

Socio-Demographic Characteristics of the Patients with a Post Stroke Depression from the Municipality of Tetovo, Republic of Macedonia

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Abstract

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BACKGROUND: Although post-stroke depression (PSD) is the most common neuro-psychiatric consequence after a stroke there is still some obscurity regarding its aetiology and risk factors, which complicates its management. A better knowledge of the predictors will enable better prevention and treatment.

AIM: The aim of this work was the identification of the risk factors for PSD, typical for the Macedonian population, which will help in early prediction, timely diagnosis and treatment of the disease.

MATERIALS AND METHODS: We carried out a prospective study at the Clinical Hospital in Tetovo, the Republic of Macedonia to determine the prevalence of PSD and to analyse the socio-demographic characteristics as possible risk factors in 100 patients on discharge and after 5 months. The depression symptoms were quantified using the Hamilton Depression Ranking Scale (HAM-d) and the Geriatric Depression Scale (GDS).

RESULTS: The average age of the patients with PSD on the first examination is 65.0 ± 8.3 , whereas on the second examination is 64.5 ± 9.2 . According to the Mann-Whitney U test, the difference between the average ages on both examinations is statistically insignificant for $p > 0.05$. On both examinations, the statistically significant dependence of $p > 0.05$ between PSD and the occupational status and PSD and education is not recorded. On both examinations, the PSD in male patients was 78.0% and 62.7%, while in female patients it was 85.4% and 68.3% not recording the statistically significant dependence of $p < 0.05$ between PSD and the gender.

CONCLUSION: The socio-demographic characteristics of the patients with PSD cannot be considered as predictors of the disease.

Introduction

Post-stroke depression (PSD) is the most common complication after stroke with a negative effect on the patient's rehabilitation [1]. The epidemiological studies report a widely variable prevalence of PSD which ranges from 10-64% of patients that suffered a stroke [2] [3] [4] [5] [6] [7]. Some studies indicate a highest PSD prevalence in the first 3-6 months after the stroke with a gradual decline after the first year following the stroke. This is an early reactive stage of PSD. The depression that occurs later, after the 6th month, is considered a late stage of PSD [8].

In clinical practice, the disease is frequently underdiagnosed and untimely treated.

So far in scientific findings, the etiopathogenesis of the disease has been described as multifactorial. The epidemiological characteristics point out that PSD is a disease of the older population and occurs more frequently in and after the sixth decade of life, more often in the male sex [2] [9]. Most commonly mentioned risk factors are: functional disability and a severe stroke, often localised in the left orbitofrontal cortex, disturbing the neurotransmitting circles between the cortex and the basal ganglia [3] [10] [11].

As a result, to all of this, there was a need to research identification of the risk factors for PSD, typical for the Macedonian population, which will help in early prediction, timely diagnosis and treatment of the disease.

Material and Methods

We carried out a prospective, longitudinal, epidemiological study to identify the prevalence and the risk factors for PSD on the discharge from the hospital and after 5 months following the stroke. The study was carried out at the Department of Neurology at the Clinical Hospital in Tetovo, Republic of Macedonia. The study included all the patients, which fulfilled the inclusion criteria, clinically treated at the department due to an acute stroke, clinically verified and confirmed by computed tomography of the brain in the period from 1st September 2016 to 28th February 2017. Inclusion criteria: normal Mini-Mental Score according to the patient's education, maintained verbal communication ability, maintained sensorium, age ≤ 75 . The study did not include patients with another comorbidity that seriously disturbed the general somatic condition and patients that were previously diagnosed with a psychiatric disorder. All the patients gave informed consent previously approved by the Ethical committee of the Clinical Hospital.

Quantification of all the depression symptoms was done on all the patients using the Hamilton Depression Rating Scale (HAM-d). The Geriatric Depression Scale (GDS) was additionally used for self-evaluation of the patients at age ≥ 65 . According to the results, the patients were divided into two groups, with and without PSD on discharge and after 5 months. The socio-demographic characteristics were collected from the hospital's documentation and interviews with the patients and their relatives. The study included 100 patients, 97 of those were monitored 5 months and 3 deaths were recorded.

