Angiotensin Receptor Blockers: Do They Protect Against Dementia and Alzheimer’s Disease in the Elderly?

A large observational study with a relatively long period of follow-up was designed to evaluate whether angiotensin receptor blockers are associated with protection against Alzheimer's disease or dementia. In the almost entirely male study population (mean age: 74 years) with cardiovascular disease, the use of angiotensin receptor blockers was associated with a reduced incidence of Alzheimer's disease and dementia. For patients with these conditions, the use of angiotensin receptor blockers reduced both mortality and the rate of admission to a nursing home. While these results are of great interest, they should be interpreted with great caution, since the findings refer to a rather specific study population and, thus, lack generalizability. Further research involving more heterogeneous samples is necessary.

In a recent issue of the *British Medical Journal*, Li and colleagues report the results of a study designed to evaluate whether angiotensin receptor blockers exert a protective effect on the incidence and progression of Alzheimer's disease (AD) and dementia. The rationale for the study is based on the importance of the renin–angiotensin system in controlling hypertension and decreasing cardiovascular morbidity. Renin is produced in the kidneys and acts to cleave the peptide bond between leucine and valine on angiotensinogen, forming the peptide angiotensin I, which apparently has no biological activity. This is then converted by the angiotensin-converting enzyme (ACE), found predominantly in the lung, to angiotensin II, which binds to receptors and results in vasoconstriction, the synthesis and secretion of aldosterone, and endothelial proliferation, as well as leading to the development of atherosclerosis. ACE inhibitors are effective in lowering blood pressure by their effect on preventing the formation of angiotensin II. The angiotensin II receptor type 1 (AT1) is the receptor that has been most studied.

Angiotensin receptor blockers act on AT1 to lower blood pressure. They have been found to exert cardioprotective effects and are superior in protecting against diabetes mellitus and stroke. It has been suggested that the inhibition of the renin–angiotensin system may represent a new treatment option for AD. In addition, the finding of vascular changes in the brains of patients with AD has been well described. Thus, the investigation of the possibly protective effect of angiotensin receptor blockers on the development of dementia is both interesting and relevant.