

## STROKE PREVENTION

Vida Demarin

Department of Neurology, University Hospital Sestre milosrdnice, Zagreb, Croatia

Prevention is still the best approach to stroke. The goal of prevention is to reduce stroke risk by reducing its risk factors. The most common risk factors include hypertension, elevated serum lipids, myocardial infarction, atrial fibrillation and carotid stenosis, diabetes, smoking and alcohol consumption, inappropriate diet and inadequate physical activity. However, recently more and more attention turns to new risk factors for stroke such as lipid fractions, subclinical carotid artery disease, thickening of the intima and media of the carotid arteries, increased body mass index, increased waist to hips ratio, infection and inflammation, hyperhomocysteinemia and genetic factors, because the conventional risk factors can not explain the occurrence of almost a third of all strokes. The most significant classic risk factors remain elevated blood pressure and hyperlipoproteinemia, especially hypercholesterolemia. Both disorders are widespread in the population, and today we have effective medication for both disorders so they can be adequately treated, and thus stroke risk could be reduced.

It has long been known that treatment of hypertension and hypercholesterolemia has a very important role both in primary and in secondary prevention of stroke. In recent years the results of large randomized clinical trials have been published and have reliably shown that lowering blood pressure and elevated cholesterol level is associated with a significant reduction in stroke risk. In addition, it seems that the newer generations of antihypertensives (eg. ACE inhibitors, calcium channel blockers, angiotensin receptor bloc-

kers) may have beneficial effect on reducing stroke risk, in addition to reducing the blood pressure. ACE inhibitors and angiotensin receptor blockers can improve endothelial function and slow the progression of atherosclerosis. Calcium channel antagonists, that are highly lipophilic, have some antioxidant properties. Results in animal models have shown that statins reduce oxidation of LDL particles and their entry into the cells of the arterial wall. Amlodipine, lacidipine and nifedipine suppress platelet production in patients suffering from hypertension and have potential anti-atherosclerotic properties.

There is also evidence that statins might have additional beneficial effects in preventing stroke, with their beneficial effect on lowering cholesterol levels. It appears that statins, by reducing cholesterol, promote vasodilatation, stabilize plaque, affect the inflammatory response in endothelial cells, reduce blood clots production and reduce the adhesion of platelets to the ruptured plaque. Other anti-atherosclerotic properties of statins include reducing accumulation of inflammatory cells in plaques, inhibiting the proliferation of smooth muscle cell wall, inhibiting platelet function, and improving vascular endothelial function. Based on the above, we can assume that a wider use of newer antihypertensives and statins may significantly improve the prevention of cerebrovascular disease and especially stroke.