The Hamilton Depression Rating Scale (HAM-D) for quantification of depression symptoms, a form that is consisted of 21 questions. They provide answers for a potential existence of typical or atypical depression symptoms, according to the ICD-10, with a multiple choice possibility out of 4. For the study, we used an official Macedonian translation from the Psychiatric clinic in Skopje. The scale score provides a ranking of the subject in one of the following groups:

- 0-7 normal;
- 7-13 mild depression;
- 14-18 moderate depression;
- 19-22 severe depression;

- >23 very severe depression.

The Geriatric Depression Scale (GDS) is a scale for self-evaluation of the depression among the geriatric population, ≥ 65 years of age. It consists of 30 questions, which refer to the daily mood, attitudes and feelings, answered by the patient or with the help of the examiner by choosing "yes" or "no". An official translation of the scale by the Ministry of health was used in the study. The scale score provides ranking in one of the following groups:

- 0-10 normal;
- 11-20 mild depressives;
- 21-30 severe depressives.

The statistical analysis was done with statistical software: STATISTICA 7.1; SPSS 17.0, using the following statistical methods: difference test, average and standard deviation, Mann-Whitney U test, Person correlation coefficient (r) and χ^2 test. A statistical significance level of 0.05 (p) is defined as a confidence interval (95% CI).

Results

On the first examination, PSD was diagnosed in 81.0% of the patients, while on the second examination 65.0% of the patients had PSD, the percentage difference is statistically significant for $p < 0.05$ ($p = 0.0108$ Difference test) (Table 1). According to the Index of dynamics, there is a decreasing rate of PSD by 19.8%.

Table 1: Patients with PSD

PSD/control	First		Second	
	N ^o	%	N ^o	%
Without	19	19.1	32	32.0
With	81	81.0	65	65.0
Lethal outcome	0	0.0	3	3.0

Using HAM-D, a normal score was recorded in 19.0% of the patients, while in 81.0% a post-stroke depression was recorded. In the majority of the patients, 55%, mild depression is recorded, followed by 14% with moderate depression, 11.0% with severe depression and 1.0% with very severe depression (Table 2). The percentage difference between the mild depression versus the rest of the depression modalities is statistically significant for $p < 0.05$ ($p = 0.0000$, Difference test).

Using the Geriatric Depression Scale-GDS, on the first examination, a normal score was recorded in 34.6% of the patients' ≥ 65 years old. PSD is recorded in 65.4% of the patients ≥ 65 years old. In 50.9% a mild depression was recorded.

Table 2: Hamilton Depression Ranking Scale

Finding / control	First		Second	
	N ^o	%	N ^o	%
0-7 normal	19	19.0	32	32.0
8-13 (mild depressive reaction)	55	55.0	43	43.0
14-18 (moderate depression)	14	14.0	16	16.0
19-22 (severe depression)	11	11.0	5	5.0
>23 (very severe depression)	1	1.0	1	1.0
Lethal outcome	0		3	3.0
Total	100	100.0	100	100.0

The percentage difference between the normal score and the mild depression versus the severe depression is statistically significant for $p < 0.05$ ($p = 0.01$, Difference test). On the second examination, using the GDS, a normal score is recorded in 49.1% of the patients, while 50.9% of the ≥ 65 -year-old patients showed PSD. Mild depression is mostly recorded-32.7%. The percentage difference between the normal score and the mild depression versus the severe depression is statistically significant for $p < 0.05$ ($p = 0.00$, Difference test).

Table 3: The Geriatric Depression Scale-GDS

Finding / control	First		Second	
	N ^o	%	N ^o	%
0-10 normal	19	34.6	27	49.1
11-20 (mild depression)	28	50.9	18	32.7
21-30 (moderate depression)	8	14.5	9	16.44
Lethal outcome	0	0.0	1	1.8
Total	55	100.0	55	100.0

The average age of the patients from the study is 64.8 ± 9.0 , ranging from 32 to 75 years old (Table 4).

Table 4: The average age of the patients

	N ^o	Average	Minimum	maximum	Std.Dev
AGE	100	64.8	32.0	75.0	8.997328

The average age of the patients with PSD on the first examination is 65.0 ± 8.3 , whereas on the second it is 64.5 ± 9.2 . The average age of the patients without PSD on the first examination is 63.7 ± 11.6 , while on the second it is 65.5 ± 8.7 (Table 5). According to the Mann-Whitney U test the difference between the average age on both examinations is statistically insignificant for $p > 0.05$ ($U = 767.5$, $Z = 0.013180$, $p = 0.989485$; $U = 967.5$, $Z = 0.552431$, $p = 0.580653$).

