

## THE CLINICAL STUDY OF STROKE IN OLDER PEOPLE

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### Abstract

*Cardiac arrhythmias are also more frequent in the elderly, of which atrial fibrillation is the prime cause for cerebroembolism. Cardiac conductivity also decreases as we get older. It predisposes the suffering to sinus node dysfunctions and atrioventricular conduction anomalies.*

*The cardiovascular receptiveness to beta-stimulators decreases with age. This is manifested by the reduction of the cardiac inotropism, frequency and by vasodilatation.*

*Dramatic clinical effects secondary stroke in older patients may be explained by changes in the vascular response to stress, multiple organ dysfunction, use of multiple medications and severity of stroke.*

*In addition, older people who develop a stroke often have comorbidities that produce an increase in the degree of disability. After a first AIT or stroke, people older than 65 have a risk of recurrence of stroke up to three times compared with younger people*

**Key words:** cerebroembolism, cerebral circulation, cardiac inotropism, frequency, anomalies, fibrillation.

### INTRODUCTION

In developed countries, the proportion of people who reach old age is expected to increase substantially in the coming years.

There are also patients in whose case one can notice an over-reaction of the nervous system's defense against the high blood pressure values, and the decreased heart rate and low blood pressure – secondary side-effects of this reaction – may trigger ischemic phenomena in the cortex, perturbing the cerebral perfusion rate.(Sacco et al, 1994, Petty et al 1998, Alter et al,1987, Strong et al 2007, Di Carlo et al 2009, Murray et al 1997 , Sturm et al 2004).

The cerebrovascular accident, as a complication of an aggressive antihypertensive treatment, is a proven fact that needs to be recognized and prevented (Launer et. al 2000, Di Carlo et al 2000, Wolf et al 1991, Nakayama et all 1994).

Hypotension is a precipitating factor of a cerebrovascular accident, especially in the case of the elderly with cerebral arteriostenosis.(Evers et al 2004, Allender et al 2009) Great importance is given to the blood pressure oscillations and instability, especially the systolic one, in diagnosing cerebral circulatory disorders in the elderly.(Goldstein et al 2006, Rothweil et al 2005, Lozano et al 2012, Marina et al 2004).

## **MATERIALS AND METHODS**

Patients were selected according to age so that representation in the study group to be similar for patients aged 65-74 years, 75-85 years and over 85 years (a total of 60 patients each age).

Hypertension is no longer the main risk factor for cerebrovascular accidents in patients over 70 years of age. (Marini et.all2004,Matlle et.all 2004)

Lot number 1 was comprised of 180 patients, diagnosed with CVA- AIT who did not exhibit any major cardiovascular risk factors; lot number 2 was comprised of 180 patients, diagnosed with CVA-AIT, who exhibited major cardiovascular risk factors, especially atherosclerosis; lot number 2 was also comprised of 180 patients, diagnosed with CVA-AIT, who had CVA-AIT in their medical history.

## **RESULTS AND DISCUSSION**

Group 1 consisted of patients aged 65-74 years and included 25 women (41.66%) and 35 men (58.33%). Characteristics of patients in group 1 are shown in Table. 1

Table 1: Frequency of risk factors for stroke in the analyzed group

<b>Variable analyzed</b>	<b>Number of sick,n</b>	<b>Frequency, %</b>
HTA	39	65%
Dyslipidemia	27	45%
Diabetes	23	38,33%
Smoking	11	18,33%
Atrial Fibrillation	22	36,66%
Heart failure	14	23,33%
Anemia	6	10%
Treatment of diseases associated	25	41,55%

Table no.2 Distribution of variables analyzed by sex.

<b>Variable</b>	<b>Female sex</b>	<b>Male sex</b>
HTA	N=15 60%	N=24 68,57%
Dyslipidemia	N=12 48%	N=15 42,86%
Diabetes	N=9 36%	N=14 40%
Smok	N=9 36%	N=14 40%
Atrial Fibrillation	N=8 32%	N=14 40 %
Heart failure	N=8 32%	N=6 17,14%
Anemia	N=4 16%	N=2 8,07%
Adherence to treatment	N=12 48%	N=13 37,14%

As shown in table no. 2, women aged 65-70 years who had a stroke had heart failure and anemia, a significantly higher percentage than male patients to which was recorded a higher incidence of diabetes, smoking and atrial fibrillation and a lower compliance to prescribed treatments.

