Perception of Quality of Life in Patients with Relapsing-remitting Multiple Sclerosis

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Abtract

Multiple Sclerosis (MS) is a complex disease, with signs and symptoms that differ from one person into another; this clinical variability is due to the different locations of the anatomical-pathological lesions. In addition to motor symptoms, psychological disorders can be observed, as it is shown in several studies and to different extent, with a wide-range percentage of 14-57% [1]. This study aimed to assess subjective Quality of Life (QoL) in patients with Relapsing-Remitting Multiple Sclerosis (RRMS). The results of the present study show how QoL is perceived by patients affected by RRMS and they may be useful for all professionals who work with such people. Moreover, it may be considered one of the starting points in order to find other and more effective strategies aimed to improve QoL.

Keywords: Multiple Sclerosis; Inflammatory; Demyelinating; Neurodegenerative Disease

Introduction

Multiple Sclerosis (MS) is an inflammatory, demyelinating, neurodegenerative disease of the central nervous system and which etiology is still unknown. It is one of the principal causes of non-traumatic neurological disability in young adults [2,3]. Since early stages, more than 80% of individuals affected by MS experience a relapsing-remitting disease characterized by relapses and remissions. The disease is progressive and characterized by various symptoms, compromising motor, sensory and psycho-cognitive impairments [4,5]. The unpredictable evolution of MS is associated with a reduction in physical and emotional performance, which affects quality of life (QoL) [6]. QoL has been defined as the perception that an individual has about its life in relation with its cultural and moral context (OMS, 1999). This perception can be influenced by psychological, social and physical factors [7]. Moreover, QoL has frequently been investigated in these patients and has been found to be worse compared to the general population [8]. The impact of MS on QoL can depend on numerous disease-related factors (such as disability level or MS phenotype) and on individual factors (such as social support, education, age or employment). Identification of risk and protective factors is a key point in implementing strategies that may improve a patient's QoL [8,9].

i. **Patients:** 79 patients affected by relapsing–remitting multiple sclerosis (RRMS) according to the Mc Donald criteria (65.8% women, 34.2% men) (mean age 39.9) were enrolled in this study. The patients had a disability corresponding to a mean score of 2.2 on EDSS. A percentage of 59.5% had been treated with interferon immunomodulators, 40.5% had been treated with monoclonal antibodies. These patients are followed by the Multiple Sclerosis Centre of the Polyclinic Ospital G. Martino of Messina. Exclusion criteria were co-morbidity with other neurological or psychiatric diseases, history of alcohol and drug abuse.

Before being interviewed, all participants gave the informed consent to participate in this study. They were assured that the transcript of the interview would remain strictly confidential and that patients would not be named in the final description and analysis.

Materials and Methods

Quality of life was assessed using the SF-36 questionnaire. Clinical disease progression was assessed using the EDSS.

SF-36 questionnaire

The SF-36 questionnaire consists of 36 items, which are used to calculate eight subscales: physical functioning (PF), role physical (RP), bodily pain (BP), general health (GH), vitality (VT), social functioning (SF), role emotional (RE), and mental health (MH). The first four scores can be summed to create the physical composite score (PCS), while the last four can be summed to create the mental composite score (MCS). Scores for the SF-36 scales range between 0 and 100, with higher scores indicating a better HRQOL.

Expanded Disability Status Scale

The Expanded Disability Status Scale (EDSS) is a method of quantifying disability in multiple sclerosis and monitoring changes in the level of disability over time. It is widely used in clinical trials and in the assessment of people with MS. The EDSS scale ranges from 0 to 10 in 0.5 unit increments that represent higher levels of disability. Scoring is based on an examination by a neurologist. EDSS steps 1.0 to 4.5 refer to people with MS who are able to walk without any aid and is based on measures of impairment in eight functional systems (FS).

Statistical Analysis

Numerical data were expressed as mean and standard deviation (S.D.), and the categorical variables (gender, first-line or second-line treatments, civil status and profession) as absolute frequencies and percentage. The non parametric approach was used since the numerical variables were not normally distributed, as verified by the Kolmogorov-Smirnov test. The Spearman correlation test was applied in order to assess the existence of a significant interdependence between EDSS and all variables related to individual profiles. The Mann Whitney test was applied in order to compare male and female patients and, also, to compare patients receiving first-line and second-line treatments. Statistical analyses were performed using IBM SPSS for Windows, Version 22 (Armonk, NY, IBM Corp.). A p-value smaller than 0.05 was considered to be statistically significant

Results

As it can be seen from (Table 1) the sample is mainly composed of women (65.8%), of married civil status (67.1%), employed profession (54.4%) and on first-line drug therapy (59.5%). Focusing on the personal data variables (Table 2), the mean age of the enrolled subjects was 39.9±10, their qualification is a diploma (as they have about 12 years of education), they have been suffering from the disease for about a decade and their degree of disability (EDSS score) is rather low (2,2). Examining quality of life indicators (Table 2), related to physical health, we can observe that PF (63.1±29.2) and BP (61,7±30,3) are quite high; among the indicators relating to mental health we find the highest values for SF (61.3±26.0) and MH (61.2±23.0).