Table 5: The average age of the patients with or without PSD

	Average - psd avg.	Without - psd avg.	N-psd	Without - n	Std.dev. - psd	Without - std.dev
First	65.0	63.7	81	19	8.341163	11.60384
Second	64.5	65.5	65	32	9.236607	8.710336

In the investigated group 59.0% of the patients are men and 41.0% are women. The percentage difference is statistically significant for $p < 0.05$ ($p = 0.0117$, Difference test).

Table 6: The presence and absence of PSD about gender

Control/gender/PSD	First		Second	
	Without	With	Without	With
Male	13	46	21	37
Female	6	35	11	28
Total	19	81	32	65

In male patients, PSD was diagnosed on both examinations: 78.0% and 62.7% of the patients. In female patients, PSD was diagnosed in 85.4% on the first examination and in 68.3% on the second examination.

On both examinations a statistically significant dependence of $p > 0.05$ between PSD and the gender is not recorded (Pearson Chi-square: 0.860660, $p = 0.353556$; Pearson Chi-square: 0.675418, $p = 0.411171$) (Table 6).

On both examinations a statistically significant dependence of $p > 0.05$ is not recorded between PSD and the occupational status (Pearson Chi-square: 1.09193, $p = 0.579281$; Pearson Chi-square: 0.710394, $p = 0.701035$) (Table 7). The highest percentage of PSD is recorded among unemployed patients on both examinations (43.2% and 43.1%), followed by retired patients (34.6% and 33.8%) and employed patients (22.2% and 23.1%). The percentage difference is statistically insignificant.

Table 7: Number of patients with or without PSD about the occupational status

Control/working status/PSD	First		Second	
	Without	With	Without	With
Retiree	7	28	13	22
Employee	6	18	8	15
Unemployed	6	35	11	28
Total	19	81	32	65

On both examinations, a statistically significant dependence of $p > 0.05$ between PSD and education is not recorded (Pearson Chi-square: 3.38223, $p = 0.336360$; Pearson Chi-square: 2.53304, $p = 0.469350$) (Table 7). The highest percentage of PSD is diagnosed in patients who completed high school, on examinations, (44.4% and 40.0%), followed by those who completed elementary education (37.0% and 41.5%), illiterates (12.3% on both examinations) and higher education-6.2%. The percentage difference is statistically insignificant.

Table 8: Number of patients with or without PSD about the education

Control/education/PSD	First		Second	
	Without	With	Without	With
Illiterate	5	10	6	8
Primary	7	30	9	27
Secondary	7	36	16	26
High	0	5	1	4
Total	19	81	32	65

More than half of the patients, 53.0%, have two children and the range is from 1 to 8 (Table 9).

Table 9: Number of children of the patients

Number of children	N ^o	%
1	2	2.0
2	53	53.0
3	21	21.0
4	10	10.0
5	3	3.0
6	3	3.0
7	1	1.0
8	1	1.0
No children	1	1.0
Total	95	100.0

Discussion

Our study confirmed a high prevalence of early-stage PSD with a decreasing rate after 5 months according to both scales that were applied. Compared to the results from previous scientific research the prevalence of early stage PSD is higher, but it presents same dynamics [1] [8].

The risk for depression in the general population increases with age [2] [9]. The average age of the patients is 64.8, which confirms that stroke is a condition with a higher risk after the sixth decade. However, the results do not point out as a statistically significant risk factor for the occurrence of PSD.

According to our study male patients carry a higher risk of stroke, yet gender did not present itself as a statistically significant risk factor for PSD.

The research sample in our study can be regarded as representative considering the specific structure of the population in the municipality of Tetovo. Namely, 74% of the patients were Albanian, while 26% were Macedonian which corresponds with the nationality structure in the municipality. Their level of education and occupational status did not show a statistically significant risk factors for PSD, even though they are important for the poor health culture and bad quality of life.

In conclusion, the socio-demographic characteristics of the patients are not a significant risk factor for PSD. There are some other significant factors that contribute to the occurrence of the disease whose definition requires additional studies.

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