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STROKE IN NEUROLOGY CLINIC IN SARAJEVO /CLINICAL-EPIDEMIOLOGICAL FEATURES/

Dimitrijević J, Hebib Lj, Hečo S, Nakičević A, Imamović Dž, Hrnjica M, Lončarević N.
Neurology clinic, University Medical Center Sarajevo

Abstract

Data on patients admitted to the Neurology Department in Sarajevo were retrospectively analyzed for a 12-month period in 2001. Out of 1681 admitted patients, 972 (58%) were treated for cerebrovascular attack, and 709 (42%) were treated under other diagnoses. Hemorrhagic stroke was diagnosed in 153 patients (19 percent) and ischemic attack in 647 patients (81 percent). 75 patients with hemorrhagic stroke (49%) and 196 patients with ischemic stroke (30 percent) died. 215 or 34 percent of all admitted patients with cerebrovascular attack were them with relapse of the disease.

421 patients (53 percent) were males and 379 (47 percent) were females, with hemorrhagic stroke ratio 75 males (49 percent) to 78 females (51 percent) and ischemic stroke ratio 346 males (53 percent) to 301 females (47 percent). The age group distribution was such that the largest number of patients with hemorrhagic stroke was in the 61-70yrs age group (60 or 40 percent) and the number of patients with ischemic stroke was the largest in the over 6oyrs age groups (517 or 80 percent). Of all risk factors, hypertension was present in 581 patients (73 percent), in 124 cases of hemorrhagic stroke (81 percent) and in 457 cases of ischemic stroke (71 percent); diabetes was present in 161 patients (21 percent), in 17 cases of hemorrhagic stroke (11 percent) and in 150 cases of ischemic stroke (23 percent), whilst the cardiopathy (all types) was present in 594 patients (74 percent), in 101 cases of hemorrhagic stroke (67 percent) and in 493 cases of ischemic stroke (76 percent). The average length of treatment at the Department was 16,4 days.

Key words: stroke, epidemiology, emergency neurology

Introduction

Stroke is one of the leading causes of mortality and disability in the developed countries (approximately one third of these patients die, one third end up completely dependent, and one third will have quality or complete recovery [1]. However, stroke has an even greater incidence and prevalence in the countries of central and southeast Europe and the countries in transition. This is probably related to the new political, economic and social cicrumstances present in these countries [2,3,4,5]. Our country has not been left out of this trend either, hence the interest and the need to monitor this illness and compare it to its trends in the previous years as well as with the trends in other countries [1,4].

Patients and methods

Epidemiological and clinical characteristics have been analysed of those patients who were admitted to the Neurology Clinic presenting with the picture of acute

cerebrovascular accident (CVA) during 2001 (Januar 1 2001–December 31st 2001). The patients with transitory ishaemic attacks were not included in the statistical analysis. Neurology clinic has 102 beds, out of which the Emergency neurology unit has 6 beds in the intensive care and 12 beds in the post-intensive care ward. These patients are admitted also to other clinical wards due to their large number. This clinic is the only institution in Sarajevo Canton admitting patients with cerebrovascular insult and covers an area of approximately 400,000 inhabitants.

Results

In 2001 a total number of 1.681 patients were admitted to Neurology Clinic in Sarajevo. Out of this number, 972 patients were hospitalised due to cerebrovascular disease (cerebrovascular accident and transitory ishaemic attack combined). Fifty eight percent of the clinic's bed capacity was occupied by these patients. Leaving out some 172 patients with transitory ishaemic attacks, there were 800 patients with cerebrovascular insult. This makes 48% of the clinic's bed capacity occupied by these patients. (Table 1)

Tabela 1.

Patients admitted to the Neurology Clinic during 2001		
Diagnosis	**N**	**%**
CVI + TIA	**972**	**58**
Other diagnoses	**709**	**42**
Total	**1681**	**100**

In patients with cerebrovascular accident there were 153 (19%) with cerebral hemorrhage and 647 (81%) with ishaemic stroke. (Table 2) The same table shows a detailed break down of the patients into different subtypes of cerebrovascular disease. From this table it is evident that intracerebral hemorrhage was found in 124 patients or 15%, subarachnoid hemorhage in 29 or 4%, atherothrombotic cerebral infarction 498 or 62%, and brain embolism of cardiac origin 149 or 19%. (Table 2).

