Volume : 4 | Issue : 6 | June 2015 • ISSN No 2277 - 8179

Research Paper

Somatotherapy As a Part of Rehabilitation Model For The People That Suffered Stroke

Medical Science

KEYWORDS : stroke, assessment, somatotherapy

Lejla Matovic — Master of physiotherapy and occupational therapy, Bachelor Somatopedy, Department of Physical Medicine and rehabilitation University Clinical Centre Tuzla, Bosnia and Herzegovina

Alma Glinac — Master of Special Education and Rehabilitation Sciences Graduate educator-rehabilitator Department of Physical Medicine and rehabilitation University Clinical Centre Tuzla, Bosnia and Herzegovina

ABSTRACT

This text will try to show importance of somatotherapy in regular rehabilitation model that's used with people that suffered stroke. Ultimate goal is to point out the importance of somatotherapy in evaluation of mental status as well as influence of this therapy in hierarchical model of rehabilitation and assessment of irregularities in mental functionality of people that suffered stroke.
Material: Sample was made on 64 examinees, both genders, which were hospitalized in Phyisical medicine and rehabilitation clinic in Tuzla (BiH) with stroke diagnose.
Methods: Mini Mental State Examination has been used for the needs of this research.
Results: Statistical analyzes indicate that there are substantial 'differences between the initial and final test of mental status of people with stroke MMSE test. Observation of initial and final assessments shows statistical importance on level of p<000.5
Discussion: Somatotherapy reduces mental deviations in patients with stroke that enhances the rehabilitation model.

INTRODUCTION

According to the Health Statistical Yearbook FBiH, the leading cause of death of the population in the Federation during the period of 2008-2012, as a part of the circulatory system diseases, is stroke[9].

Depending on the source mechanism, acute stroke can be classified in two big groups[5]:

Acute ischemic stroke, in case of 75-80% patients

Acute hemorrhagic stroke, in case of 20-25% patients.

Focal stroke damage leading to CNS structures, and therefore to the loss or disturbance of their function.

Different profiles of experts, including somatotherapists, are researching consequences of mental functioning deviations. In practice, somatotherapists are often using cognitive tests, and one of those is Mini Mental Status Examination. Using this test, they are trying to discover deviations in mental functioning, which represents basics for use of this therapy on stroke patients.

The goal and purpose of work:

This study has been conducted to determine importance of somatotherapeutical mental status assessment as well as influence of this therapy on estimated deviations in mental functioning of stroke patients in model of rehabilitation.

MATERIALS AND METHODS

This study is retrospective, clinically designed and assessed with instruments. Ethical comitee of Tuzla Clinical Center gave consentaneity for this research.

Examinee research:

Research has been conducted on University Clinical Center in Tuzla (BiH), on Physical Medicine and Rehabilitation Clinic, Neurological rehabilitation department, Spinal injuries department and occupational work therapy and somatotherapy cabinet.

DATA COLLECTION:

Research sample included 64 examinees, both genders, older than 18, that were cured and rehabilitated on Physical and Rehabilitation Clinic in Tuzla University clinical Center. Criterions for choosing examinees were:

- Neurological and radiological processed examinees with ischemic and hemorrhagic stroke for the first time as well as repeated stroke.
- Examinees with hemiplegia of dominant and non-dominant arm
- Examinees that had regular medicament, physical and somatotherapy

Study excluded examinees that had heavy speech damages (aphasia and heavier dysarthria); patients with heavy damaged hearing and vision; patients that experienced health issues during rehabilitation process, which didn't allow examination of mental functioning and conduct of somatotherapy; patients whose education was lower than 4th grade of elementary school.

METHOD:

All patients were recommended somatotherapy by Physiatrist. Somatotherapist used medical documentation to classify and assess examinees, taking in concern essential factors of therapy.

INSTRUMENTS:

1. Short list of personal and hetero-anamnesis information
2. Mini Mental State Examination

This instrument of fast cognitive status assessment has been published in 1975, as addition to research published by Susan Folstein, Marshal F.Folstein and Paul R. McHugh) in Journal of Psychiatric Research (vol.12), that was published by[3]. It's made of 30 questions used to asses mental functions. Every correct answer brings one point. Maximum number of points is 30.