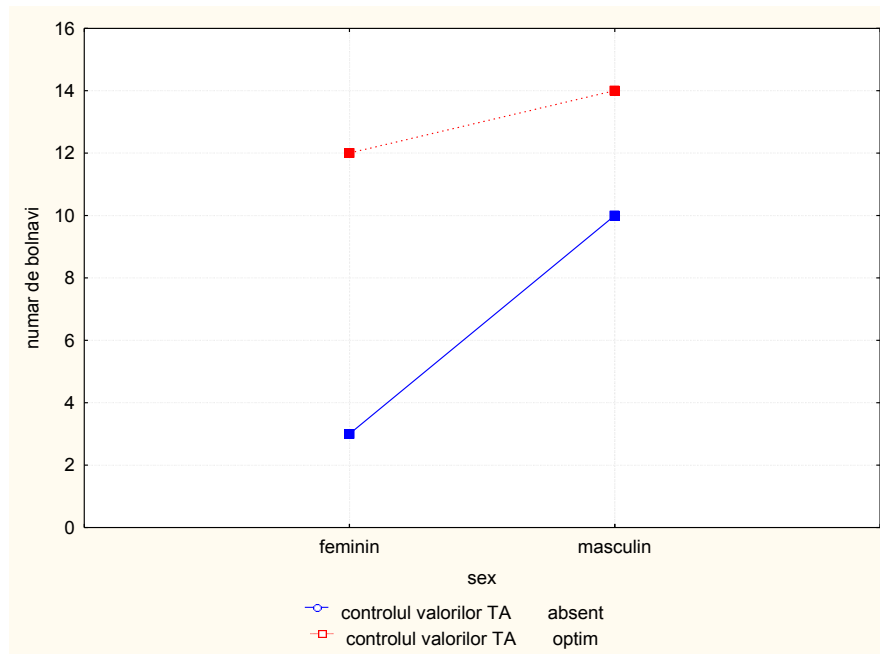
Dyslipidemia and hypertension was closer to representation in the two sexes.

In terms of blood pressure control in hypertensive patients in group 1 by gender, significant variations were noted between women and men.

Thus a total of 12 women (80%) had optimal control of blood pressure, compared with only 58.33% of men.

Therefore, this may justify the higher incidence of stroke in men, along with reduced adherence to antihypertensive treatment.

Fig. 1: Control blood pressure in patients in group 1



Women were represented in group 2 at a rate of 61.66% (n = 37) compared with men who were less numerous, 38.33% (n = 23). The average age of women was  $80.46 \pm 2.39$  years, significantly higher compared with  $77.86 \pm 2.34$  years men.,  $p < 0,001$ .

## CONCLUSIONS

There are differences by gender of patients in terms of severity of stroke, and risk factors.

Women are more likely to have a severe stroke, hypertension, dyslipidemia and obesity.

Dependency rate after a stroke is higher in women, and are strongly correlated with the severity of stroke

No significant differences were established between the two sexes in the rate of death and recurrence at 3 and 12 months post-stroke.

