PROSPECTIVE RANDOMIZED COMPARISON OF CORONARY BYPASS GRAFTING WITH MINIMAL EXTRACORPOREAL CIRCULATION SYSTEM (MECC) VERSUS OFF-PUMP CORONARY SURGERY, by Mazzei et al

Two approaches have been developed as attempts to retain the positive features of cardiopulmonary bypass, especially in the area of completeness and durability of coronary revascularization, while avoiding some of its negative features. The latter can include systemic inflammatory response as well as untoward neurological events resulting from the manipulation of the aorta required by the procedure. Off-pump coronary bypass grafting (OPCABG), in experienced hands, has demonstrated benefits in certain patient groups in terms of hospital length of stay, short-to-intermediate term survival, and neurologic complications. Mini-bypass circuits, minimal extracorporeal circulation (MECC), have been developed in an attempt to retain the beneficial features of cardiopulmonary bypass while limiting the undesirable features of OPCABG, namely, systemic inflammatory response, coagulopathy, and hemodilution. In this issue of Circulation, Mazzei and colleagues report a prospective randomized study comparing OPCABG and MECC in a series of nearly 400 patients. The study demonstrates comparable operative mortality and morbidity and similar release of inflammatory markers, length of hospital stay, and use of blood products. Residual perfusion defects and occluded/stenotic bypass grafts at 1 year are similar between groups, and coronary revascularization was performed with equal efficacy by experienced surgeons employing either MECC or OPCABG. Thus, these results suggest that MECC may achieve the benefits of OPCABG while facilitating more complete revascularization. See p 1761.

TWENTY-FIVE–YEAR EXPERIENCE WITH THE MEDTRONIC-HALL VALVE PROSTHESIS IN THE AORTIC POSITION, by Svennevig et al

This study is a retrospective analysis of 816 patients who underwent aortic valve replacement with the Medtronic-Hall valve prosthesis between 1977 and 1987 at Rikshospitalet in Oslo, Norway. Svennevig and colleagues followed up with each of the patients using written questionnaires or telephone surveys. In addition, the data were checked against hospital databases and medical records, and dates of death were verified by the Norwegian civil registry. The rate of survival at 25 years was 24.9%. No mechanical failures occurred, and the rate of complications was relatively low. Age, female gender, and the need for concomitant coronary bypass surgery significantly reduced survival. Overall, the results of the study suggest that the Medtronic-Hall valve is durable and reliable. See p 1795.

NITRITE INFUSION IN HUMANS AND NONHUMANS PRIMATES: ENDOCRINE EFFECTS, PHARMACOKINETICS, AND TOLERANCE FORMATION, by Dejam et al

Nitroglycerin, as a source of bioavailable nitric oxide, has been utilized widely as a therapeutic agent to provide relief for symptoms associated with atherosclerotic coronary artery disease. Despite its vasodilator effects, the long-term clinical efficacy of nitroglycerin is limited by the development of tolerance, leading investigators to evaluate other organic nitric oxide generating compounds for therapeutic use. Nitrite, initially believed to be an inert oxidation end-product of nitric oxide metabolism, has recently been shown to function as a potent vasodilator as well as limit ischemia-reperfusion injury at physiological concentrations. Importantly, nitrite is not subject to conventional enzymatic tolerance and, therefore, may overcome many of the limitations associated with nitroglycerin use. Despite this promising profile, data pertaining to the kinetics, potency, and mechanisms of bioactivation of nitrite remain unknown. In this issue of Circulation, Dejam et al provide data that address each of these questions and lay the foundation for the development of nitrite as a clinical therapy for symptomatic coronary artery disease. See p 1821.
Issue Highlights

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