

Short-term results of surgical treatment of Coarctation of the aorta with small left ventricle

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Goal: to perform 10-years experience of treatment infants with coarctation of the Aorta

Materials and methods: retrospective analysis of 880 patients of the 1st year of life with Aorta

Coarctation, who had no significant septal defects, treated in Bakoulev center. Among all operated infants 7,5% were newborns (n=66) with left ventricle end diastolic volume index (LV EDVi) less than 30 ml/m², where Z-score of at least one of LV structures were lower than -1.65. Age at the hospitalization time ranged from 4 hours to 28 days of life (av. 8±7,5 days), weight 1,65-4,86 kg (av. 3,23±0,71), length 40-62 cm (av. 51±4,2), Z-score LV end diastolic size (Z LV EDS) from -6,63 to -0,51 (av. -2,45±1,22); Z-score mitral valve (Z MV) from -3,91 to -0,15 (av. -1,71±0,91); Z-score aortic valve (Z AV) from -5,09 to -0,91 (av. -0,77±1,12). 28 newborns (42,4%) had entered hospital in critical condition. We operated 3 premature newborns from 26 to 32 weeks of gestation. Only 5 newborns (7.8%) had Coarctation with Aortic stenosis, before resection of the Coarctation we performed aortic valvuloplastics.

Results: 34 newborns (51.5%) had complicated postoperative period, among which we observed mainly heart failure (n=28, 42.4%), respiratory failure (n=16, 24.2%) and necrotic enterocolitis (n=8, 12.1%). Progressive heart failure caused death of 3 pts., in other 7 cases it was generalization of the infection. Total mortality rate was 15.2% (n=10). There were no reliable influence of age, z-score AV, AV stenosis and ASD size on surgical results. Newborns with LV EDVi \leq 22,5 ml/m² (33,3%), weight less 2.8 kg (37,5%) and who had critical condition before operation (29.6%) had higher mortality. Conclusion: z MV \leq -1,7 (p=0,009) is a predictor of postoperative heart failure. LV EDVi \leq 22,5 ml/m² (33,3%), weight less 2.8 kg (37,5%) and critical condition before operation reliably increases the mortality rate (p=0,015).