## REFERENCES

1. Launer, LJ and Hofman, A. Frequency and impact of neurologic diseases in the elderly of Europe: a collaborative study of population-based cohorts. *Neurology*. 2000; 54: S1–S3
2. DiCarlo, A, Launer, LJ, Breteler, MMB et al. Frequency of stroke in Europe: a collaborative study of population-based cohorts. *Neurology*. 2000; 54: S28–S33
3. Schmitt, R, Breteler, MMB, Inzitari, D et al. Prognosis with stroke in Europe: a collaborative study of population-based cohorts. *Neurology*. 2000; 54: S34–S37
4. Wolf, PA, D'Agostino, RB, Belanger, AJ, and Kannel, WB. Probability of stroke: a risk profile from the Framingham Study. *Stroke*. 1991; 22: 312–318
5. Nakayama, H, Jørgensen, HS, Raaschou, HO, and Olsen, TS. The influence of age on stroke outcome: the Copenhagen Stroke Study. *Stroke*. 1994; 25: 808–810.
6. Sacco, RL, Shi, T, Zamanillo, MC, and Kargman, DE. Predictors of mortality and recurrence after hospitalized cerebral infarction in an urban community: the Northern Manhattan Stroke Study. *Neurology*. 1994; 44: 626–632.
7. Petty, GW, Brown, RDJ Jr, Whisnant, JP, Sicks, JD, O'Fallon, WM, and Wiebers, DO. Survival and recurrence after first cerebral infarction: a population-based study in Rochester Minnesota, 1975 through 1989. *Neurology*. 1998; 50:208–216.
8. Alter, M, Sobel, E, McCoy, RL et al. Stroke in the Lehigh Valley: risk factors for recurrent stroke. *Neurology*. 1987; 37: 503–507
9. Strong, K., Mathers, C. & Bonita, R. Preventing strokes: saving lives around the world. *Lancet Neurol*. 6, 182-187 (2007).
10. Di Carlo, A. Human and economic burden of stroke. *Age Ageing* 38, 4-5 (2009).
11. Murray, C. J. & Lopez, A. D. Global mortality, disability and the contribution of risk factors: global burden of the disease study. *Lancet* 349, 1436-1442 (1997).
12. Sturm, J. W. et al. Quality of life after stroke: the North East Melbourne Stroke Incidence Study (NEMESIS). *Stroke* 35, 2340-2345 (2004).
13. Evers, S. M. et al. International comparison of stroke cost studies. *Stroke* 35, 1209-1215 (2004).
14. Allender, S. et al. European cardiovascular disease statistics 2008. British Heart Foundation statistics website [online], <http://www.heartstats.org/temp/ESspweb08spchapter.12.pdf> (2009).
15. Goldstein, L. B. et al. Primary prevention of ischemic stroke: a guideline from the American Heart Association/American Stroke Association Stroke Council: cosponsored by the Atherosclerotic Peripheral Vascular Disease Interdisciplinary Working Group; Cardiovascular Nursing Council; Clinical Cardiology Council; Nutrition, Physical Activity, and Metabolism Council; and the Quality of Care and Outcomes Research Interdisciplinary Working Group: the American Academy of Neurology affirms the value of this guideline. *Stroke* 37, 1583-1633 (2006).

16. Rothwell, P. M. et al. Population-based study of event-rate, incidence, case fatality, and mortality for all acute vascular events in all arterial territories (Oxford Vascular Study). *Lancet* 366, 1773-1783 (2005).
  17. Lozano R., Naghavi M., Foreman K., Lim S., Shibuya K., Aboyans V., et al. . (2012). Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet* 380, 2095–2128. 10.1016/S0140-6736(12)61728-0 [PubMed] [Cross Ref]
  18. Marini C., Baldassarre M., Russo T., De Santis F., Sacco S., Ciancarelli I., et al. . (2004). Burden of first-ever ischemic stroke in the oldest old: evidence from a population-based study. *Neurology* 62, 77–81. 10.1212/01.WNL.0000101461.61501.65 [PubMed] [Cross Ref]
  19. Mattle H. P. (2003). Long-term outcome after stroke due to atrial fibrillation. *Cerebrovasc. Dis.* 16, 3–8. 10.1159/000069934 [PubMed] [Cross Ref]
  20. Mizrahi E. H., Fleissig Y., Arad M., Adunsky A. (2014). Short-term functional outcome of ischemic stroke in the elderly: a comparative study of atrial fibrillation and non-atrial fibrillation patients. *Arch. Gerontol. Geriatr.* 58, 121–124. 10.1016/j.archger.2013.07.015 [PubMed] [Cross Ref]
  21. Murray C. J. L., Lopez A. D. (1997). Alternative projections of mortality and disability by cause 1990–2020: global burden of disease study. *Lancet* 349, 1498–1504. [PubMed]
- National Bureaus of Statistics of the People's Republic of China (2014). *China Statistical Yearbook 2013*. Beijing: China Statistics Press.