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Quality of Life among Multiple Sclerosis Patients

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Abstract: Regarding relatively high prevalence of MS in Mazandaran province, this study was designed to measure the quality of life in multiple sclerosis patients living in Mazandaran province. MS is one of the progressive and chronic demyelinating disorders involving active members of society. In this descriptive study, the community of research included members of Mazandaran Multiple sclerosis Association (MMSA). The census sampling method was used. The volunteers (101 patients) were assessed from October 2005 to March 2006. Assessment tool for data collection was standard questionnaire SF-36. The questionnaire consists of 36 questions and its validity has already been determined in many countries including Iran and it has high reliability (alpha cronbach 0/77- 0/90). Clinical manifestations and the severity of the disease were evaluated with history and physical examination taken by neurologists and using EDSS criteria. The results showed that 76% of the patients were females and 26% were males. The age range was 18-60 years (33/27±8/31). The emergence of disease was at age 12-54 years (27/12±8/03). About 7% of the patients had positive family history of multiple sclerosis. The mean score (based on 100) of general health, physical health, mental health, vivacity, social health and physical pain were, respectively, 41/34±10/22, 54/75±30/25, 53/25±22/03, 54/75±24/44, 56/62±20/96 and 35/75±31/68. In this study, the quality of life was relatively good in all aspects. This may be due to mildness of disease in majority of patients, low age at time of disease emergence and shorter duration of disease

Key words: Neurologic disease, demyelinating disorders, multiple sclerosis, quality of life physical health, mental health, social health

INTRODUCTION

MS is one of the progressive and chronic demyelinating disorders with unknown origin. Based on researches, the injury of myelin is a primary involvement of viral infection in early of life that produces immunity process later years (Green, 2003; Phipps and Long, 2003).

Some studies have shown relationship between MS and variety of class I HLA (Zabihi *et al.*, 2004). MS is one of the most disabling chronic neurological disorders in young adults (18 to 40 years old). Clinical manifestations depends on the location of nerve involvement. Optic nerves with relation to cerebrum, brain stem, cerebellum and spinal cord involve more than other parts of central nervous system (Polaski *et al.*, 1998). The most common signs of MS consists of fatigue, weakness, numbness, unharmonious movements and ataxia (Pugliatti *et al.*, 2006; Etemadifar *et al.*, 2006; Turk Boru *et al.*, 2006). Other signs include bladder, bowel and sexual problems (Lewis *et al.*, 2004; Brunner and Sudarth, 2004; Ignatavicious and Workman, 2004). The total prevalence of MS in past 3 decads was 83 in 100/000 and the woman

to the man ratio is 2 (Pugliatti *et al.*, 2006). High prevalence of MS (more than 30 in 100/000) in North Europe, North America, South Canada, South Australia, Newzealand, Iran and Turkey and low prevalence of MS (lower than 5 in 100/000) in south Europe, Japan, China and south America has been reported (Etemadifar *et al.*, 2006; Turk-Boru *et al.*, 2006). This may be related to differences of race, weather or both. Incidence of MS in the moderate weather is 5 times more than tropic zones (Brunner and Sudarth, 2004; Ignatavicious and Workman, 2004). There isn't exact statistics about the prevalence of MS in Iran. But based on one study in Kerman, the prevalence of MS was reported 30-60 in 100/000 and based on another study in Isphahan was 35/5 in 100/000 (Zabihi *et al.*, 2004; Etemadifar *et al.*, 2006; Allaedini, 2005).

The results of many studies such as Patti *et al.* (2003) in Italy, Pittock *et al.* (2004) in America, Turpin *et al.* (2007) in Canada, Beiske *et al.* (2007) in Norway shows, the quality of life is an important factor in evaluation of both the effects of disease and measurement of the results of clinical trials about MS. Patients with MS during

progress of the disease, experience both physical and mental problems (Nortvedt *et al.*, 2000; Morales-Gonzales *et al.*, 2004). Based on results of the studies such as Janardhan and Bakshir (2002) in America, Montel and Bungener (2007) in France, Thompton *et al.* (2006) in England, fatigue and depression due to MS, are common problems that can affect on the quality of life. Regarding to low age at time of disease emergence and involving active members of society, evaluation of the quality of life in these patients seems essential. The study of quality of life in these patients could decrease relieve some disabilities and promotes residual abilities to maximal levels. Regarding relatively high prevalence of MS in moderate weather such as Mazandaran province, this study was designed to measure the quality of life in multiple sclerosis patients living in Mazandaran province.

