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Epidemiological Characteristics and Functional Disability of Multiple Sclerosis Patients in Kosovo

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ABSTRACT

Background and objectives: Multiple Sclerosis (MS) is a chronic recurrent neurological disease that affects the Central Nervous System. This study aims to determine epidemiological factors that affect the appearance of MS, such as: incidence, prevalence, mortality, case appearance in accordance with the disease phase RRMS, SPMS, PPMS, gender, age, age group, and EDSS. **Materials and methods:** Deals with analyzing diagnosed and treated patients in the Clinic of Neurology in Prishtina during the period of 2003-2012. The research was conducted through a questionnaire applied in the diagnosed cases of MS. Information on patients was gathered from: history of illness, discharge reports and other relevant documents on MS illness. Clinical and epidemiological-descriptive study methods were used. The acquired results are shown through tables, graphics. Statistical processing was conducted with Microsoft Office Excel. **Results:** From the total number of doubtful hospitalized cases of demyelinization (644) in the Clinic of Neurology in Prishtina, 412 cases (64%) were diagnosed with MS. For the period of 2003–2012 the prevalence of MS has been 19.6 of patients in 100,000 inhabitants. MS incidence rate was 0.95 of patients in 100,000 inhabitants. MS mortality rate was 0.14 of deceased in 100,000 inhabitants. The ratio female – male is 2.3:1. A larger number of patients fall within the age group of 30-39 years-old. Clinical form trends: RRSM 72.3%, SPSM 22.6%, PPSM 5.1%. The rate of EDSS 78.3% (0–3.5), 14.9% (4–6.5), 6.8% (7–9).
Key words: Multiple Sclerosis, surveyed patients, Clinic of Neurology Prishtina.

1. INTRODUCTION

Multiple Sclerosis (MS) is a chronic recurrent neurological disease that affects the Central Nervous System (CNS). The disease causes damage to the myelin layers, oligodendrocytes and less of the axons and the nerve cell itself. (1). In the damaged place left without layer of nerve fibre a reduction of a conveyance of nervous impulses is caused. As a result damage to some of the neurological functions is seen, giving a symptomatology according to the forms of clinical phase affecting the motor functions, cranial nerve (CN), sphincter functions, etc. The disease clinically is visible around the age of 20-40 years old, even though the real onset is much earlier and it can appear in other ages, too. (2). The cause behind Multiple Sclerosis (MS) is still not known, although it is known that immune mechanisms are affected in the primary or secondary manner and many authors support the autoimmune basis of Multiple Sclerosis.

With an unknown ethology from which around 2,5 million people suffer in the world and which often is a non-traumatic disease of adult young people, from which especially in Europe suffer around 500,000 people and in North America around 350,000 (3).

Although there are no known causes of the disease, geographical research as well as the data from the literature has shown that precipitating factors could be responsible. Therefore, we have more reported cases occurring in North Europe, USA, South Australia and New Zealand than in other places. As about countries in the region as for example register for Belgrade, the prevalence of MS at the end of 2010 was around 60/100.000 (4). In Shumadia, in 2006, the prevalence of MS was 64.9/100.000 (5). Some studies regarding the prevalence of MS in Croatia and Slovenia, especially at the territory of Gorski Kotor and Kocevia the prevalence of MS was high 150/100.000 (6), Bosnia and Herzegovina (7, 8), in all other regions is reported fare more low prevalence of MS for example in Croatia region the prevalence of MS for the period 1962-2000 was around 25-53/100.000 (9) while for Bosnia and Herzegovina it was some 31-49.6/100.000 (7, 8).

Also, the risk includes families with a history of multiple sclerosis and those living in parts of latitude with the highest incidence rate for this disease (10).

Multiple sclerosis is characterized by: relapse, pathological triad (CNS inflammation, lesions to the brain tissue) that with time expand into different spaces giving a very diverse clinic. (11)

2. AIM OF THE STUDY

- Analysis of cases with diagnosed and treated Multiple Sclerosis in the Clinic of Neurology in Prishtina.
- Study of few epidemiological factors of Multiple Sclerosis in Kosovo, such as: incidence, prevalence and mortality.
- To present diagnosed and treated cases according to: gender, age and disease phase.
- To quantify functional disability using EDSS.

3. MATERIAL AND METHODS

This research is prospective – retrospective and clinic – epidemiological, it includes the research of precipitating factors in the occurrence of this disease, its forms as well as clinical manifestations and EDSS rate. The paper deals with analyzing of all diagnosed and treated cases in the Clinic of Neurology in Prishtina during the time period of 2003-2012 and it is conducted through a questionnaire applied in all diagnosed cases with Multiple Sclerosis. The questionnaire for the surveyed contains in total 34 questions. The survey did not include patients that did not fulfill the McDonald et al. criteria for MS diagnosis. Epidemiological information was abstracted from the questionnaire, such as living conditions, education, marital status while medical information relevant on diseases were gathered for each patient. Imagery diagnostic methods were used, such as: magnetic resonance Imaging (MRI) together with laboratory CSF tests. Clinical as well as epidemiological-retrospective study methods were used in the prospective-retrospective meaning. Gained results are discussed through tables, graphics. Statistical processing is done with Microsoft Office Excel.

