



Congratulations to Dr. Saima Hilal for winning the Young Investigator Award (Bursary) at 'The International Society of Vascular Behavioral and Cognitive Disorders 2015'

Background:

Vascular pathology plays an important role in the development of cognitive decline and dementia. In this context, growth differentiation factor (GDF)-15

has been suggested to be a novel marker due to its up-regulation in oxidative stress as part of an anti-inflammatory cytokine network. However, limited data exist on its association with either the entire spectrum of cognitive impairment or the burden of cerebrovascular diseases (CeVD). We aim to examine the association of GDF-15 with CeVD in both cognitive impairment no dementia (CIND) and dementia.

Methods:

A case-control study was performed, with cases recruited from memory clinics and controls from memory clinics and the community. All subjects underwent collection of blood samples, detailed neuropsychological assessment and 3T MRI. Subjects were classified as CIND and dementia based on clinical criteria whilst significant CeVD was defined as the presence of cortical infarcts and/or ≥ 2 lacunes and/or confluent white matter lesions in two regions of brain on Age-Related White Matter Changes Scale.

Results:

A total of 347 subjects were included in the analysis of whom 80 were diagnosed as having no cognitive impairment, 144 as CIND and 123 with dementia. Higher-tertiles of GDF-15 were associated with CeVD in both CIND [Odds ratios (OR):12.93; 95%confidence interval (CI): 3.30-50.75] and dementia (OR:19.79; 95%CI: 4.44-87.48) in multivariate adjusted models. Furthermore, in terms of MRI markers of CeVD, higher-tertiles of GDF-15 was only significantly associated with white matter lesions (OR:3.67; 95%CI: 1.79-7.25), in subjects with CIND and dementia.

Conclusions:

In this study, we showed that the plasma concentration of GDF-15 is associated with CIND and dementia in the presence of CeVD. This suggests that GDF-15 might be useful marker to identify patients at risk of CeVD-associated cognitive decline and dementia. Anti-inflammatory interventions may also be a worthwhile therapeutic strategy for cognitive impairment associated with white matter lesions.