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A STUDY INTO THE RELATIONSHIP BETWEEN ANXIETY-DEPRESSION AND SELF-ESTEEM DISORDER IN PATIENTS WITH MULTIPLE SCLEROSIS AT THE RABAT IBN SINA HOSPITAL, MOROCCO

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SUMMARY

Background: Multiple Sclerosis (MS) is a chronic inflammatory disease affecting the central nervous system through the destruction of sheaths (myelin), disseminated in space and time. The aim of our work is to study the neurocognitive concept and mood disorders in patients with MS.

Material/ Methods: The study includes in this study 75 cases of MS, collected at the Neurology (B) and Neurogenetics Department of Rabat Ibn Sina Hospital. The study was performed on MS patients using different scales that included: a self-questionnaire (socio-demographic, clinical), Hospital Anxiety and Depression scale (HADS), Rosenberg's Self-Esteem scale (RSE) and Expanded Disability Status Scale (EDSS).

Results: The mean age for the onset of the disease was 30-years, with a sex ratio of 3.4. The main clinical signs are: 69.33% and 70.67% of patients had respectively anxious and depressive disorder, which was associated with low self-esteem in 89% of them. The distribution according to the evolutionary forms of MS is 65% Relapsing Remitting (RR), 29% secondary progressive (SP) and 5% Primary Progressive (PP). As for the assessment of disability using EDSS, we note an average 4.07±1.829.

Conclusions: That results of our study concord with other studies on the same age category. It confirms the predominance of women. They are followed by the appearance of psychological disorders such as depression anxiety and cognitive disorders. Remitting MS is the most common when compared to other forms. The anxiety and depression score was strongly correlated with the degree of self-esteem and disability.

Key words: multiple sclerosis, neurocognitive, anxiety, depression, self-esteem, EDSS

INTRODUCTION

Numerous studies have shown that anxiety and depression are one of the symptoms of worsening “multiple sclerosis” (MS) in people affected by this autoimmune and inflammatory neurological disease of the central nervous system (CNS). The prevalence of this disease is twice higher in women than in men (Kirchner & Lara, 2011), because of its chronic, progressive, neurodegenerative and demyelinating nerve fibers, MS will be one of the main reasons for anxiety and depression. The foremost reasons behind low self-esteem are depression and anxiety, which affect negatively on people and this state generates a complex socio-medical problem: on the one hand, the patient faces daily symptoms related to anxiety and depression such as: difficulty in sleeping, eating, communicating, working and so forth. On the other hand, people who are suffering from these symptoms are fighting ardently against the deterioration of self-esteem. Dealing with this chronic disease, the prognosis of which is unpredictable, can already be a source of anxiety in patients with MS (Beiske et al., 2008). Additionally, several studies have confirmed a higher incidence of depression in patients with MS than in the general population (Chwastiak et al., 2002; Dalton & Heinrichs, 2005; Figved et al., 2005; Patten et al., 2003; Siegert & Abernethy, 2005).

Moreover, besides these psychological elements many MS patients suffer from a deterioration in physical functioning as the disease progresses. Most studies determine that impaired physical functioning leads to depression (Chwastiak et al., 2002; Figved et al., 2005; Galeazzi et al., 2005; Patten et al., 2003). This unnoticed depression results in extremely common symptoms, such as lack of energy, fatigue, concentration and memory problems. Hence the significance of revealing the presence of significant depression, as this is one of the key factors in patient management (Lobentanz et al., 2004).

To be more explicit this sort of sickness is recognized by scientists as a socio-medical issue and most often concerns people whose age is between 20 to 40 especially in women (Browne et al., 2014). That age corresponds in most women with moments of high productivity and readiness to start a family.

However, as a result of this pathology, such projects have to be shelved, since people who suffer from these symptoms encounter difficulties of working and a loss of confidence in themselves which blocks any social interaction with others. Besides, these manifestations affect a person’s Quality of Life (QOL), to the point of resorting to hospitalization (Tan et al., 2010), and this stands as a challenge to have precise information on their behaviour in order to mitigate its gravity. The idea that there is no treatment may have a detrimental impact on MS patients (Rezapour et al., 2017).

The framework set is to speculate as to the extent of this disease in Morocco in order to propose solutions and techniques to help patients and their families.

To highlight this issue, we will first present the methodological framework adopted before presenting the results obtained. Then comes the analysis of these results and the conclusions to be drawn. The main objective of this study

was to evaluate the impact in terms of anxiety, depression and self-esteem in those affected by MS.

MATERIAL AND METHODS

Patients and methods

We intended, through this work, to account for this medico-social reality through the study carried in the neurology (B) and neurogenetics department of the Rabat Ibn Sina Hospital of. We observed 75 MS patients with age extremes varying between 18 and 89 years. They are recruited during consultations in the earlier mentioned department.