The break down of patients with cerebrovascular attack according to the gender distribution leans more in favour of men in total scores, and also when it comes to ischaemic stroke, and more towards women in case of hemorrhage. (Table 3)

Table 2

Distribution by types of stroke		
Type of stroke	**N**	**%**
A/ Ishemic	**647**	**81**
Atherothrombotic brain infarction	**498**	**62**
Cardioembolism	**149**	**19**
B/ Hemorrhagic	**153**	**19**
Intracerebral hemorrhage	**124**	**15**
Subarachnoid hemorrhage	**29**	**4**
Total	**800**	**100**

Table 3

Patient distribution by sex				
Type of stroke	**Women**		**Men**	
	N	**%**	**N**	**%**
Ishemic	**301**	**47**	**346**	**53**
Hemorrhage	**78**	**51**	**75**	**49**
Total	**379**	**47**	**421**	**53**

Outcome analysis of all the patients is provided in Table 4.

Table 4

CVI mortality rates within a month's time		
	N	Mortality (%)
Patients with CVI	**271**	**34**
A/ Ishemic CVI	**196**	**30**
• **Atherotrombotic cerebral infarction**	**136**	**27**
• **Cardioembolism**	**60**	**40**
B/ Hemorrhagic CVI	**75**	**49**
Intracerebral hemorrhage	**70**	**56**
Subarachnoid hemorrhage	**5**	**17**

General mortality for all the CVA patients at the clinic 30 days post admission was 34%. In ishaemic stroke mortality was 30%, and 49% in cerebral hemorrhage. Within individual subgroups of stroke, the highest mortality was found in the patients with intracerebral hemorrhage (70, or 56%), followed by the patients with cerebral embolism of cardiac origin (60, or 40%). The number of deaths from subarachnoid hemorrhage was 5 or 17%, and from atherothrombotic cerebral infarction 136 or 27%.

Out of the total number of patients with CVA, 215 (27%) were admitted as relapsing. Mortality in that group of patients was 34% which corresponds to the general mortality rate for all patients with CVA.

Risk factors (arterial hypertension, cardiomyopathy, diabetes) are shown in Table 5. Hypertension was by far the most prevalent (581 or 73%) in cerebral hemorrhage and ishaemic stroke alike (124 or 81% and 457 or 71%), cardiopathy was found in 594 or 74% out of which 101 or 67% in cerebral hemorrhage and 493 or 76% of patients with ishaemic stroke. Diabetes was found in 167 patients or 21% (cerebral hemorrhage 17 or 11% and ishaemic stroke in 150 or 23%).

Table 5

Risk factors associated with CVI						
Risk factors	**Ishemic CVI**		**Hemorrhagic CVI**		**Total**	
	N	**%**	**N**	**%**	**N**	**%**
Hypertension	**457**	**71**	**124**	**81**	**581**	**73**
Diabetes	**150**	**23**	**17**	**11**	**167**	**21**
Heart disease	**493**	**76**	**101**	**67**	**594**	**74**

Age distribution shows 62 patients or 7% in the age group to 50 years; 183 or 23% in the age group up to 60 years, and the rest are located in older age groups with the most in the 61 to 70 years age group where we find 1/4 of patients or 319. The largest number of patients with cerebral hemorrhage were in the 61 to 70 years age group (60 or 40%), and with ischaemic stroke in the over 60 years age groups (517 or 80%). (Table 6)

Table 6

Distribution of patients with CVI by age groups						
Type of CVI	**Age group**					
	< 40 N %	**41-50** N %	**51-60** N %	**61-70** N %	**> 70** N %	**Ukupno** N %
Ishemic	**10 2**	**33 5**	**87 13**	**259 40**	**258 40**	**647 100**
Hemorrhage	**6 4**	**13 8**	**34 22**	**60 40**	**40 26**	**153 100**
Total	**16 2**	**46 6**	**121 15**	**319 40**	**298 37**	**800 100**

Out of the total number of all out patients examinations at the clinic (11.178), 3.147 were presenting with some form of cerebrovascular disease (CVA, TIA or vascular dementia), which makes 28% of all those examined.

Discussion

In discussion of this retrospective anlysis we would like to highlight the following data:
The clinic has admitted a large number of patients with cerebrovascular disease which caused some 58% of the bed capacity (CVA and TIA) to be occupied by these patients. The CVI patients alone occupied 48% of the bed capacity. This exerts tremendous pressure on the clinic which in turn is forced to admit to treatment only the most critical patients sometimes at the cost of those with a milder presenting clinical picture for which hospitalisation might even prove more beneficial (it is estimated that 6-8% of total hospital's bed capacity should be reserved for these patients) [6]. This makes it even a greater problem since we know that the incidence of CVI in eastern and southeastern European countries, our country included, is greater than in the western European countries [1,2,3,5,7,8,9].