Score classificaton:

- 27-30 points- normal mental status
- 24-26 points- mild mental functioning deviation
- 23 or less – heavier mental functioning deviation.

3. Somatotherapy

Initial somatotherapeutical assessment was conducted during second day of hospitalization with necessary material testing elements: table (adapted table, if needed), chair, MMSE test

Volume : 4 | Issue : 6 | June 2015 • ISSN No 2277 - 8179

(translated to Bosnian language), pencil and corrective aids that patient uses (glasses, etc). Patients with the score less than 27 were included in intensive somatotherapy. When working with patients that suffered stroke, special focus is on motivation and sensor stimulation which is based on hypothesis that stroke patients are going through sensory deprivation. The program of sensory stimulation relates to stimulation of main sensory receptors, individually or part of multisensory approaches. The programs were designed by Prstacic model (2011)[7]. Knowledge and experience of clinical somatotherapist is essential for use of this program.

Data processing method

All data were processed with statistics software SPSS-10 for Windows. We calculated descriptive statistics, mid-values and standard deviation. Wilcoxon Signed ranks test was used to test significance of differences. There was a significance level of 0.005%. Spearman correlation coefficients were used to investigate correlations between the observed variables.

Social and demographic data

Research included sample of 64 examinees that suffered stroke. It included both genders, 38 male (59.37%) and 26 (40.62%) female examinees, indicating the dominance of male examinees. Average age was 64.22, youngest examinee was 49, and oldest was 85. Classification by the type of stroke showed that 54 (84.38%) examinees had ischemic stroke and 10 (15.63%) had hemorrhagic stroke. That indicates more cases of ischemic stroke. In 64 patients who had experienced a stroke is estimated function dominant hand because it is necessary for the performance of the test, with 44 (68.75%) of the respondents maintained the functionality of the dominant hand and in 20 (31.25%) of the respondents is a functional dominant hand.

Table 1. Shows descriptive statistics results of initial and final testing MMSE tests

MMSE scores test	Score of 23 and less points	Score from 24 to 26 points	Score from 27 to 30 points
Number of examinees (%) MMSE (i) n=64	33 (51.9%)	17 (26.6%)	14 (21.8%)
Number of examinees (%) MMSE(f) n=64	25 (39.3%)	14 (21.9%)	25 (39.1%)
The difference between the number of examinees MMSE (i) and MMSE(f) testing	8 (12.6%)	3 (4,7%)	11 (17.3%)

Number of respondents to the initial assessment with a score of 23 and <points and the number of respondents to the initial assessment with a score 24 to 26 points are reduced to the final estimates on the impact somatotherapy, while the number of respondents to the initial assessment with a record score of 27 to 30 points to increases to the final assessment of the influence somatotherapy shown in table 1.

Table 2. Shows descriptive statistics of initial and final MMSE tests

Test	MMSE(i)	MMSE(f)
Number of examinees	64	64
Minimal score	2	4
Maximal score	30	30
Midle value	19,53	21,52
Standard Deviation (SD)	8.547	8.136

Using Wilcoxon Signed Ranks test we calculated p-value between initial and final MMSE testing, and it was <0,005 statistically, it's significant.

Table 3. Shows Correlations of initial and final measurements using MMSE

Spearman's rho		MMSE (i)	MMSE (f)
MMSE (i)	Correlation Coefficient	1.000	.948**
	Sig. (2-tailed)	.	.000
	N	64	64
MMSE (f)	Correlation Coefficient	.948**	1.000
	Sig. (2-tailed)	.000	.
	N	64	64

*** p < .005**
**** p < .001**

For calculation of correlations between initial and final MMSE results, we used Spearman correlation coefficient, simply because result distribution is not normal. Each correlation was high and statistically significant.

