PROGNOSTIC VALUE IN FUNCTIONAL OUTCOME OF RISK FACTORS FOR ISCHEMIC STROKE INCLUDING LATERALITY: A cohort study

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Background:

Ischemic stroke occurs when there is an occlusion of a cerebral vessel due different etiologies, by thrombotic, embolic or hypoperfusion mechanism, producing a decrease in cerebral blood flow followed by ischemic tissue[1]. Cerebrovascular disease is a public health problem, causing permanently disability, with a high social, economic and sanitary impacts. Incidence is disminishing in developed countries and increasing in developing[2], in Colombia in 2017 CVD was second in mortality (6.7%) after IHD[3]. There are several stroke risk factors which have been identified; unilateral neglect and aphasia are the most common deficits and their role in predicting outcome is still inconclusive[4]. There is controversy for laterality in the outcome for disability and mortality, in some studies right - sided stroke have reported a poorer outcome, others found left – sided[5].

Objective:

To determine the prognostic value of several factors associated with a lesion according disability and mortality in the anterior circulation ischemic stroke including the hemispheric location.

Methods:

An observational, analytic, prospective, cohort study was done, with a nested case and controls analysis. After fulfilling inclusion criteria (Table 1), 93 adult patients with ischemic stroke between March – August, 2017 were included. A case was defined as a patient with mRS 3 – 6, a control as a patient with mRS favorable 0 -2, at three months post stroke. Two instruments were developed, one to collect interesting variables from medical records and other for dependent variable, the Rankin modified score, which was used to objectify the functional status of patients at three months post Stroke. A bivariate analysis was performed with the dependent variable and those statistically significant. Ethics Committee of each Institution approved the study. Information was registered on Microsoft Excel and was exported to IBM SPSS Statistics 19 for analysis. A pilot test with 10 patients was done to verify instrument.

Discussion:

Stroke was associated with risk factors described in the literature[6], there was not association between comorbidities possibly due small sample, although HT is high according to reported in literature. Our results showed that 44,1% of the patients developed some degrade of residual unfavorable disability at 3 months without any sociodemographic factor with prognostic value. Females, advanced age, weakness of the legs and inattention have been reported with poorer prognosis according to a mortality and dependence at 90 days post event[7]. Alterations on mental status due delirium are associated with higher mortality, long hospitalization and major disability after Stroke[8]. Unconciusness, hemiplejia or conjugate gaze paralysis are predictors of early mortality. Cardioembolic stokes due AF are more fatal, recurrent and more disability[9]. Nutritional status, pneumonia, GI hemorrhage have been reported worse prognosis[10]. Hemispheric laterality could be an adicional variable in the outcome and mortality. In our study left hemispheric stroke has worse prognosis according to functionality at three months (OR 2,51; IC 95% 1,06 – 5,9. P=0,03). Information about this is scarse and contradictory. In a South Korean study did not find differences according side affected, the median mRs was 3,4 for left and 3.2 for right[11]. Another cohort study in USA showed that bilateral lesions and unilateral right involment is worse for functionality (p <0,005)[12], Ween et al speculate with left-side patients tend to have rehabilitation, due aphasia.

Results:

Mean age was 67 years (57-76), 53.8% (50 patients) were men. 38.7% (36 patients) were active smokers and 15.1% (14 patients) accepted to consume alcoholic beverages. Comorbidities are shown in Table 2. The median time of evolution to treatment was 5 hours (3-24). Moderate NIHSS score was the most frequent in 53.8% (50 patients); etiology was found in 35.5% (33 patients), cardioembolic and aortic arch plaques were the most frequent. The majority of patients were not on thrombolytic therapy. 8.6% (8 patients) had hemorrhagic transformation. At three months mortality was 7.5%, mRankin was moderate in 23.7% (Graphic 1). Bivariate analysis identified left hemispheric stroke as an unfavorable variable according to disability OR 2.51; [CI95%: 1.06-5.9]. P=0.03.

