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Incidence of late arterial hypertension after aortic coarctation repair: differences between surgical correction and stent implantation.

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Objectives: We sought to evaluate long-term outcomes in terms of blood pressure (BP) and echocardiographic parameters in children and adults with aortic coarctation corrected by surgical repair or stent implantation.

Methods: We identify 64 patients with isolated coarctation of the aorta with mean follow-up of 13,93 years after successful aortic repair. Patients were divided into two groups based on the type of aortic correction: 38 with surgical repair (end-to-end anastomosis, patch angioplasty or subclavian flap) and 26 with stent implantation (either with native aortic coarctation or recurrent coarctation after previous surgical correction). All subjects underwent 24-hour ambulatory blood pressure monitoring (ABPM) and trans-thoracic echocardiography to assess left ventricular mass.

Results: Antihypertensive treatment was recorded in 18/26 (69.2%) patients with aortic stenting compared to 21/38 (55.3%) ($p=n.s.$) of those with surgical repair of the aorta. ABPM revealed arterial hypertension with higher prevalence in the stented group (19.2% vs 13.2%; $p=n.s.$), with 11.5% of subjects having elevated values in the day-time compared to 5% of those in the surgical Group ($p=n.s.$). Pulse pressure (PP) mean and median values were higher in patients with aortic stenting, and PP values exceeding 50 mmHg have been recorded in 21/26 (80.8%) compared to 22/38 (57.9%) ($p=0.03$) in the surgical group. Finally, in patients with stenting of the aorta, echocardiogram showed a higher proportion of patients (46.2%) with significant late residual gradient across aortic site repair (defined as >20 mmHg), compared to 28.9% in the surgical Group ($p=0.07$). Also, left ventricular mass index (LVMI) demonstrated a higher prevalence of left ventricular hypertrophy in patients corrected with aortic stenting (30.1% vs 13.2%) ($p=0.059$).

Conclusions: Although comparable successful outcomes in the early time-period, patients after stenting for aortic coarctation seem to have worse long-term outcomes compared to patients with surgical correction. Stenting management showed a higher prevalence of resting arterial hypertension, higher need of antihypertensive therapy and higher incidence of elevated left ventricular mass index.