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RESEARCH STUDIES

Arterial aging impacts on the risk of late-life depressive and cognitive disorders. Is it time for prevention?

Dear Editor,

Arterial aging is a dynamic and systemic process characterized by structural and functional changes of blood vessels that exceed the physiological adaptations of the arteries over time. The chronic exposure to cardiovascular (CV) risk factors dramatically accelerates age-associated arterial burden. In Western countries, diabetes mellitus and metabolic syndrome (MetS) have mounted to epidemic proportions, particularly in the older population.[1] Cognitive and depressive disorders are among the leading conditions causing disability in older individuals, as either are tightly associated with decreased quality of life, deterioration in daily living activities, social relationships reduction, sleep disorders and poorer medical outcomes.

Mood disorders, especially those with late-onset, and cognitive impairment/dementia, are likely to overlap. Such association is not surprising, as a growing body of evidence has reported that there could be common underlying biological mechanisms.[1] Mood and cognitive disorders in late life were attributed to age-associated neuronal degenerative changes, until this paradigm was challenged by observations that small vessels subcortical injury and CV risk factors are potent independent predictors of late-onset depression[1,2] and cognitive disorders,[3,4] even of sporadic Alzheimer's disease (AD), the most common form of dementia worldwide, classically attributed to a pure idiopathic etiology.

Several pieces of evidence have reported that depression with onset in late life is closely associated with systemic atherosclerotic vascular diseases, even at a preclinical stage, as well as with the presence of classical CV risk factors. The presence of diabetes and even more of MetS, with its nexus of metabolic and CV features, are risky for the brain, especially if accompanied by activated systemic inflammation. Nowadays, C-reactive protein is considered as an independent CV risk factor, and its concentrations are typically raised in patients with MetS.[1,2] Several investigations have reported that patients suffering from mood disorders, especially in late life, are more likely to show higher plasmatic inflammatory activity,[1,2,5] which can directly affect mood by impacting on different pathways, such as those regulating neurotransmission and modulating neuronal plasticity. At the same time, depressive symptoms occur more frequently in patients with MetS,[1,2,5] making it conceivable to assume that inflammation could represent a main broker between CV diseases and depressive disorders, especially in the elderly.

Likewise, evidence for an independent association with CV risk factors has been provided for cognitive impairment and many forms of dementia, even in patients free of vascular brain lesions.[1,2] CV risk factors are potent predictors of AD, as well as of non-dementia cognitive impairment. Also, in this case, MetS has been shown to predict cognitive impairment, although others have suggested that such association might cease to be significant after adjustment for the presence of silent white matter lesions.[3] In marked contrast to this opinion, we have previously described that patients with MetS, free of clinical CV diseases, show poorer cognitive functioning even in the absence of cognitive

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complaints, when compared with controls. Furthermore, we reported that the greater the number of metabolic derangements, the poorer the cognitive performance.[5] Inflammation is a further independent way that neuronal cells are lost, playing a pivotal role in cognitive disorders too. This opinion is corroborated by observations that peripheral inflammation, originating from adipose tissue in the majority of patients suffering from diabetes and MetS, cross-talks with its intracerebral counterpart, amplifying neuronal and glial inflammatory pathways.

All in all, cardiometabolic risk factors are independently associated with depression and cognitive disorders in the elderly. In particular, subcortical small-vessel injury might be the earliest and most important site of damage in many forms of dementia, not least AD, and late-onset depressive disorders. This makes it conceivable to assume that several forms of mood and cognitive disorders might be prevented by intervening in CV risk factors. The current literature still suffers from a lack of knowing whether effective interventions in CV risk factors could reduce the prevalence of such disabling conditions at a population level.

A better understanding of factors underlying and modulating arterial aging, as well as of the mechanisms underlying the cross-talk between arterial and brain aging, would represent a fruitful way to achieve effective treatment targets and preventive strategies for many forms of late-onset depression and cognitive disorders.

Disclosure statement

The authors declare no conflict of interest.

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Sex-related differences in understanding the prognosis of dementia

Dear Editor,

The cases of reported dementia are rapidly growing within the geriatric community. By 2020, non-Caucasian minorities will comprise 40% of the elderly USA population, with Asian–Americans being the fastest growing minority group.[1] However, there is a paucity of dementia research within the Asian–American community. What little research is available reveals many misconceptions Asian–Americans have about dementia – such as, dementia is just a normal part of aging.[2] Furthermore, Asian–Americans frequently underutilize mental health services.[3] These costly setbacks illustrate a critical need to educate and improve on dementia care in the Asian–American community.

The present pilot study compared how Chinese–American males and females comprehend dementia, specifically looking to see if sex plays a role in understanding natural aging, symptom recognition of dementia and dementia prognosis. Three true (T) or false (F) questions were posed to a mixed sex convenience sample of 208 Chinese–Americans. Questions 1, 2 and 3 were as follows: (1) Patients are unable to recognize their families due to aging (F); (2) People suffering dementia become unable to recognize time, place and a person at once (F); and (3) Dementia shortens the life expectancy after onset (T). Categorical variables were compared using χ^2-test, and demographics were characterized through descriptive statistics.

Of the 208 Chinese–American immigrants who completed the questionnaire, 148 (71%) were female and 60

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