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UNIVERSIDADE FEDERAL DO RIO GRANDE DO SUL

Article published by UFRGS researchers is the cover of American Academy of

The authors analyzed data from 3,204 Alzheimer patients to identify changes in astrocyte biomarkers

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The cover of the journal *Neurology*, published by the American Academy of Neurology, which is a world reference in the field, highlights the article *Astrocyte Biomarkers in Alzheimer Disease: a Systematic Review and Meta-analysis* in its latest issue, written by postdoctoral researcher Bruna Bellaver, from the Graduate Program in Biological Sciences (Biochemistry) at UFRGS, in collaboration with two undergraduate researchers from the Medicine Program, João Pedro Ferrari Souza and Lucas Uglione da Ros, and with professor Eduardo Rigon Zimmer (Department of Pharmacology), as well as with other researchers. The work was also selected for the journal section *In focus*, which collects the featured articles in the issue chosen by the editor.

The authors analyzed data from 3,204 patients with Alzheimer's disease (AD), distributed in 33 scientific studies, to determine whether biomarkers from a type of brain cell called astrocyte were altered in the blood and cerebrospinal fluid (also called liquor) of patients with AD. "Some proteins leak or are released by astrocytes into the blood and the liquor under pathological conditions. These proteins can be quantified and potentially help in the laboratory diagnosis tests for brain diseases, such as Alzheimer's disease," explains Bruna Bellaver. The study identified three proteins in larger amounts in patients with AD than in healthy individuals, evidencing their potential use in diagnosing the disease.

The study of biomarkers in neurodegenerative diseases is an area of growing interest since improvements in this field have the potential to allow early diagnosis – before the first symptoms of the disease. "Finding biomarkers so that we can have an earlier and more accurate diagnosis of Alzheimer's disease is important not only for proper handling, but also for searching effective therapies to fight the disease," explains Douglas Teixeira Leffa, a researcher at the Department of Psychiatry of Hospital de Clínicas Porto Alegre, who is also author of the study.

According to the authors, the focus of biomarker studies has always been the changes in neurons, which, despite being better known, do not represent the brain. "Our work demonstrates that other brain cells, especially astrocytes, need to be considered in Alzheimer's disease. Our research group at UFRGS has strongly contributed to the progress of this research area," says Professor Edward Zimmer.

Although it has been led by the Brazilian team, the research team is formed by researchers from Canada (McGill University), Sweden (Karolinska Institute), France (Poitiers University) and the United Kingdom (Cambridge University).
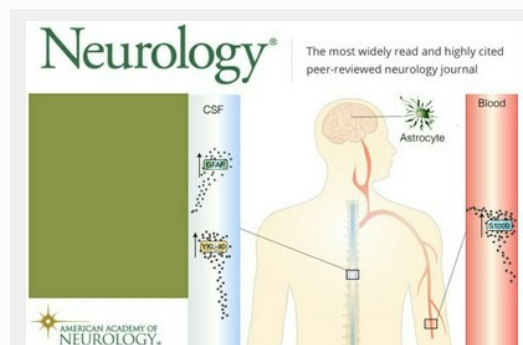
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