Секция «Issues of clinical surgery»

Strategies to Minimize Wound Complications After Coronary Artery Bypass Grafting

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Objective. To evaluate the effectiveness of surgical strategies for the prevention of wound complications (sternal infections and complications at the venous graft harvest site) after coronary artery bypass grafting (CABG).

Materials and Methods. A comprehensive literature review was performed using the PubMed, MEDLINE, and Cochrane Library databases for the period from 2000 to 2025. Search terms included «coronary artery bypass grafting», «postoperative complications», «secondary prevention», and «surgical wound infection». Included studies comprised randomized controlled trials, cohort studies, systematic reviews, and meta-analyses reporting on interventions to reduce complications after CABG.

Results. The implementation of a set of measures including the use of a single internal thoracic artery, meticulous sternal closure ($\geq$7 wire sutures with ZipFix), and no-touch saphenous vein harvesting using LigaSure achieved sternal wound infection rates of 1.8% and leg wound complication rates of 1.3% [1]. Minimally invasive coronary artery bypass grafting via left-sided minithoracotomy demonstrated a threefold reduction in wound complications compared to sternotomy. Moreover, 5-year survival (99% vs 95%) and freedom from adverse cardiac events (84.7% vs 81.6%) were comparable, while rehabilitation time was significantly shorter [2].

To assess five-year survival rates, a retrospective analysis was performed on data from 295 patients who underwent coronary artery bypass grafting (CABG) at the Mordovian Republican Central Clinical Hospital between 2017 and 2021. The predominant surgical complications were as follows: hydrothorax requiring pleural puncture (n=21), early postoperative bleeding necessitating resternotomy (n=10), superficial surgical site infection requiring wound edge dehiscence with delayed secondary suture placement (n=2), and deep sternal wound infection complicated by sternal dehiscence, which required revision sternal osteosynthesis (n=4).

Conclusion. In high-risk patients, optimal prevention of wound complications after CABG is achieved by using a single internal thoracic artery, meticulous sternal closure, no-touch vein harvesting technique, and, when possible, a minimally invasive approach — without compromising long-term outcomes.

Источники и литература

1) Kim MS, Hwang SW, Kim KB. Strategies to Minimize Sternal and Leg Wound Complications after Coronary Artery Bypass Grafting Using No-Touch Saphenous Vein Grafts. Ann Thorac Cardiovasc Surg. 2024;30(1):23-00154. doi: 10.5761/atcs.oa.23-00154
2) Kiladze IZ, Zhbanov IV, Uryuzhnikov VV, et al. Otdalennye rezul'taty miniinvazivnogo mnozhestvennogo koronarnogo shuntirovaniya (MICS CABG) [Long-term outcomes of minimally invasive coronary artery bypass grafting]. Khirurgiia (Mosk). 2024;(12. Vyp. 2):42-49. (Russian). doi: 10.17116/hirurgia202412242