

Vascular Reactivity during Cardiopulmonary Bypass in Patients at Punjab Institute of Cardiology & Shalamar Hospital Lahore, Pakistan

Muhammad Usman Rafique^{1*}, Qandeel Rubnawaz¹, Ammar Hameed Khan², Muhammad Shoaib Akhtar³

1. Gulab Devi Chest Hospital, Lahore-54600, Pakistan
2. Shalamar Hospital Lahore-54840, Pakistan
3. University of Health Sciences Lahore-54600, Pakistan

*Corresponding author: usmantoor35@gmail.com

Abstract

Background: The operative treatment of cardiac diseases remains associated with systemic inflammation and a suboptimal outcome in many patients. These inflammatory changes are manifested by systemic hypotension, myocardial failure, increased vascular permeability and consequent dysfunction of organs such as the lungs, gut and brain. In general terms, sympathetic innervations of the small arteries and arterioles allows vasoconstriction, thereby increasing resistance to blood flow, whereas innervations of the large arteries and veins decreases the volume in these vessels, resulting in the redistribution of blood volume. This study was conducted to determine the effect of vasodilator drugs on duration of vasodilatation in patients undergoing coronary artery bypass grafting (CABG) with Cardiopulmonary bypass (CPB).

Methods: We evaluated prospectively the effect of vasodilator medications before CABG surgery on hemodynamic variables and use of vasoactive drugs. We studied 30 patients with good left ventricular function allocated randomly to continue vasodilator drugs before cardiac surgery. Arterial pressure, Cardiac output, systemic vascular resistance and use of vasoactive drugs were recorded during anaesthesia, perioperative and in the early postoperative period.

Results: Patients who using vasodilator drugs before cardiac surgery had not significant relationship between vasodilator drugs and vessels reactivity (vasoconstriction & vasodilatation). However, these patients required more vasodilator drugs to control hypertension after CPB and in the early postoperative period.

Conclusion: There was no difference in hypotension at the onset of CPB or in the use of vasodilator drugs before cardiac surgery. We conclude that vasodilator drugs before cardiac surgery did not have sufficient effect to be recommended routinely.

Keywords: Cardiopulmonary Bypass, Vasodilator drugs, Coronary artery bypass grafting (CABG), Hypotension