The role of acetylocholine inhibitors, thyroid function and atherosclerosis in elderly patients with vascular dementia

Apostolos Hatzitolios, Dimas Grigorios, Kanellos Ilias, Tegos Thomas, Dimitrakoudi Evaggelia, Lefkopoulos Anastasios, Fotiadis Spyridon, Apostolopoulou Martha and Savopoulos Christos
Aristotle University of Thessaloniki, Greece

Background/Aim: Atherosclerosis is commonly implied after the findings of carotid ultrasound and lower limb Doppler studies and has also been associated with dementia. Recent studies have shown that patients with vascular dementia (VD) exhibit a cholinergic deficit and they have a good response to treatment with acetylocholinesterase inhibitors (AchI). There is evidence in thyroid mouse models in in vitro studies that achetylocholine stimulates iodine organification without concomitant T4 release. The aim of this study was to assess thyroid function after AchI treatment in VD patients and to investigate its therapeutic impact in patients with VD and impaired atherosclerotic markers.

Methods: 68 patients who were admitted with diagnosis of stroke and VD were included. As controls there were 50 healthy individuals. The patient group completed a 12 months therapy with AchI (rivastigmine), while the control group received placebo. Cognition was evaluated by the Mini-Mental State Examination (MMSE) and serum thyreotropine (TSH), Free T4(FT4) and FreeT3(FT3) were measured once before the initiation of therapy and at the end of 3rd, 6th and 12th month of treatment. We investigated changes in thyroid parameters before and after the administration of AchI. Atherosclerotic markers included imaging by duplex of carotid and femoral arteries, has been done before the beginning of AchI treatment and at the completion of the study after 12 months, in order to detect the presence of atherosclerotic plaque and to assess the intima-media thickness (IMT), as a calculated marker of subclinical atherosclerosis and subsequently a potential VD. Each artery was assigned a score (presence of plaque=1, absence of plaque=0, IMT>0.8mm=1, IMT<0.8mm=0) and the total score of the 4 vessels (2 carotid and 2 common femoral) was calculated per each patient (atherosclerotic ultrasonic score - ATHUS). Subsequently, the MMSE of every patient was re-evaluated. Brain CT scans were performed to exclude other reasons for the intellectual decline of patients.

Results: 12 months after treatment MMSE score was unchanged in 45/50 control individuals and improved in 60/68 patients (p<0.001). It seems that AchI benefit patients with VD at least 12 months but not controls. Patients group (ATHUS=3-6, 55 patients) was associated with median MMSE of 27. The corresponding value of the control group (ATHUS=0-2, 40 persons) was 30 (p<0.05)

Conclusion: Obtained results suggest that AchI treatment has the potential to offer clinical benefit after 12 months of treatment to VD patients who also have evidence of atherosclerotic vascular disease.

Biography
Apostolos Hatzitolios is Professor of Internal Medicine and Head of First Propedeutic Department of Internal Medicine, AHEPA Hospital, Medical School, Aristotle University of Thessaloniki. He is President of Internal Medicine Society of Northern Greece and he has 131 publications in PubMed.

axatzito@med.auth.gr