DISSCUSION

Research results indicate higher involvement and dominance of male examinees (59.38%) comparing to female examinees (40.62%). Average age was 64.22. Research that was done by Lavados and partners with CVI patients, 56% were male examinees, and 44% were female examinees, average age was 68.4[4]. Results are close to results in this research. This research had 84% of patient with ischemic stroke, and 16% of hemorrhagic stroke. These results are close to the results gained by D'Allesandro and his partners research [2].

Aggarwal i Kean in their study researched presence of cognitive damages with patients that were hospitilized for rehabilitation, because cognitive damages could influence their ability to be part of rehabilitation program[1]. This opinion agrees with the goal of our study.

Results of study done by Naco and partners, including factors, gender involvement i significance of ischemic stroke, were similar to our results.[6]. Results of study done by Valkov and partners were similar in dominance of male examinees and dominance of ischemic stroke. There are also similarities in age group of examinees with CVB [8]. Researching literature and comparing initial and final MMSE scores with other studies, we came to conclusion that MMSE is used to discover deviations in mental functioning of people that suffered stroke. Also more detailed comparison is not adequate because somatotherapy was not part of rehabilitation model. Effects somatotherapy measured the MMSE test and are reflected in the reduction of severe and mild mental deviations in patients with stroke as well as the sustainability of the normal status in patients with stroke and increase the number of patients with stroke with a normal mental status.

CONCLUSIONS

According to results we can generally conclude that somatotherapy has influence on discovering and reduction of mental functioning for patients that experienced stroke within short period of hospitalization on Physical and Rehabilitation Clinic in Tuzla Universitiy Clinical Center. Results gained with this research should be used in establishing position of this therapy in models of rehabilitation. This is first research of this type in Federa-

tion of Bosnia and Herzegovina, conducted in tertiary institution that has somatotherapist employed.

REFERENCE

1. Aggarwal A. and Kean E. (2006) Comparison of the Folstein Mini Mental State Examination (MMSE) to the Montreal Cognitive Assessment (MoCA) as a Cognitive Screening Tool in an Inpatient Rehabilitation Setting, Neuroscience & Medicine, vol. No. 2 pp 39-42. | 2. D'Alesandro G., Gallo F., Vitalian A., Del Col P.,Gorraz F., De Cristofaro R., et al. (2010) Prevalence of stroke and stroke-related disability in Valle D'Aosta in Italy. Neurol. Sci, 31:pp 137-41. | 3. Folstein M.F., Folstein S.E. and McHugh P.R. (1975) „Mini Mental state", a practical method for grading the cognitive state of patients for clinical, J. Psychiatr Res, 12(3), pp189-198. | 4. Lavados MP., Sack C., Prina L., Escobar A., Tossi C., Araya F., et al. (2007) Incidence, case- fatality rate, and prognosis of ischaemic stroke subtipes in a predominantly Hiscpanic-Mestizo population in Iquiqe, Chile: a community-based incidence study. Lancet Neurol, 6, pp 140-8. | 5. Ministry of Health Montenegro (2012), National directive of good clinical practice, Acute ischemic stroke, Podgorica, pp 1-7. | 6. Naço D., Dobi D., Zekja I.,Mijo S., Kapisyzi M. and Kruja J. (2013) Factors Influencing Mini-mental State (MMSE) Score in Stroke Patients, Orginal research MedArh. 67(3)10.5455/medarh.2013.67.171-173. | 7. Prstacic M. (2011) Interdisciplinary and deontology, Art and Science in Life Potential Development, Scientific books, Croatian Psychosocial Oncology Association, Croatian Association for Sophrology, Creative Therapy and Art / Expressive Therapies, Education and Rehabilitation Sciences, Zagreb, pp 19-22 . | 8. ValkovaM., Stamenov B. and Peychinska D. (2012) Screning for posstrok cognitive impairment via Mini mental State Examinantion and Montreal Cognitve Assessment scale, / Journal of IMAB Annual Proceeding (Scientific Papers) vol. 18, book 3, pp 302-304. | 9. Public Health Institute of BiH (2013) State of health of the population and of the health care in the Federation of Bosnia and Herzegovina in 2012, Sarajevo, pp 15-16. |