The patients with CVA were distributed according to subcategories of accidents showing that 20% were with cerebral hemorrhage and some 80% with ishaemic accident. This corresponds to other reports in the literature [5,8,9]. This information is very important for our population in light of the fact that for the first time after the war we have such a ratio, since the trends during the war were much less favourable (over 33% of cerebral hemorrhage and about 65% ishaemic). After the war the situation improved somewhat with 27% hemorrhage and 73% ishaemic [10,11].

Intrahospital mortality rate during the first month post stroke was for all CVA patients about 34% or about one third of the patients. These values are in mid-range, given that these figures can vary depending on the series, from 15% to 60% [3,7,12]. This figure is also very significant for our study as it points to the fact that the general mortality rate has dropped relative to the one during the war (48.5% of all patients with CVA), but also compared to the years after the war (37.6%). These changes are even more distinctive in individual subgroups where we find the most favourable ratio in intracerebral hemorrhage (mortality during the war 69.5%, after the war dropping down to 61.5%, and in the present series 56%). A significant lowering of mortality rate has been observed in atherothrombotic cerebral infarction (during the war 38.55, now 27%), while in cardioembolism we notice a more gradual improvement (48% during the war, and 40% at present) [11]. Explanations

for a higher mortality rate in patients with with cerebral embolism of cardiac origin can be found in the relationship with the existing cardiac co-morbidity and the entity that can be identified under a common denominator as vascular death [13].

Three risk factors were observed: hypertension, diabetes, and cardiopathies (ishaemic cardiopathies and dysrythmias). All the values were quite significant and still similar to the ones observed during the war and immediately after the war and overall much higher than in other similar studies [8,14,15,16,17]. The increase during the war can easily be explained and is related to acute, and in the case of Sarajevo – chronic and protracted stress, severly reduced circumstances when it comes to the availability of treatment for chronic illnesses [18]. The explanation for the same values in the period after the war, is however, more elusive. They could perhaps be explained by the new psychosocial and economic environemnt. The primary health care is still slow to adequately adjust to the new situation, and the cumulative consequences of the war are still present. Therefore, an indirect conclusion could be that there is still a need for great efforts towards the prevention of these illnesses.

Apstrakt

CEREBROVASKULARNI INSULT NA NEUROLOŠKOJ KLINICI U SARAJEVU (KLINIČKO- EPIDEMIOLOŠKI POKAZATELJI)

Retrospektivno su analizirani podaci o bolesnicima sa akutnim vaskularnim moždanim poremećajem, primljeni na Neurološku kliniku u Sarajevu, tokom 2001. godine. Ukupno je na liječenju bilo 1681 bolesnik, od čega 972 (58%) sa moždanim udarom, i 709 (42%) sa drugim dijagnozama. Hemoragični oblik moždanog udara je bio zastupljen kod 153 (19%) bolesnika i to intracerebralna hemoragija kod 124 (15%), i subarahnoidalna hemoragija kod 29 (4%), a ishemijski oblik moždanog udara kod 647 (81%) bolesnika, od čega onih sa aterotrombotičnim moždanim udarom je bilo 498 (62%), i sa moždanom embolijom kardijalnog porijekla 149 (19%). Od hemoragičnog oblika cerebrovaskularnog insulta (CVI) je umrlo njih 75 (49%), a od ishemijskog njih 196 (30%) bolesnika.

Muškaraca je bilo ukupno 421 (53%), a žena 379 (47%), pri čemu je kod hemoragičnog oblika taj odnos bio 75 (49%) i 78 (51%), a kod ishemijskog 346 (53%) i 301 (47%). Po životnom dobu je raspodjela bila takva da je najveći broj bolesnika sa hemoragičnim oblikom bio u skupini od 61-70 godina (60 ili 40%), a kod ishemijskog oblika ravnomjerno raspoređeni u skupinama 61-70 i preko 70 godina 259 (40%), odnosno 258 (40%). Od faktora rizika je hipertenzija bila zastupljena kod 581 bolesnika (73%), od čega kod hemoragija 124 (81%), a kod ishemija 457 (71%), dijabetes kod 161 bolesnika (21%), pri tome kod hemoragija 17 (11%), a kod ishemija 150 (23%), dok je kardiopatija (svi oblici) bila prisutna kod 594 (74%) bolesnika sa CVI, od toga kod 101 (67%) hemoragičnog oblika i 493 (76%) kod ishemičnog oblika. Od svih primljenih bolesnika sa CVI je njih 215 (34%) bilo primljeno sa nekim oblikom recidiva istog. Prosjek ležanja na Klinici 16,4 dana.

Ključne riječi: cerebrovaskularni insult, epidemiologija, urgentna neurologija

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