

Usefulness of statin administration before coronary artery bypass grafting

Kazuo Nakamura

Nihon Pharmaceutical University, Japan

Abstract

We have previously reported that atorvastatin and aspirin combined therapy improves accelerated platelet function, vascular endothelial cell function, blood coagulation system, inflammatory and immune responses after coronary artery bypass grafting (CABG). In this study, we compared the effects of atorvastatin plus aspirin combined therapy on inflammatory responses, endothelial cell function, and blood coagulation system in patients undergoing coronary artery bypass grafting (CABG) to aspirin monotherapy. The patients were randomized into two groups in a double-blind trial. One group (n=15) received atorvastatin (10 mg) plus aspirin (100 mg) (combined therapy group) and the other group (n=16) received aspirin (100 mg) alone (monotherapy group). Reduced total cholesterol in the combined therapy group was found in a short term of medication for 14 days. On postoperative day (POD)-14, inhibitory effects of the combined therapy on platelet-rich plasma (PRP) and whole blood (WB) aggregation as well as platelet activation assessed by flow cytometry were stronger than those of the monotherapy. Furthermore, cytokine, cytokine receptors, c-reactive protein and α 1-acid glycoprotein in the combined therapy group were down-regulated on POD-14. At the same time, circulating levels of thromboxane A₂, vascular endothelial growth factor and thrombin-antithrombin III complex as well as P-selectin, L-selectin and intercellular adhesion molecule-1 were down-regulated, while E-selectin and transforming growth factor- β 1 was up-regulated. Atorvastatin plus aspirin combined therapy may improve inflammatory responses, accelerated platelet function, vascular endothelial cell function, blood coagulation system at the early stage such as 14th day after CABG. In conclusion, atorvastatin and aspirin combined therapy may bring beneficial effects to the patient after CABG.

Biography

Kazuo Nakamura has completed his Ph.D at the age of 37 years from Kagoshima University and postdoctoral studies from Department of Clinical Pharmacy and Pharmacology, Graduate School of Medical and Dental Sciences, Kagoshima University. He is the professor of Nihon Pharmaceutical University. He has published more than 25 papers in reputed journals and serving as a councilor of The Japanese Pharmacological Society.

kazunaka@nichiyaku.ac.jp