Observation of perioperative indexes in minimally invasive aortic valve replacement with parasternal incision

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Objective: To explore and analyze the changes of perioperative indexes in minimally invasive aortic valve replacement with parasternal incision.

Methods:102 patients with aortic valve replacement who were treated in our hospital from May 2020 to April 2022 were selected and randomly divided into an observation group and a control group, with 51 cases in each group. The patients in the observation group were treated with parasternal incision minimally invasive arterial valve replacement, and the patients in the control group were treated with conventional median sternotomy. The preoperative basic data, intraoperative surgical indicators, and postoperative surgical results were compared between the two groups.

Result: There were no significant differences in baseline data such as preoperative gender, age, BMI, preoperative diagnosis of aortic valve disease type, comorbidities, aortic valve annular diameter, NYHA cardiac function, and preoperative two-dimensional echocardiographic indicators between the two groups ($P>0.05$). There was no significant difference in cross clamp time, cardiopulmonary bypass time, operation time, blood transfusion volume of apheresis platelet transfusion and cryoprecipitate blood products between the two groups ($P>0.05$); The transfusion volume of red blood cells and fresh frozen plasma blood products was lower than that of the control group ($P<0.05$). There was no statistical difference in postoperative conditions such as left atrial diameter, left ventricular ejection fraction, left ventricular diastolic diameter, left ventricular systolic diameter, interventricular septum thickness, left ventricular posterior wall thickness, deep incision infection, and perioperative death between the two groups. However, the cardiopulmonary bypass time and aortic cross clamp time in the observation group were longer than those in the control group, the postoperative ventilator time, postoperative total drainage volume, postoperative hospitalization time, postoperative ICU time, drainage tube extraction The tube time and blood transfusion rate were lower than those in the control group ($P<0.05$).

Conclusion: During minimally invasive aortic valve replacement surgery with a parasternal incision, there is less bleeding and blood transfusion. Although prolonged circulation time and aortic cross clamp time require higher requirements from the surgeon, better postoperative recovery can help reduce hospitalization time and economic burden.

Keywords: Parasternal incision minimally invasive surgery; aortic valve replacement; conventional median thoracotomy; perioperative indicators