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Predictors of neoaortic insufficiency after Ross procedure

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Objective: To examine predictors of neoaortic insufficiency (neoAI) after Ross operations.

Matherial and Methods: Ross procedure was performed in 215 consecutive patients from 1996 to 2016 . The mean age at the time of operation was 145±101 months (from 1 to 648 months). 159 patients were male - 159 (74%) and 56 (26%) - female –. Patients age was less than 5 years in 48 (22,3%), 6 - 10 years in 39 (18,2%) - , 11 - 17 years in 66 (30,7%) - and more than 18 years in 62(28,8%). Aortic stenosis was found in 113 (52,5%) patients, aortic insufficiency in 73 (33%) and complex lesion in 29(14,5%) patients. Overall mortality was 9%, 14 (6,5%) patients died in early postoperative period, 5 (2,3%) – during follow-up. Follow-up was 96% complete i.e. in 188 patiens. Regression and correlation analysis were used to assess the results.

Results: 11 (5,8%) patients required neoAV reoperation (in 4 cases – repair of AV and in 7 cases - AVR). Indications for reoperation were severe neoAV insufficiency and AscAo dilatation, n=10 (5,1%), reSubAo stenosis n=1 (0,5%). The mean period before neoAV reoperation was 154,3±35 mon   (from 27 to 212 mon) . Freedom from neoAV reoperation was 98,9%, 95,4%, 93,7% after 10, 15 and 20 years respectively.
Independent predictors of neoAI more than mild were older age of patients at the time of surgery (r = 0,277, p = 0,003), acquired AV lesion (rheumatism (r = 0,252, p = 0.001) and infective endocarditis (r = 0,314, p = 0,006), LV dilatation before surgery (r = 0,477, p = 0.001). Surgical technique modification - neoaortic root reinforcement (r = -0,287, p = 0.002), congenital nature of aortic valve lesion (r =-0,405, p =0.001), bicuspid aortic valve (r = -0,351, p= 0,001) had a positive effect on the long-term outcome.

Conclusions: RP has low risk of autograft reoperation (5,8%). Independent predictors of neoAI after RP were: older age of patients at the time of surgery, cause of AV lesion (rheumatism, infective endocarditis), LV dilatation before surgery.