Graphic 1
Functionality at three months post-Stroke according mRankin
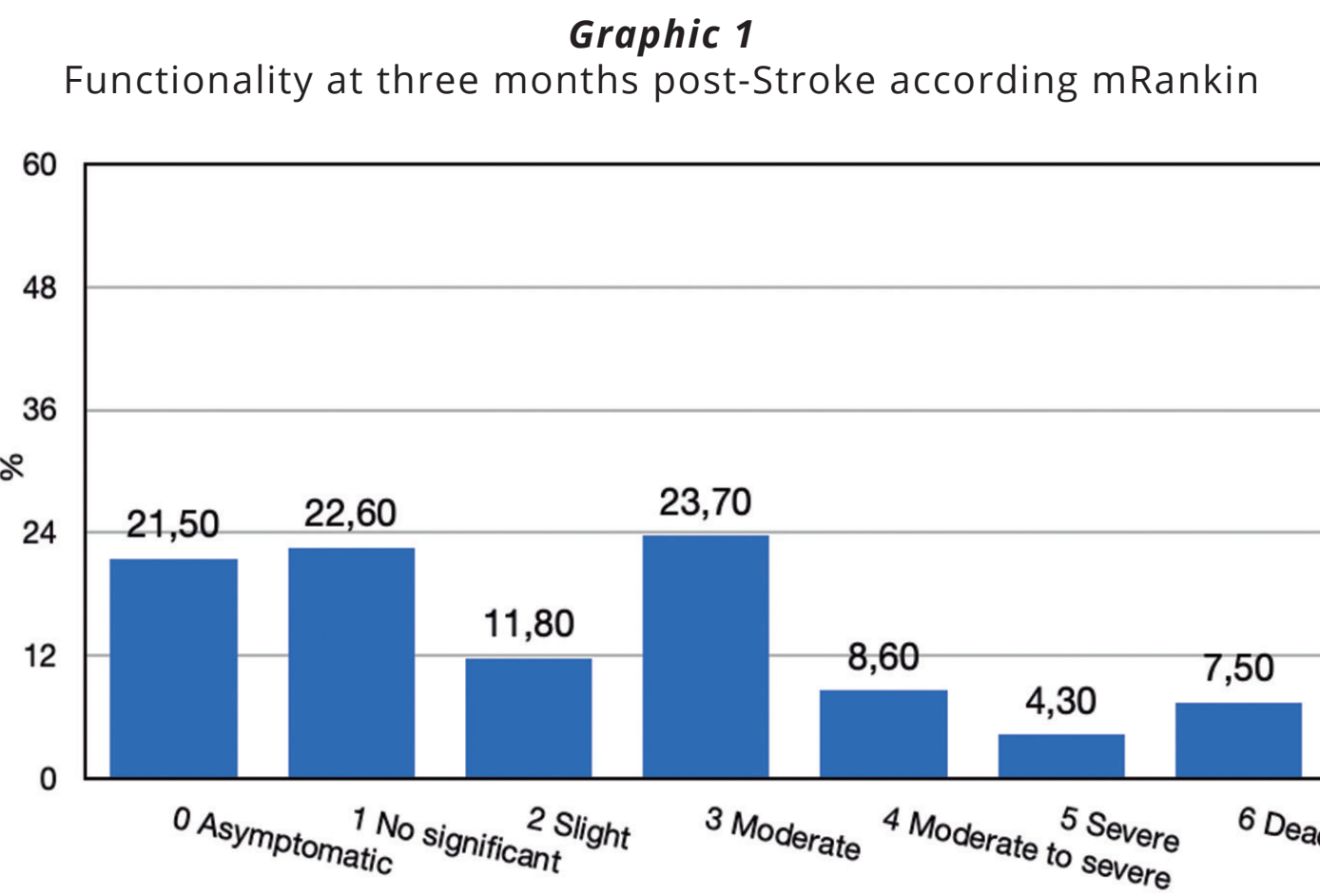
Conclusion:

In this cohort study left hemisphere Stroke is an unfavorable risk statistically significant for outcome in terms of disability and mortality.

Table 1

INCLUSION / EXCLUSION CRITERIA
1- Patient >18 years
2- First ischemic stroke
3- Anterior circulation
4- Medical, IV thrombolysis, thrombectomy
5- CT or MRI
6- Hospital stay > 24 hours
7- Non multi-infarct bihemispheric stroke
8- Non hemorrhagic stroke
9- Non dementia

Table 2
COMORBIDITIES FREQUENCY (n=93)

COMORBIDITY	n (%)
Systemic hypertension	49 (52,7)
Dyslipidemia	25 (26,9)
Atrial Fibrilation	14 (15,1)
Mitral insuficency	14 (15,1)
Carotid stenosis	13 (14)
Diabetes mellitus	12 (12,9)
Congestive Heart Failure	12 (12,9)
Coronary Heart Disease	9 (9,7)

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