MATERIALS AND METHODS

In this descriptive study, the community of research included members of Mazandaran Multiple sclerosis Association (MMSA). The census sampling method was used. The volunteers (101 patients) were assessed from October 2005 to March 2006. At first the patients was called by principles of association and asked them if they intend to take part in research. Then they was referred to association office in Sari on three days a week (Saturday, Monday, Wednesday).

Assessment tool for data collection was standard questionnaire SF-36. It was used by Sweden first time and then translated in many countries (Benito-Leon *et al.*, 2002; Miller *et al.*, 2000; Pfenning *et al.*, 1999; Nortvedt *et al.*, 2001; Nichol *et al.*, 2001). The validity of questionnaire was already ascertained by Motamed *et al.* (2005) on Shiraz university staff, by Montazeri *et al.* (2005) on health persons over 15 years old in Tehran and by Mohammadpour *et al.* (2007) on population over 40 years old of Mazandaran and chronbach alpha was reported 0/77 to 0/90. This questionnaire consists of 6 questions about general health, 10 questions about physical health, 4 questions about vivacity, 5 questions about mental health, 2 questions about social relationships, 4 questions about physical limitation, 3 questions about mental limitation and 2 questions about pain.

In this questionnaire, some questions was scored 1-5, some 1-3 and the others 1-2. Total of scores analyzed based on 100. Some of the characteristics of patients such as age, sex, state of marriage, duration of disease, history of other disease, job, primary clinical manifestation and severity of disease was determined by taking history and physical exam by neurologists and using Krutzke Expanded Disability Status Scale (EDSS), that is the most common assessment tool for MS disability (McMillan and

Moor, 2006; Krutzke, 1983; Basil *et al.*, 1999; Hobart *et al.*, 2000) and scored 0-10 (the higher number shows the more disability). The questionnaire was completed by cooperation of two nurses with baccalaureate degree. Data were analyzed by using the mean, standard deviation, T test and levene's test.

RESULTS

The age range of patients was 18-40 years old (33/27±8/31). The duration of disease was 1-25 years (6/15±4/49) and the emergence of disease was at 12-54 years (27/12±8/03). Seventy two percent of patients were married. There was family history in 7% of patients. Nine percent of patients had past history of other disease (2% heart disease, 2% respiratory disease, 5% diabetes). Thirty nine percent of patients were employed and 26% had lost their job because of their disease.

The results of this study showed the most common clinical manifestation of MS patients were fatigue (78%); motor disorders (76%) and sensory disorders (74%), respectively (Table 1).

The severity of disease was assessed by EDSS that was scored from 0-10 and the higher number shows the more disability (Table 2). In this study the range of disability was 1-8 (2/96±1/77). The disability scores of majority of patients (63%) was mild (1-3) and the minority of patients (6%) was severe (>7).

The mean of physical health (54/75±30/25); vivacity (54/75±24/24) and social relationships (52/62±20/96) were higher than other quality of life indexes.

T test didn't show significant relationship between the quality of life and age, duration of disease, sex and marriage state. It might be related to shortage of samples in this study (Table 3). T-test showed significant relationship between fatigue and the quality of life (physical limitations, mental limitations and mental health indexes) $p = 0/001$.

Table 1: Primary clinical manifestations of MS among members of MMSA

Clinical manifestations	Percentage
Fatigue	78
Motor disorders	76
Sensory disorders	74
Visual disorders	70
Ataxia	64
Mood disorders	64
Bladder dysfunction	48
Bowel dysfunction	36
Sexual dysfunction	23

Table 2: Disability scores among members of MMSA

Disability score	Percentage
1-3	63
3-5	23
5-7	8
>7	6

Table 3: The mean and standard deviation of the quality of life indexes among members of MMSA