We submitted questionnaires for them to fill out in both French and Arabic versions. This experiment was carried out during the consultation (patients hospitalized) in a quiet place to avoid visual, motor or cognitive problems making any self-assessment difficult. For some cases who suffer from speech or cognitive problems, we were able to call on the help of their relatives who were kind enough to answer our questions, after the exact meaning of each item had been explained to them.

Demographic and clinical questionnaire

The following questionnaire, was compiled in order to allows us to gather socio-demographic (age, sex, economic level, profession) and clinical information (clinical signs during the first neurological episode, the clinical form of each patient (relapsing remitting (RR), Primarily progressive (PP), Secondary progressive (SP)).

Hospital Anxiety and Depression scale (HADs)

having obtained the expected results, we will use the HADs scale developed by Dr. Phillip Snaith and Anthony Zigmond in 1983, which has 14 items and makes it possible to detect anxiety and depressive disorders (Zigmond & Snalth, 1983). Two subscales will be used: the HAD-A (anxiety subscale) and the HAD-D (depression subscale). Anxiety (1, 3, 5, 7, 9, 11, 13) and depression (2, 4, 6, 8, 10, 12, 14) items are alternated. An alternation in the order of the quotations rated from 0 to 3 or from 3 to 0 was carried out to avoid any bias linked to their repetition (reversed items). The overall score is obtained by the sum of the 14 items (which varies from 0 to 42) as well as two sub-scores corresponding to the two sub-scales (which vary from 0 to 21). The scores obtained make it possible to determine the degree of anxiety and depression. Thus, the anxiety score is obtained by adding the points of the items: 1, 3, 5, 7, 9, 11, 13. On the other hand, the depression score is obtained by adding the points of the items: 2, 4, 6, 8, 10, 12, 14. The higher the scores, the more severe the symptomatology. The thresholds for the two sub-scores make it possible to identify cases displaying depressive (Zigmond & Snalth, 1983) or anxiety (Lançon & Vigneron, 2016) symptoms.

Rosenberg Self-esteem scale (RSEs): because of the link between anxiety-depression and self-esteem, we also employed the Rosenberg self-esteem scale. It describes the phenomenon studied by Dr. Rosenberg in 1965, published in a study translated into Canadian French by Vallieres & Vallerand, in 1990. For our work, we used the Arabic version of the Rosenberg self-esteem scale applied by Abdel-Khalek et al. in 2012. This consists of 10 items rated on a 4 point scale, ranging from 1 “completely disagree” to 4 “completely agree”. The score varies from 10 to 40, by adding the scores obtained from questions 1, 2, 4, 6 and 7. For questions 3, 5, 8, 9 and 10, the scoring is reversed; that is to say, it is necessary to count 4 if we circle the number 1, 3 if we circle the 2, 2 if we circle the 3 and 1 if we circle the 4. After the addition of the points of the 10 items, we obtain a score between 10 and 40. The interpretation of the results of the Rosenberg self-esteem scale is identical for both sexes.

Expanded Disability Status Scale (EDSS)

The EDSS scale according to Kurtzke (JF, 1983), or the revised version by Brochet (2009), is used to define the degree of a patient's disability. This score is reassessed every six months. A positive evolution means a deterioration of the handicap, while a negative evolution corresponds to an improvement of the latter and is based, on the one hand, on the neurological examination to evaluate various functions (motricity, sensitivity, vision, balance, control of movements, etc.) and on the other hand on the degree of essentially motor autonomy. The disability rating is on a scale from 0 (normal neurological examination) to 10 (MS-related death). The established score evaluates the level of disability according to 3 levels: a first level (EDSS from 0 to 3.0) which takes into consideration the deficiencies provided by the clinical examination; a second level (EDSS from 3.5 to 7.0) characterized by various degrees of limitation in walking; and a third level (EDSS > 7.0) during which walking became impossible.

Statistical Analysis

In the statistical analysis, patient characteristics are expressed as a percentage for qualitative variables and as an average ± standard deviation (SD) for quantitative variables. The Spearman (r) rank correlation coefficient was used to verify the relationship between scales and the statistically significant between variable. The p-value <0.05 is considered statistically significant. The data was analyzed with Excel and software for statistical analysis in Excel Since Premium free version 22 (XLSTAT) software.

RESULTS

Descriptive analysis

After analyzing the data, we found a female predominance of 77.3% (58 cases) with a sex-ratio (female/male) of 3.4.

Another important data noted in our sample is the average age of admission which is 38.29±13.31 years, although the average age for the onset of symptoms, noted in our study, is 29.69±12.31 years. In view of its effect on self-esteem, it is essential to take this into account. Thus, our EDSS average is 4.07± 1.829 and the most diagnosed RR form with 49 cases (65.3%), followed by the SP form and finally the PP form respectively 22 cases (29.3%), 4 cases (5.3%).).