4. RESULTS

Out of the total number (644) of suspected cases for demyelination disease in the Clinic of Neurology, in 412 of them (64%) the MS diagnosis was confirmed. In 232 cases (36%) the MS diagnosis was excluded because they did not fulfill the clinical criteria according to the McDonald et al for Multiple Sclerosis.

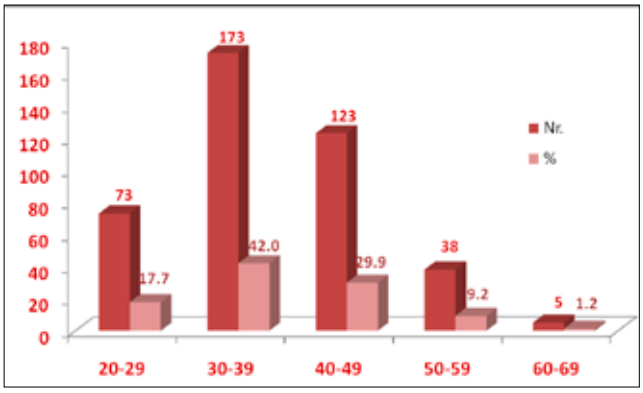
From the total number of diagnosed cases with MS (412) the following was analyzed: Prevalence, Incidence and Mortality.

For the time period of 2003-2012 the prevalence for MS in Kosovo was 19.6 patients in 100,000 inhabitants. The incidence rate for MS was 0.95/100,000 inhabitants. While mortality for MS was 0.14/100,000 inhabitants.

From the total number of patients (412), 284 cases (68.9%) were of female gender, while 128 cases (31.1%) belonged to male gender. Based on the above we can come to a conclusion female gender was more affected compared to male, with a 2.3:1 ration in favor of the female.

From the total number of patients with MS (412), a larger number of patients belong to the age group 30-39 years old with 173 cases (42.0 %), while a smaller number of patients belong to the age group 60-69 years-old with 5 cases (1.2%) (Graph. 1).

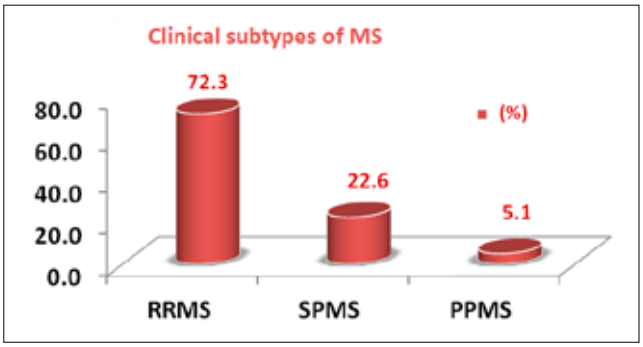
From the total number (412) of patients with multiple sclerosis, 298 (72.3%) of them have a phase of clinical form of RRMS, than 93 cases (22.6%) have a phase of clinical form of SPMS. While 21 (5.1%) have a phase of clinical form of PPMS (Table 1, Graph 2).



Graph 1. Multiple Sclerosis, according to the age group, period 2003-2012.

Clinical forms of disease phase	N	%
RRMS -(relapse/remitting Multiple Sclerosis)	298	72.3
SPMS -(secondary progressive MS)	93	22.6
PPMS -(primary progressive MS)	21	5.1
Total	412	100.0

Table 1. Clinical form of disease phase



Graph 2. Clinical forms of diesease phase

In order to evaluate the functional disability in MS patients Expanded Disability Status Scale (EDSS) was used. The EDSS quantifies disability in eight Functional Systems and allows neurologists to assign a Functional System Score. EDSS steps 1.0 to 4.5 refer to people with MS who are fully ambulatory. EDSS steps 5.0 to 9.5 are defined by the impairment to ambulation. In this study we have divided patients into three groups based on EDSS score, 0 to 3.5, 4 to 6.5 and 7 to 9.

During the neurological examination of patients with MS an EDSS scale evaluation was performed in 295 cases (71.6%), while the EDSS scale evaluation was not performed in 117 cases (28.4%) (Table 2).

Determination of EDSS/Kurtzke	N	%
Yes	295	71.6
No	117	28.4
Total	412	100.0

Table 2. Determination of EDSS/Kurtzke

EDSS scale of 0-3.5 was detected in 231 patients (78.3%), 4-6.5 in 44 patients (14.9%) and 7-9 in 20 patients (6.8%) (Table. 3).

Application of EDSS scale	N	%
0-3.5	231	78.3
4-6.5	44	14.9
7-9	20	6.8
Total	295	100.0

Table 3. Application of EDSS scale from 0-9

5. DISCUSSION

Multiple Sclerosis shows a characteristic geographic distribution (Steiner regulation), respectively the rule of assigned distribution.