Index	Mean±SD
General health	41/34±10/22
Physical health	54/75±30/25
social relationships	52/62±20/96
Physical limitations	30/25±36/11
Mental limitations	30±36/63
physical pain	35/75±31/68
Vivacity	54/75±24/24
Mental health	53/25±22/03

The results of t test showed significant relationship between motor disorders and the quality of life (physical limitations and mental health index) $p = 0/004$, sensory disorders and the quality of life (physical limitations) $p = 0/005$, visual disorders and the quality of life (mental health index) $p = 0/001$, ataxia and the quality of life (physical limitations and mental health index) $p = 0/006$ and $p = 0/002$, respectively, sexual disorders and the quality of life (physical limitations and mental health) $p = 0/008$ and $p = 0/000$, respectively.

T test showed significant relationship between disability scores and the quality of life (general health, physical health and physical limitations) $p = 0/004$, $p = 0/001$ and $p = 0/000$, respectively.

The levene's test showed significant different between disability scores and social relationship ($p = 0/0003$).

DISCUSSION

In this study, the mean of age of the emergence of disease was $27/12 \pm 8/03$. In European countries, the age of emergence of MS is higher than Middle East. The mean of age of the emergence of MS is $31/7$ in England, $29/6$ in Jordan, $25/9$ in Arabia, $26/6$ in Iran and $32/4$ in Tunisia (Ammar *et al.*, 2006; Wasay *et al.*, 2006). The results of this study showed the woman to the man ratio is $1/7$. This ratio makes difference in different countries and even different locations of the same country. It has reported $2/6$ in England, $1/9$ in Jordan, $1/3$ in Arabia, $1/5$ in Iran (Wasay *et al.*, 2006; Etemadifar *et al.*, 2006). Family history of MS has been $\%3-23$ in different studies.

In this study, it was 7% . It adjusts with one study in Kerman ($7/8\%$) (Zabihi *et al.*, 2004).

The majority of patients Had Moderate physical health ($54/75 \pm 30/25$), mental health ($53/25 \pm 22/03$), vivacity ($54/75 \pm 24/44$) and social relationship ($52/62 \pm 20/96$). In addition, the results of this study showed 26% of patients had lost their job. In comparison with Morales-Gonzales *et al.* (2004) in Spain ($65/8\%$), that wasn't high. It might be related to the lower disability scores of patients in this study.

In Patti *et al.* (2003) study on 180 patients with MS, the quality of life showed the lower of mean in all indexes ($p = 0/001$). In other study by Nortvedt *et al.* (2000) in

Norway on 194 patients with MS, the quality of life in subgroup of mental health was moderate ($0/2$ SD) and in subgroup of physical health was decreased significantly. In Nichol *et al.* (2001) study on 96 patients with MS, physical health was also low. But the results of Benito-Leon *et al.* (2002) in Spain on 209 patients with MS, showed anxiety and depression has higher mean versus other indexes of the quality of life. Thompton *et al.* (2006) in England also compared 39 patients with MS and 40 health persons. The scores, both in the anxiety and depression were higher than in patients with MS.

The results of this study showed significant relationship between fatigue and physical limitations and mental health ($p = 0/001$). Janardhan and Bakshi (2002) in assessment of 60 patients with MS in America reported fatigue resulted in impairment of health concept ($p = 0/03$) and sexual dysfunction ($p = 0/008$) and mental health impairment ($p = 0/006$).

Although the pathophysiology of MS is controversial, studies shows fatigue is not only the most common complaint of MS, but also one of the most common causes of physical and mental limitations. Some of the surveys shows the effects of fatigue on the physical state of patients, is independent. So, evaluation of fatigue, provides more information about disability and it's effects on therapeutic decision making (Mohammadpour *et al.*, 2007; Bethoux, 2006). In this study, there was significant relationship between disability state and general health ($p = 0/004$), physical health ($p = 0/001$) and social relationships ($p = 0/003$) that adjusts with Nortvedt *et al.* (2000) study.

But in Patti *et al.* (2003) Study, there was only correlation between disability scores and physical health index ($p = 0/001$).

CONCLUSION

In this study, the quality of life of members of MMSA was moderate in all aspects. This may be due to mildness of disease in majority of patients, low age at time of disease emergence and shorter duration of disease.

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