Because of different reasons the above tests were not

done in our patients. A large number of our patients (42%) were from Khartoum State. This is probably because of the large movements of the population from other states to the capital in the last years. In MG there is a trend to have a bimodal distribution to the age of onset with early peak in the second-third decades where females predominate and a late peak in the sixth-eights decades with male predominance[1]. In our study we found no bimodal distribution of age. Different reports have different age-sex distributions[8, 9]. In a study done in Libya they found that female to male ratio was 2.6:1 similar to our finding[3]. Bilateral ocular signs and diplobia were seen in 78% and 72% of our patients respectively which are similar to the 73.5% and 85% reported somewhere[10]. However, none of our patients had presented with pure ocular MG. Matching with that; GMG was detected in 94.5% of the patients in Libya. This is different from reports from Dar Elsalam and elsewhere[11, 12]. These differences are probably due to the complexity and variable mode of presentations that characterize MG. Early in the course of the disease the symptoms are usually fluctuant and may be transient. However, the maximum extent of weakness occurs in 77-82% of patients within two to three years. This is probably the reason for the delay of 2.5 years between appearance of symptoms and diagnosis. Most of our patients had presented within one year of the onset of symptoms. This is likely because a large number of our patients were from Khartoum State where the specialized neurology facility is available. Nevertheless, negligence of the early signs of MG might have also contributed to that[13, 14].

Diabetes mellitus and thyroid disorders [12% and 4%] were the only detected autoimmune diseases associated with MG in our population. This is less than the 27% reported in literature. The lack of availability of other diagnostic tests might have contributed to that. MG was reported to be aggravated by different drugs and diseases[8, 10]. Only patients with malaria who were treated with quinine showed deterioration of their symptoms in our study. The relative role played by the malaria and quinine in that is difficult to determine. Strikingly, myasthenia crisis which were reported in 27% of patients were not seen in our population[15]. Unlike our patients, somewhere all patients received symptomatic treatment in a form of anti cholinesterase inhibitor. Only 22.2% of the patients in Libya study received steroids therapy compared to 96% of our patients. The lack of usage of steroid sparing agents by our patients can partially explain that. Thymectomy was done in a small number of our patients with reference to other studies[3, 12]. This is probably because of the social fear of surgery and the different protocols of managements. The improvement in this study [82%] is consistent with the literature. The mortality rate was low in our patients compared to others'[16]. The small number of patients, being relatively young and have less thymoma might be behind that.

Conclusion:

Generalized myasthenia gravis with ocular involvement is common in our patients. However, pure OMG was not seen. The bimodal age distribution of the disease is not seen in our population. Its association with other autoimmune diseases is not as common as in literature. Thymectomy and steroid sparing drugs were the least modes of treatment in our patients for different reasons. However, the outcome was excellent and myasthenia crisis were not reported.

References:

1. Drachman, DB. Myasthenia gravis. N Engl J Med 1994; 330:1797-1810.
2. Engel AG, Arahata K. The membrane attack complex of complement at the endplate in myasthenia gravis. Ann N Y Acad Sci 1987; 505: 326-32
3. El-Zunni S, Prakash PS, Saitti M et al. Myasthenia gravis (MG): a preliminary report. Cent Afr J Med 1996; 42(3):77-80.
4. Meriggioli, MN, Sanders, DB. Myasthenia gravis: diagnosis. Semin Neurol 2004; 24:31-39.
5. Lindstrom JM, Seybold ME, Lennon VA, et al. Antibody to acetylcholine receptor in myasthenia gravis. Prevalence, clinical correlates, and diagnostic value. Neurology 1976;26:1054-9

6. Shigemoto K, Kubo S, Maruyama N et al. MuSK antibodies in AChR Ab-seropositive MG vs AChR Ab-seronegative MG. Neurology 2004; 62:2132-2133.
7. AAEM Quality Assurance Committee. American Association of Electrodiagnostic Medicine. Practice parameter for repetitive nerve stimulation and single fiber EMG evaluation of adults with suspected myasthenia gravis or Lambert-Eaton myasthenic syndrome: summary statement. Muscle Nerve 2001; 24 : 1236-8 .
8. Juel Vc,MasseyJM, Myasthenia gravis. Orphanet J Rare Dis 2007; 6;2:44.
9. Weizer J S; Lee A G; Coats D K Myasthenia gravis with ocular involvement in older patients. Canadian journal of ophthalmology. Journal canadien d'ophtalmologie 2001;36(1):26-33
10. Kupersmith, MJ, Ying, G. Ocular motor dysfunction and ptosis in ocular myasthenia gravis: effects of treatment. Br J Ophthalmol 2005; 89:1330-1334 .
11. Matuja WB, Aris EA, Gabone J et al. Incidence and characteristics of myasthenia gravis in Dar Es Salaam, Tanzania. East Afr Med J 2001;78:473-6.
12. Mantegazza R, Baggi F, Antozzi C *et al*. Myasthenia gravis (MG): Epidemiolological data and prognostic factors. Ann N Y Acad Sci 2003;998:413-23.
13. Grob, D, Brunner, N, Namba, T et al. Lifetime course of myasthenia gravis. Muscle Nerve 2008; 37:141-149.,
14. Mantegazza, R, Beghi, E, Pareyson, D, et al. A multicentre follow-up study of 1152 patients with myasthenia gravis in Italy. J Neurol 1990; 237:339-344.
15. Apostolski S, Lavrnic D, Trikic R et al. Myasthenia gravis--a disease with variable impact on working capability. Srpski Arhiv Za Celokupno Lekarstvo 2007; 135(3-4):216-21
16. Rastenyte D, Vaitkus A, Neverauskas R et al. Demographic and clinical characteristics of patients with myasthenia gravis. Medicina (Kaunas) 2002;38(6):611-6.