https://doi.org/10.1590/0004-282X20200050

Biomarkers and aspects in acute stroke

Biomarcadores e ASPECTS no AVC agudo

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Conflict of interest: There is no conflict of interest to declare.

Received on April 20, 2020; Received in its final form on April 20, 2020; Accepted on April 22, 2020.

In the last decades there was a surge of research on serum haematological, biochemical and immunological biomarkers in stroke, which unfortunately has not yet translated into clinical practice. Serum biomarkers can theoretically be useful for the diagnosis, prognosis, and understanding of the pathophysiology and eventually for the selection of treatments in stroke care. Ideally a biomarker or a set of biomarkers can identify a stroke, in the prehospital setting, prior to neuroimaging, similarly to what is done for myocardial infarction[1,2]. Several other molecules can be useful biomarkers of recanalization and reperfusion, of opening of collaterals, of the several steps of the ischemic cascade and of the early neuroinflammatory and neuroregenerative response[3,4]. Inflammatory molecules might become both biomarkers and therapeutic targets for stroke management[5].

In this issue of Arquivos de Neuro-Psiquiatria, Aline M. Mourão and co-workers conducted an exploratory cross-sectional study of the clinical and molecular correlates of the ASPECTS scale score in the 50 patients within the first 24h of acute stroke[6]. They measured several biomarkers mainly related to inflammation (BDNF, VCAM-1, VEGF, IL-1β, sTNFRs and adiponectin) and correlated their values with the score in the ASPECTS, a well-known and validated scale to grade the extent of an acute ischemic infarct as depicted on non-contrast brain CT. They found an association of adiponectin levels and ASPECTS scores. On regression analysis, adiponectin and NIHSS were independent predictors of ASPECTS scores.

Adiponectin is an anti-inflammatory adipokine, which also has anti-atherosclerotic properties. Elevated adiponectin levels indicating an intense inflammatory response are an independent predictor of cardiovascular and all-cause mortality in patients with coronary heart disease[7]. Adiponectin levels do not appear to be related to stroke risk[8,9].

This exploratory study has a very promising and innovative result, by establishing an association between adiponectin levels and acute infarct size. Previous studies have described associations between high levels of adiponectin and stroke mortality, neurological severity as measured by the NIHSS and functional outcome[10,11,12].

As the authors themselves recognise in the final part of the discussion, their study has several limitations, including cross-sectional design, no evaluation of mortality and functional status at 3 or 6 months, small sample size with young median age, selection bias, multiple statistical comparisons, and using linear regression for scale scores. As they also point, further confirmatory studies are needed. Nevertheless, adiponectin looks like to be a promising biomarker for stroke severity and outcome. Mourão et al. findings may be also an additional reason for not stopping statins in acute stroke patients[13].

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