Table 1: Basic characteristics of enrolled patients.

		Frequency	Percentage
Gender	Male	27	34.20%
	Female	52	65.80%
Civil status	Unmarried	23	29.10%
	Married	53	67.10%
	Divorced / widowers	3	3.80%
Profession	Unoccupied	36	45.60%
	Employed	43	54.40%
Treatment	First line	47	59.50%
	Second line	32	40.50%

Table 2: Descriptive statistics of numerical variables measured on enrolled patients.

	Mean ±SD	Median	Range
Age	39.9±10.0	41	22.0-67.0
Years of education	12.2±2.9	13	8.0 – 17.0
Years of illness	10.2±6.0	10	1.0-29.0
EDSS score	2.2±1.9	2	0.0-6.5
Physical Functioning (PF)	63.1±29.2	65	0.0-100.0
Role -Physical (RP)	45.9±41.9	50	0.0-100.0
Bodily Pain (BP)	61.7±30.3	54	10.0-100.0

General Health (GH)	50.7±19.8	50	5.0-100.0
Vitality (VT)	46.6±19.5	50	0.0-85.0
Social Functioning (SF)	61.3±26.0	62	0.0-100.0
Role-Emotional (RE)	55.6±42.9	66	0.0-100.0
Mental health (MH)	61.2±23.0	64	8.0-100.0
PCS	40.7±11.1	42	18.0-58.0
MCS	43.0±11.7	42	8.0-100

PCS: Physical Component Summary
MCS: Mental Component Summary

Table 3: Comparison between patients according to treatment (mean ± SD and p-value).

	First line treatment	Second line treatment	p-value
Physical Functioning (PF)	62.9±28.3	63.2±30.7	0.837
Role -Physical (RP)	47.8±41.6	42.9±42.7	0.484
Bodily Pain (BP)	61.1±30.3	62.5±30.7	0.871
General Health (GH)	50.3±19.9	51.2±19.9	0.849
Vitality (VT)	46.4±19.7	46.8±19.4	0.876
Social Functioning (SF)	61.7±25.4	60.6±27.2	0.992
Role-Emotional (RE)	63.7±42.7	43.5±40.9	0.032
Mental health (MH)	63.1±22.8	28.2±23.1	0.365
Physical Health (PCS)	39.1±11.6	40.2±11.4	0.679
Mental Health (MCS)	43.9±12.1	40.6±11.3	0.183

No significant statistical differences were identified between male and female subjects, referring to all examined variables (p>0.050). Comparison between patients treated with interferon immunomodulators and patients treated with monoclonal antibodies (Table 3) showed that there are no significant differences with regard to individual profiles, except for the RE parameter (p=0.032), which is significantly higher for patients in the group treated with interferon immunomodulator (mean 63.7±42.7) compared to patients treated with monoclonal antibodies (mean 43.5 ± 40.9). Focusing on bivariate analysis performed to individuate interdependence between variables, there is a significant positive correlation between years of disease and EDSS score (r_s =0.285; p=0.011). Finally, the assessment of the correlation between EDSS score and all the variables considered referring to individual profiles, it can be seen that there is a highly significant inverse correlation with regard to variables such as physical activity (r_s =-0.637; p<0.001), physical limitation (r_s =-0.453; p<0.001), physical pain (r_s =-0.573; p<0.001), general health (r_s =-0.469; p<0.001), vitality (r_s =-0.412; p<0.001), and social functioning (r_s =-0.386; p<0.001). Further negative correlations were found with RE limitation (r_s =-0.341; p=0.002) and MH (r_s =-0.298; p<0.001). The correlation between EDSS score and standardized profile variables showed a significant negative correlation with PHI (r_s =-0.664; p<0.001) and MHI (r_s =-0.247;p=0.028).

Conclusion

Patient's thoughts about MS are often pervaded and focused almost exclusively, sometimes obsessively, on the disease and its consequences. The emotional aspect can undergo alterations such as closure phases and future negative expectations of QoL. The lack of trust may cause the patient to be demotivated and compliant, to use inadequate coping strategies and to have wrong beliefs about the disease control; he/she may think that this might be based on external causes, for which he/she is not responsible, nor for his/her own destiny. Additionally, there is no type of treatment that can give relief or any health improvement. Therefore psychotherapy must focus on the person's emotional listening, on cognitive restructuring and on every dysfunctional aspect that may emerge from the evaluation. The clinical interpretation of QoL may provide clinicians with information regarding the general health status of their patients and a better therapy adherence.

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