These data are inseparable from the causes leading to aggravating anxiety and depression. We found the degree of anxiety and depression to be very close for all levels with an average of 13.21 (SD=5.43) and 13.35 (SD=5.36) with symptom severity cases of 69.33% and 70.7%.

As we mentioned earlier, self-esteem is closely linked to the degree of MS disease. From the data of our sample, if the average self-esteem is 22.03 (SD= 7.7), 82.7% of the cases indicated that they had lost self-esteem as is shown in Table 1.

Correlative Analysis

By examining the scores for anxiety and depression, we deduce a strong positive significant relationship between them (r=0.603, p<0.0001), but negative with self-esteem (r=-0.724, p<0.0001; r=-0.762, p<0.0001), as shown in Table 2.

The correlation of EDSS with anxiety and depression is positively significant (r=0.369, p=0.001; r=0.418, p=0.000), and negatively significant with self-esteem (r=-0.465, p<0.0001). This inverted parallelism is logical, since we are confronting two diametrically opposed realities: one with a negative connotation (anxiety and depression), the other positive (self-esteem). Moreover, we have noticed the same relationship between anxiety and depression and the exercise of a professional activity and low income of “significantly negative correlation” respec-

Table 1. Description of mood disorders in patients with MS

Variables		Frequency	Percentage (%)	Medium	standard deviation
Depression				13.35	5.369
	Absent	14	18.7		
	Medium	8	10.7		
	Severe	53	70.7		
Anxiety				13.21	5.431
	Absent	16	21.3		
	Medium	7	9.3		
	Severe	52	69.3		
Self esteem				22.03	7.709
	Absent	62	82.7		
	Present	13	17.3		

Table 2. Correlation between mood disorders in patients with MS

Variables	Anxiety	*p-value*	Self esteem	*P-value*
Anxiety	**-**		**-0.724**	***<0.0001***
Depression	**0.603**	***<0.0001***	**-0.762**	***<0.0001***

Significant at 0.05 level.

Table 3. Correlation between Mood Disorders with EDSS, Professional Activity and Level of Income in Patients with MS

Variables	Anxiety	*p-value*	Depression	*p-value*	Self esteem	*p-value*
EDSS	**0.369**	***0.001***	**0.418**	***0.000***	**-0.465**	***<0.0001***
Professional Activity	**-0.404**	***0.000***	**-0.524**	***<0.0001***	**0.577**	***<0.0001***
Economic level	**-0.313**	***0.007***	**-0.344**	***0.003***	**0.428**	***0.000***
Relapsing remitting	-0.206		-0.106		**0.333**	***0.004***
Secondarily progressive	0.155		0.082		**-0.247**	***0.033***
Primitively progressive	0.122		0.058		-0.205	

Significant at 0.05 level.

tively (r=-0.404, p=0.000 ; r=-0.524, p<0.0001) (r=-0.313, p=0.007; r =-0.344, p=0.003), and between these last two parameters and “positively significant” self-esteem respectively (r=0.577, p<0.0001; r=-0.428, p=0.000).

Additionally, it is noted that there is no significance between the three clinical forms with anxiety and depression unlike the two economic parameters. However, this is not the case of self-esteem where we observe that it has a relative positive significance with the RR form (r=0.333, p=0.004) and negative with respect to the SP form (r= -0.247, p=0.033) as shown in Table 3.

DISCUSSION

As we pointed out previously, the number of female patients is much higher than that of men (58 cases, or 77.3%) with a sex-ratio of 3.4. A cohort study by Orton et al.(2006) indicates the sex-ratio is 1.33 to 3.96. According to the review by Pugliatti et al.(2006) this ratio for MS in Europe varies from 1.1 to 3.4. Obviously, this female domination is noted as in Zurawski et al.(2019) (73%) and Pekmezovic et al.(2007) (67%). For the same reason, this would confirm the hypothesis as to a genetic predisposition, which would probably be associated with an environmental factor; meanwhile, discrepancies between all these results were identified.

After processing the data from our questionnaires, we found that anxiety and depression represent scores of 13.35±5.369 and 13.21±5.431 respectively in 69.33% and 70.67% of the cases studied. By way of comparison, the rates of cases affected by these two symptoms are lower in Italy (59.6% ; 20.2%) (Messmer Uccelli et al., 2016) and in Tunisia (30% ; 23%) (Damak et al., 2014). While the study by Alhussain et al.(2020) on 238 cases with MS indicated depression in 89.9% or 214 cases.

studies of the subject literature, researchers have found an association between depression and anxiety. Baumstarck-Barrau et al.(2011) presented a depression score in a study at the level of 10.42 ± 5.77.

