Short-and Mid-Term Outcomes of Da Vinci Robot-Assisted Minimally Invasive Coronary Artery Bypass Grafting in 117 Cases

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Objective: To investigate the short-and mid-term clinical efficacy and safety of Da Vinci robot-assisted minimally invasive coronary artery bypass grafting (CABG).

Methods: A retrospective analysis was conducted on the clinical data of 117 patients who underwent Da Vinci robot-assisted minimally invasive CABG in our hospital by one surgeon from February 14,2023 to May 15,2025. The operative related indicators (harvesting LIMA time,skin incision,operation time, intraoperative blood loss, number of grafts, etc.), postoperative recovery indicators (postoperative hospital stay, time to get off bed, etc.), follow-up outcomes (major adverse cardiovascular and cerebrovascular events (MACCE), etc.) and complication rates were statistically analyzed.

Results: Among the 117 patients, mean harvesting LIMA time was (45±13)min,range:28-120min,mean skin incion length was (5.3±2.5) cm,the mean operation time was (223±36) min, the mean intraoperative blood loss was (201±23) mL, and the mean number of grafts was (3.1±1.0) per patient. The mean postoperative hospital stay was (6.8±3.2) d, and the mean time to time to get off bed was (1.6±0.9) h. All patients were followed up for (22±5) months, with a follow-up rate of 96.6%. During the follow-up period, 2 cases (1.71%) had MACCE, including 1 cases of myocardial infarction, and 1 cases of death. The overall complication rate was 19.6%, mainly including postoperative atrial fibrillation (15 cases, 12.8%), wound infection (5 cases, 4.27%), and pulmonary infection (3 cases, 2.56%).

Conclusion: Da Vinci robot-assisted minimally invasive CABG has the advantages of less intraoperative blood loss, fast postoperative recovery, and relatively low incidence of short-and mid-term MACCE and complications, which is a safe and effective surgical method for the treatment of coronary heart disease.

Key words: Da Vinci robot; Minimally invasive coronary artery bypass grafting; Short-and mid-term outcomes; Clinical efficacy; Safety