EDITORIAL

The translational research in Alzheimer's disease

A pesquisa translacional na doença de Alzheimer

Gilberto Sousa Alves[1]
https://orcid.org/0000-0002-0463-6183

Cognitive rehabilitation therapy (CRT) encompasses a broad set of interventions targeting cognitive symptoms and functionality in patients with acquired brain diseases[1]. Despite its growing relevance, there is still a lack of evidence on the benefits of CRT in distinct subtypes of age-related cognitive disorders. In this issue of JBP, Sá *et al.* review the current evidence on CRT in patients with Alzheimer's disease (AD). The systematic review uses as database MEDLINE, EMBASE and LILACS and the international recommendations of Cochrane and PRISMA, including randomized clinical trials.

Out of 478 articles initially captured, six remained for analysis. According to the authors, error-free learning, spaced recovery, visual verbal mnemonics, training for learning or relearning daily life activities, stress management, and using compensatory strategies such as calendars and diaries were the most frequent employed techniques along CRT. Most of the gathered evidence used individual rather than group cognitive rehabilitation strategies, a finding confirmed by the literature[2]. Studies have suggested the highest effectiveness of individual goal-oriented strategies (bringing functional improvement). Some studies have also suggested that the combination of pharmacological treatment and cognitive rehabilitation seems to be more effective on both cognitive and functional improvement than single modality therapy, rather CRT or pharmacological treatment solely. Studies employing group CRT highlighted other resources such as error-free learning (promotion of correct learning and forgetting incorrect memorization). Another equally relevant and intriguing question is to evaluate how the severity of behavioral (psychiatric) variables, such as caregiver stress, patient aggressiveness and high anxiety level may bias the final outcome of CRT. Not all CRT studies evidenced significant improvement and negative results could be observed, particularly for memory and overall cognition and those were reported by Thivierge, Jean, and Simiard[3], although methodological limitations in study selection and follow up should be acknowledged.

The second study, brought by Câmara investigates, through a systematic review, the neuronal sites in which there is greater expression of receptors associated with AD neuropathology. Nuclear transcription receptors, mostly expressed in the hippocampus and other cortical regions, were studied in relation to amyloid clearance. The immunohistochemistry and RT-PCR techniques were, respectively, the most frequently used methods in these studies. Microglia is evidenced as the main cell type in which receptors and targets of various metabolic pathways are expressed. Furthermore, animal studies have indicated that microglia have an important role in the brain response to amyloid-β (Aβ) and triggering receptors expressed on myeloid cells 2 (TREM2) may have an impact on such a function[4]. Although the therapeutic applicability of this knowledge still requires further studies of pharmacokinetics, pharmacodynamics (phase I), biological activity and effectiveness (phase II), new neuropathological hypotheses can be discussed, broadening the view on the biological endophenotypes of AD.

1 Federal University of Maranhão, Translational Psychiatry Research Group, São Luís, MA, Brazil.

Received in
Sept/14/2019
Approved in
Sept/17/2019

Address for correspondence: Gilberto Sousa Alves
E-mail: galves123@hotmail.com

DOI: 10.1590/0047-2085000000238

Both themes brought by the systematic reviews reflect the concern in the translational approach of neurodegenerative diseases, with the clinical framework as the basis for the establishment of therapeutic targets.

REFERENCES

1. Huntley JD, Gould RL, Liu K, Smith M, Howard RJ. Do cognitive interventions improve general cognition in dementia? A meta-analysis and meta-regression. BMJ Open. 2015;5(4):e005247.
2. Clare L, Linden DEJ, Woods RT, Whitaker R, Evans SJ, Parkinson CH, et al. Goal-Oriented Cognitive Rehabilitation for People With Early-Stage Alzheimer Disease: A Single-Blind Randomized Controlled Trial of Clinical Efficacy. Am J Geriatr Psychiatry. 2010;18(10):928-39.
3. Thivierge S, Jean L, Simard M. A Randomized Cross-over Controlled Study on Cognitive Rehabilitation of Instrumental Activities of Daily Living in Alzheimer Disease. Am J Geriatr Psychiatry. 2014;22(11):1188-99.
4. Colonna M, Wang Y. TREM2 variants: new keys to decipher Alzheimer disease pathogenesis. Nat Rev Neurosci. 2016;17(4):201-7.