The average of patients with Self-Esteem is 22.03±7.70. Whereas Gay et al.(2010) noted that for the 115 cases studied, general self-esteem is 32.53± 11.73: a rate relatively higher than that of our study.

Descriptive Correlational

Further, our results seem to confirm the hypotheses already elaborated; indeed, a study by Kiropoulos et al.(2021) concluded that there was a significant positive correlation between depression and EDSS (r=0.23) and between anxiety and depression (r=0.69).

Totally consistent is the finding of a negative correlation between self-esteem and anxiety and depression (r=-0.54 r=-0.64). Karimi et al., (2020) revealed a significant correlation between depression and anxiety and the economic level of the patient with respective scores of (r =-0.268, p = 0.012) and (r = -0.291; p = 0.006). These are close to ours which are (r=-0.344; r=-0.313) respectively.

On the one hand, Aldridge et al.(2005) concluded that there is a negative relationship between acceptance esteem and depression HADS-D (r=-0.61), BDI (r=- 0.37) and HADS-A anxiety (r=-0.33) against a positive significance between HADS-D and BDI anxiety and depression (r=0.41; r=0.57).

A significant positive correlation between anxiety and depression has also been proven by Motl et al.(2009) (r=0.60). The results indicated that a lower level of acceptance was significantly associated with more anxious and depressive symptoms, linked to excessive worry and a greater intolerance of uncertainty (Léger et al., 2002).

However, the non-acceptance of the handicap plays a key role in the maintenance of psychological distress. Thus, Gay et al.(2010) noticed that a significant negative correlation exists between self-esteem and depression and anxiety and a positive significance between EDSS with depression (r=0.27, p= 0.004). Also, in another study by Gay et al.(2017) to show a significant positive correlation between anxiety and depression, the latter correlated negatively with EDSS

Whence, it can be argued that the exercise of a professional activity and the availability of a good income play a positive (ultimately therapeutic) role on the mood of someone with MS. For its positive effect on self-esteem reduces the negative effect of anxiety and depression.

The loss of physical autonomy is one of the causes of impaired quality of life in patients with MS. Furthermore, other factors also contribute in varying proportions. Thus, hypovitaminosis D would lead to depression and fatigue. In a study by El-Salem et al.(2021) it was demonstrated in a study evaluating the relationship between Vitamin D and the depression score conducted on 88 patients with MS that the blood level of vitamin D is significantly correlated with the depression score and with the depression HADS.

Also, it is important to remember that symptoms such as lack of appetite, difficulty concentrating, anxiety to rest, can also be attributed to depression or MS, it being specified that Fatigue is omnipresent in MS patients, and most depressed patients will also agree as to being fatigued.

Patients with MS were significantly more depressed than other patients with other diseases as described in the subject literature. Yet, the symptoms of depression can be easily confused with those of MS, leading to inadequate diagnosis and treatment (Galeazzi et al., 2005; Minden et al., 1987; Vermersch et al., 2012).

From one aspect, Feinstein et al., (2004) show that depression in MS is due to atrophy and hyper-intense lesions in the prefrontal and temporal cortical regions which lead to structural changes in the brain. From another angle, a study by Berg et al. (2000) has suggested that lesions in cortical and subcortical projection areas that are involved in limbic system functions are responsible for depressive pathogenesis.

Therefore, the association is very strong not only with anxiety and depression but also with stress (Ifantopoulou et al., 2015). Higher self-esteem is associated with fewer disabilities (Shnek et al., 1997).

Wherefore, previous studies provide evidence on the relationship between mood and brain dysfunction in MS patients (Feinstein et al., 2004).

CONCLUSION

On one hand, we have tried to show the links between anxiety and depression in relation with self-esteem; and all this against the background of assignment to multiple sclerosis. In addition to this we have put forward the hypothesis, within the continuity of the subject literature dedicated to the theme, that the two elements of the problem have an inverse correlation. As well, when a patient has MS, they develop symptoms of anxiety and depression. These symptoms evolve according to self-esteem; in other words, if the environment offers an ideal living environment for the person, the said symptoms evolve less quickly than if the person has no self-esteem.

When applied to our sample, this hypothesis has proved to be transposable. Thus, we found that when the self-esteem score is negative, those of anxiety and depression evolve positively.

Based on these results, we hypothesize to target and propose a protocol and appropriate treatments for the revaluation of self-esteem in order to influence anxiety and depression.

To sum up, it seems that a medico-psychological follow-up of MS patients is essential. Indeed, it seems that the non-acceptance of the handicap plays a decisive role in the maintenance of psychological distress in people with a physical handicap, in such case, consultation work between various professional health specialists would be a huge contribution to set up profiles adapted to patients suffering from MS.

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