SURGICAL OUTCOMES OF THE REPAIR OF COARCTATION OF AORTA ACCORDING TO DIFFERENT SURGICAL METHODS

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Introduction: Surgical correction of the coarctation of aorta is a vital procedure for treating aortic narrowing, a condition that can lead to restricted blood flow and various complications. Over the years, various surgical techniques have emerged, including end-to-end anastomosis, subclavian flap aortoplasty, patch aortoplasty, and extended end-to-end anastomosis, among others. These techniques have proven to be more effective and less invasive, minimizing the morbidity associated with traditional surgical methods.

Aim: This abstract aims to explore the different types of surgical correction techniques available to manage coarctation of aorta, their indications, and outcomes, helping guide clinicians in selecting optimal treatment strategies for their patients.

Materials and methods: A retrospective cohort study about 120 patients, who underwent four different types of surgical repair of coarctation of aorta between 2012-2022 was conducted. All statistical analysis was performed using SPSS and Jamovi applications.

Results: 120 patients (85 males, 70.8%), with median age of 39 months (IQR=133), who diagnosed with isolated CoA, underwent 4 different types of surgical repair through left thoracotomy: resection with end-to-end anastomosis (group 1, in 27 patients, 22.5%), aortoplasty using patch (group 2, in 52 patients, 43.3%), resection with extended end-to-end anastomosis (group 3, in 35 patients, 29.2%) and Prosthetic Interposition Graft (group 4, in 6 patients, 5%). Intraoperative mortality was 0.8% (1 patient). Statistical analysis showed that, the results of the surgeries were successful and means of pressure gradient on the site of the coarctation was significantly decreased (from 52.9 mmHg to 15.2 mmHg, p=<.001) after operation in all methods. However, ANOVA test showed that, post-operative pressure gradients were significantly different in 4 groups (p=<.001), thus, pressure gradients were the highest in group 1 (29.64 mmHg) and lowest in group 3 (9.31 mmHg). After operation ICU stay (mean 1.79 days ±0.02) and hospital stay (mean 8.12 days ±2.0) did not show a correlation with operation types (r=-0.123, p=0.203), but they positively correlated with LV dilation (p=.012 and .009), LV hypokinesis (p<.001 for both) and negatively correlated with aortic arch size (r=-0.343, p=.002), which means patients with aortic arch hypoplasia and left ventricular dysfunction tend to stay in ICU and hospital more than other patients.

Conclusion: Nowadays, different surgical techniques to repair coarctation of aorta are used in clinics. All methods have shown significant success, however extended end-to-end anastomosis had preferences, such lower after operative gradient on a coarctation site. Developed left ventricular dysfunction and aortic arch hypoplasia affects surgical outcomes. Therefore, it is suggested to perform surgery as soon as possible.

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