AT1 Receptor Blockers for Cognition Decline After Cardiac Surgery?

To the Editor:

We read with interest the review article on stroke and encephalopathy after cardiac surgery1 and the related editorial.2 We agree that assessing these complications provides a unique clinical opportunity for evaluating preventive strategies because patients at higher risk can be identified before surgery. We would like to add to the list of potential cerebroprotective agents proposed (gangliosides, glutamate receptor antagonists, antioxidants) the angiotensin AT1 receptor blockers (AT1RB).

Both angiotensin receptor blockers and angiotensin-converting enzyme inhibitors are widely used in cardiac patients before surgery and are usually resumed after transient discontinuation. Although their cardiac protective effects have been proven globally comparable (VALIANT3) their cerebroprotective effect (regarding both stroke and cognitive dysfunction) may be quite different. Indeed, the relative risk of stroke with angiotensin-converting enzyme inhibitors therapy compared with dihydropyridine calcium antagonists has been estimated at 1.12 (93% CI, 1.01 to 1.25).4 In contrast, at comparable blood pressure reduction, stroke recurrence with the AT1RB eprosartan was significantly lower (0.75 [95%, 0.58; 0.97; P = 0.03]) when compared with nitrindipine in the MOSES trial.5,6 This superiority of the AT1RB over the dihydropyridine calcium antagonists in stroke prevention may be explained by the fact that AT1RBs, by blocking the angiotensin II–mediated suppression of renin secretion and therefore of angiotensin II formation than are calcium-antagonists. This has been confirmed in a crossover study in hypertensive patients.7 Long-acting dihydropyridines and short-acting nondihydropyridines may stimulate renin secretion only by activating the sympathetic nervous system with variable intensity.8,9 Furthermore, valsartan and losartan have been shown to improve cognitive function when compared with enalapril10 and β-blockers.11 This may be explained by AT1RB-induced stimulation of angiotensin IV12 because in rats intoxicated by scopolamine and having lost their capacity to quickly find an immerged platform after training (Morris Water Maze), the injection of angiotensin IV into their brain restored their spatial cognitive capacities.13

The above data would indicate that AT1RBs as a class have greater stroke and cognition protective affects than the ACE inhibitors. Clearly these provocative findings should be tested in a prospective randomized trial comparing the 2 drug classes head to head.

Disclosures

None.

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