INCIDENCE AND TYPES OF SPEECH DISORDERS IN STROKE PATIENTS

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SUMMARY – The aim of the study was to determine the incidence and types of speech disorders in patients with acute stroke. The study was performed in 936 acute stroke patients admitted to University Department of Neurology, Tuzla University Clinical Center, in the period from January 1, 2007 through December 31, 2008. Out of 936 study patients, speech disorders were verified on admission in 771 (82.37%) patients. Dysarthria was present in 540 (57.69%) and aphasia in 231 (24.67%) patients. In the group with speech disturbances, dysarthria was present in 70.04% and aphasia in 29.96% of patients. During hospital stay, lethal outcome was recorded in 51 patients, significantly higher in the group with speech disorders (P=0.004). At discharge from the hospital, speech disorders persisted in 671 (75.81%), dysarthria in 468 (69.75%), and different types of aphasia in 203 (30.25%) of 885 surviving patients. Among patients with aphasia at both admission and discharge, global aphasia was most common, followed by motor aphasia (Broca's aphasia) and nominal aphasia. Although the rate of patients with speech disorders was lower at discharge, the difference was not statistically significant. On admission, 82.37% of patients were considered to have a speech-language disorder, dysarthria being most common. Concerning the type of aphasia, global aphasia was most frequent. Study results suggested the importance and need of speech-language therapy in the early rehabilitation of post-stroke patients; it should be initiated during their hospital stay and continued at long term.

Key words: *Stroke; Speech disorders*

Introduction

Speech impairments, especially aphasia syndromes, are among the most serious cognitive deficits in post-stroke patients. Patients with aphasia have higher mortality and poorer long term functional recovery, resuming their previous occupational and other activities to a considerably lower extent than patients without speech disorders[1]. The course and outcome of aphasia depend greatly on the type of aphasia. Although a significant number of aphasias improve spontaneously, it is necessary to initiate treatment as early as possible[2]. Speech-language pathologists play a significant role in the screening, formal assessment, management, and rehabilitation of stroke survivors who present with communication impairment. Early diagnosis and referral is critical, as is intensive intervention as soon as the patient is able to participate. The speech-language therapist is also responsible for educating carers and staff in the strategies that can support the patient and for making appropriate environmental modifications to optimize the stroke survivor's participation, initially, in the rehabilitation program and, subsequently, within the community[3].

The aim of the study was to determine the incidence and types of speech disorders in acute stroke patients.

Patients and Methods

The study included patients hospitalized for acute stroke at University Department of Neurology, Tu-

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zla University Clinical Center from January 1, 2007 through December 31, 2008. The diagnosis of stroke was confirmed on the basis of clinical features, neurologic examination and computerized tomography (CT) of the brain. In all patients, speech disorders were estimated by a speech therapist and treatment was administered continuously during their hospital stay. Comatose patients were not included in the study. Standard statistical tests were used: mean value, χ^2-test, difference, Z ratio and proportion. The level of statistical significance was set at $P<0.05$.

Results

During a two-year period (2007-2009), a total of 936 patients (450 men and 486 women), mean age 69.85 (±10.14) years, were hospitalized at University Department of Neurology, Tuzla University Clinical Center (Fig. 1). The mean length of hospital stay was 11.98 (±3.93) days. Speech disorders on admission were verified in 771 (82.37%) patients. Dysarthria was present in 540 (57.69%) and aphasia in 231 (24.67%) patients. In the group with speech disorders, dysarthria was present in 70.04% and aphasia in 29.96% of patients.

Lethal outcome during hospitalization was recorded in 51 patients and 50 of them had some kind of speech disorder. The mortality rate was significantly higher in the group of patients with speech disorders as compared to those without these disturbances (P=0.004).

At discharge, speech disorder was present in 671 (75.81%) of 885 surviving patients. The results showed

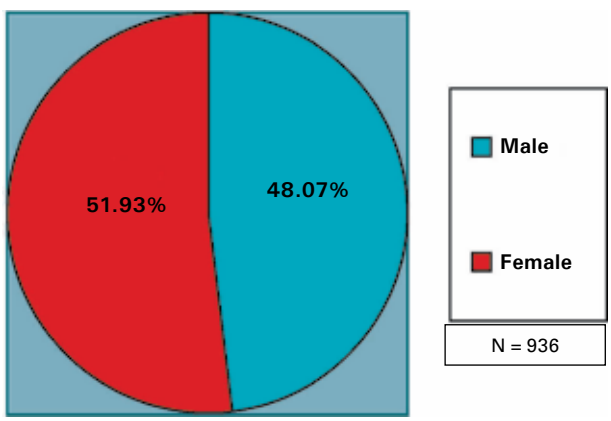

Fig. 1. Distribution of patients with acute stroke according to gender.

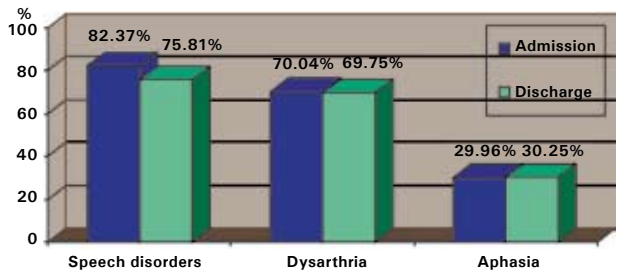

Fig. 2. Incidence of speech disorders in patients with acute stroke on admission and at discharge.

the difference between the proportions of patients free from speech disorders on admission and at discharge to be 0.05235. Thus, the number of patients with speech disturbances at discharge was lower than that recorded on admission, but the difference was not statistically significant.

