Depression and Chronic Neuro-Inflammation – A Two-Way Street with a Possible Biomarker

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Abstract:

Background: Nowadays, depression affects more than 300 000 million persons worldwide and it seems to be the main cause for disability by the World Health Organization report from 2017. The aetiology of depression seems to be heterogenous and remains uncertain.
Aims: In this context, no matter the depression form, the chronic neuro-inflammation and depression are linked by a bidirectional connection and this is important because in order to try to identify o biomarker for depression screening you need to research at the foundation of the disease.
Method: The data analysed are from a prospective study with N=100 patients who presented for laboratory routine evaluations between 1st February-30th June 2016 in the outpatient clinic of the National Institute of Gerontology and Geriatrics "Ana Aslan" (NIGG "Ana Aslan"), Bucharest, Romania. Depressive symptoms were evaluated using the Hospital Anxiety and Depression Scale (HADS). We used the recommended cut-off of ≥ 8 points for the HADS depression subscale. Laboratory data included all inflammation standard markers and serum high-sensitivity C-reactive protein (hs-CRP) determination for all the patients. The study was approved by the I.O.S.U.D. U.M.F. Craiova ethical committee. A written informed consent was obtained from all participants. Statistical Package for Social Sciences version 22 was used to analyse the data.
Results and discussions: In the study, we noticed a 63.4% of female, with a mean age of 71.6 ($\pm$7.51) years, from the urban area 92.7%. Moreover, 98.8% of people presented comorbidities. After controlling for somatic comorbidities, logistic regression model revealed that elevated levels of hs-CRP increased the likelihood of being diagnosed with depressive symptoms in elderly patients (β = .174; SE of β = .059; p = 0.003; 95% CI = 1.061-1.337). We found a relationship between higher levels of hs-CRP and increased risk for depression in older adults. That may be important as hs-CRP represents a vulnerability marker for cardiovascular diseases too. Using this marker may help to identify people at risk for both cardiovascular illnesses and depression.
Conclusions: The relationship between the 3 above variables is a complex one, since depression represents a risk factor for cardiovascular diseases and vice versa and hs-CRP seems to be a marker for both conditions. However, the cross-sectional nature of our study doesn't allow us to clarify this relationship.

Keywords:

Depression, Biomarkers, High-Sensitivity C-Reactive Protein