When looking at the total number of patients with MS the number increases from Equator towards the north and the south, and even though this is not unique the distribution of MS is evident. According to the above, maps on total geographical distribution of MS have been drafted (10, 12). Hence, in Europe a significant increase of MS prevalence is seen between the degrees 45 and 65 of latitude towards the north, in North America at 38 degrees, Russia 50 degrees (13). Geographical extension of MS in Kosovo is in 43 degrees of latitude, and when compared to the above mentioned research it is slightly lower than the limits of latitude distribution of the disease in Europe and countries in the region as is Serbia (14) Croatia (9), Bosnia and Herzegovina (7,8), and Slovenia (6). Even though the same distribution goes for the south too, the other half of the globe has not been yet studied to detail. The gathered results from South Australia and New Zealand also go in favor to this stand.

The average prevalence of MS in Kosovo for the time period of 2003 – 2012 was 19.6 patients in 100,000 inhabitants. This prevalence is approximate when compared to the MS prevalence in the countries of the region, example Albania (15), *Slovenia (6), Serbia (14),* Bosnia and Herzegovina *(7,8),* Croatia *(9),* while it is considerately lower than countries with higher prevalence, such as Scandinavian countries, Norway (16,17) and those of Central Europe, such as Germany (18), France (19, 20).

General areas of danger for MS were formed in all areas based on the prevalence of MS, and based on our acquired results on MS prevalence and comparisons made in other countries in Europe and around the world; we can conclude that Kosovo can be classified in an area with a medium dangerousness for MS.

The rate of incidence for MS is much greater between the ages 20 and 40 years-old, with a peak in 30 year-olds (21).

In South Africa for all white south Africans the mean annual incidence was 0,6/100,000. Nonetheless it is 3-4 times higher in white English speaking south Africans compared to those who speak local languages, and 10-11 times higher for the white population that have emigrated from Great Britain, Central and North Europe (22).

The rate of incidence for Multiple Sclerosis in Kosovo during the period of 2003 – 2012 was 0.95 patients in 100,000 inhabitants and when compared to the research on the incidence of MS in white South Africans, it is slightly higher (23). However, we can conclude that Kosovo lies midst countries with a low incidence rate.

The mortality rate of Multiple Sclerosis in Kosovo, for period 2003-2012 was 0.14 in 100.000 inhabitants and comparing with other countries of the world and in the region (24) we can conclude that Kosovo belongs to the countries with low level of mortality.

In many world regions, for example MS values are as following: In the city of Rochester, USA (Percy et al) annual average value according to the period 1905-1964 was in between 2 – 5 (mean 3.6)/100,000 inhabitants (1), while the incidence specific value for the age was the highest in the age group of 20 – 29 year-olds (25). In Iceland the incidence value for the period of 1946-1955 was 3.06/100,000 inhabitants. In comparison to the above mentioned research the age incidence specific value in Kosova was *30-39, which is higher when compared to the above mentioned research.*

According to the gender a larger number of cases with Multiple Sclerosis belong to female gender from the total number of 412 patients with MS, 284 (68.9%) of patients are of female gender, while 128 cases (31.1%) belonged to male gender. Based on this we can conclude that the ratio of 2.3:1 is in favor of patients of female gender, which is an approximate with those of a literature (26).

One of the challenges faced during conduction of the study was the lack of unified database for patients with multiple sclerosis in Kosova. It is obvious that creation of a database or unified register for patients with multiple sclerosis is a big need for better follow up and. The importance of such unified register is mentioned also in the study conducted in Bosnia and Herzegovina (27).

6. CONCLUSION

- From the total number of suspected hospitalized cases of demyelination (644) in the Clinic of Neurology, 412 of them (64%) are diagnosed with MS, while 232 cases (36%) have not been diagnosed.
- For the duration of 2003 – 2012, Multiple Sclerosis prevalence in the Clinic of Neurology in Prishtina was 19.6 patients in 100,000 inhabitants.
- The incidence rate of MS in the Clinic of Neurology in Prishtina, within 2003 – 2012 was 0.95 patients in 100,000 inhabitants.
- The mortality rate for MS in the Clinic of Neurology in Prishtina, within 2003 – 2012 was 0.14 deceased in 1000,000 inhabitants.
- From the total number of patients with MS (412), a larger number belong to the age group of 30-39 years-old, 173 patients (42.0 %),
- A smaller number of patients belong to the age group 60-69 years-old, 5 patients (1.2%).
- When it comes to gender, female dominate over male, in the ratio 2.3:1.
- Clinical form trends of the disease is: RRSM 72.3%, SPSM 22.6%, PPSM 5.1%
- EDSS scale of 0-3.5 was detected in 231 patients (78.3%), 4-6.5 in 44 patients (14.9%) and 7-9 in 20 patients (6.8%)

CONFLICT OF INTEREST: NONE DECLARED

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