In the group of patients with speech disorders at discharge, dysarthria persisted in 468 (69.75%) and various types of aphasia in 203 (30.25%) patients. Although there was a reduction in the number of patients with speech disorders at discharge, the difference was not statistically significant considering transformation of the types of speech disorders (Fig. 2). Dysarthria was most common at both admission and at discharge from the hospital. Among aphasic patients, global aphasia was most frequent both on admission and at discharge, followed by motor aphasia (Broca's aphasia) and nominal aphasia. Other types of aphasia were less frequent (Fig. 3).

Discussion

Study results showed more than 80% of acute stroke patients to have some type of speech disturbance. In

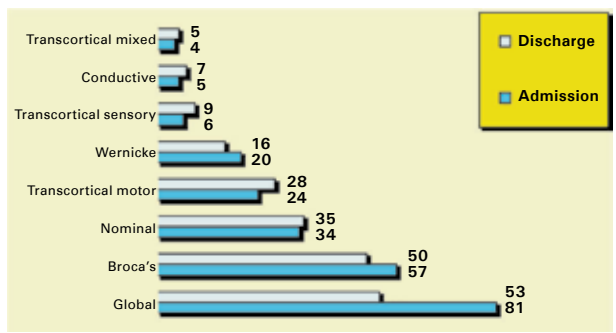

Fig. 3. Incidence of types of aphasia in patients with acute stroke on admission and at discharge.

practice, the incidence of dysarthria in stroke patients has not been extensively analyzed[4], and confirmed dysarthria in 57.69% of patients with speech disturbances. Other authors point out that dysarthria was mostly associated with supratentorial lesions (63%) and classic lacunar stroke syndrome (45%)[5].

According to literature data, the incidence of aphasia after stroke ranges from 15.2% to 38%. This rather wide range could probably be ascribed to various timing of speech evaluation, different tests used for evaluation, and sometimes even to examiner experience[6-9]. Our study results showed aphasia in 24.67% of acute stroke patients. The most common type of aphasia in the acute phase of stroke was global aphasia, which is consistent with the results obtained in a previous study conducted at our Department[10]. In another study previously carried out at our Department, the incidence was slightly above 20%, i.e. 20.34%[11].

The present study confirmed the mortality of patients with speech disturbances to be significantly higher as compared with patients without these disorders[1]. The number of patients with speech disturbances was lower at discharge than at admission, but the difference was not statistically significant, which might be due to the relatively short hospital stay. On the other hand, these results pointed to the need and importance of continuing post-stroke speech therapy. Some authors emphasize the importance of designing recommendation for stroke patients with aphasia, which should be included in the official clinical pathways of speech rehabilitation[12]. Besides the fact that intensive language rehabilitation improves language skills, it also provides an opportunity for evaluation of plastic neuronal changes in the brain regions involved in language processing[13].

Conclusion

Some form of speech disorder was present in 82.37% of acute stroke patients. At discharge, 75.81% of surviving patients had some speech disorder, most frequently dysarthria. Global aphasia was most common of all types of aphasia. Study results confirmed the importance and necessity of continuing speech therapist treatment in the early rehabilitation of acute stroke patients and after discharge from the hospital.

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Sažetak

INCIDENCIJA I VRSTE POREMEĆAJA GOVORA U BOLESNIKA S MOŽDANIM UDAROM

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Cilj rada bio je utvrditi učestalost i vrst poremećaja govora kod bolesnika s moždanim udarom. Analiza je obuhvatila 936 bolesnika hospitaliziranih zbog akutnog moždanog udara u razdoblju od 1. siječnja 2007. do 31. prosinca 2008. godine. Smetnje govora kod svih bolesnika procjenjivao je logoped, a logopedski tretman se provodio neprekidno za vrijeme hospitalizacije. Smetnje govora potvrđene su kod prijma u 771 (82,37%) bolesnika, dok je 165 (17,36%) bolesnika bilo bez poremećaja govora. Dizartrije su bile prisutne kod 540 (57,69%), a afazije kod 231 (24,67%) ispitanika. U skupini sa smetnjama govora dizartrije su bile zastupljene kod 70.04%, a afazije kod 29.96% bolesnika. Pri otpustu poremećaji govora su bili prisutni kod 671 (75.81%) od 885 preživjelih bolesnika, dok je 214 (22.86%) bolesnika bilo bez poremećaja govora. Dizartrične smetnje su zaostale kod 468 (69.75%), a različite vrste afazija kod 203 (30.25%) bolesnika. Od afazičnih poremećaja pri prijmu, ali i pri otpustu najčešća je bila globalna afazija, a zatim slijedi Brocina i anomička afazija. Iako je udio bolesnika s poremećajem govora bio manji kod otpusta, razlika nije bila statistički značajna. U zaključku, smetnje govora bile su prisutne u 82.37% bolesnika u akutnoj fazi moždanog udara. Najčešći poremećaji govora su dizartrije, a od afazičnih smetnja vodeća je globalna afazija. Ovi rezultati potvrđuju značenje i neophodnost logopedskog tretmana u rehabilitaciji bolesnika u akutnoj fazi moždanog udara, ali i nakon otpusta s klinike.

Ključne riječi: *Moždani udar; Poremećaji govora*