

Surgical treatment of aortic coarctation in adults: Still an open question?

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Coarctation of the aorta (CoA) accounts for about 4% of all congenital cardiovascular defects [1]. In most cases it is asymptomatic and patients can live with this defect even till the 4th or 5th decade of life, unaware of its presence. Arterial hypertension and late complications, which appear in the natural course of this defect are important problems related to the diagnostics and the surgical treatment of CoA.

The advances in pediatric cardiology and cardiac surgery and the development of diagnostic techniques (magnetic resonance, computed tomography, spiral computed tomography and others) have contributed to current practice of referring the majority of children with diagnosed CoA what results in implementing adequate therapy still in the childhood. Arterial hypertension, which is usually the first symptom of this defect, is a very important problem and in many cases, despite of surgical correction made in the early stage of the disease, it is very difficult to obtain optimal stabilization of blood pressure. Despite of many presented hypotheses the pathophysiology of this phenomenon is still unknown. The hypothesis of vascular dysfunction: over-reactivity of vessels and dysfunction of elastic membrane seems to be the most convincing [2].

Although we still do not know what is the cause of arterial hypertension in the patients with CoA, the reports regarding surgical treatment indicate that such therapy should be performed at young age [3–6]. However, data on effects of surgical treatment performed in older age are limited. In this issue of the journal, Kuroczyński et al. [7] described a series of 20 patients operated for CoA at the mean age of 43 years. The surgical procedure resulted in a significant improvement in controlling hyperten-

sion expressed by a decrease of the number of administered hypotensive drugs, and in 9 patients (45%) no hypotensive therapy was used after the surgery. These promising results raise the question if the age of the patient is really so crucial, when selecting patients for surgical procedure to achieve the stabilization of the blood pressure.

One needs to realize that the surgery of CoA in adults is associated with a higher risk of complications. The widened, twisting, and calcified walls of the vessels and the changes of anatomy and topography may cause the difficulties for the cardiac surgeon. The reports in the literature indicate that during a post-operative course early mortality after the procedure remains in the range of 1–5% and total mortality in the range of 3–7% [4, 8]. However, a long-term course is rarely evaluated. For comprehensive evaluation of the surgery it is necessary to take into account the long-term course of the disease, and especially the late complications including sudden deaths, dissection of the aorta, large postoperative aneurysms, or strokes [4, 6, 9]. In the report Kuroczyński et al. [7], a long term clinical course, based on a mean 7-year follow-up of 20 patients, was very satisfactory with only 1 heart failure death that occurred 12 years after the procedure.

A variety of methods of surgical treatment of CoA were developed including: the connection “end to end” presented by Crafoord in 1944, the Voss-schulte’s plastics or bypasses connecting ascending aorta or left subclavian artery with descending aorta in many modifications. The surgical treatment of this defect, and especially its complications, are associated with extensive intraoperative difficulties for the cardiac surgeons. The risk of re-CoA reported in the literature is about 3–35% [6, 10, 11], depending on the age of patients. Aneurysms of the

aorta, acute dissections, described especially after the corrections of CoA with the dacron patch (4–38%) [8] are important dilemmas for the cardiac surgeons regarding the choice of the method for the given patient in order to receive the optimal result. In the same issue of the journal, Yuan and Raanani [12] describe 12 cases of late complication of coarctation of the aorta illustrating the complexity of this disease entity and potential consequences of surgical treatment. Unfortunately, the authors do not provide denominator regarding the overall number of patients managed for CoA to determine the frequency of these late complications. The question raised by these authors also relates to the decision whether some cases of CoA could be left unrepaired.

The development of intravascular methods of aorta widening, including implementation of stent-grafts are currently essential facility for the surgeon, especially taking into account the risk of re-CoA [9–11, 13, 14]. Having in mind the late results of surgical treatment of CoA we should always take into account other congenital defects, which often coexist with CoA (mitral, aortic or pulmonary regurgitation, or the atrial or ventricular septal defects) and in the late course might be a reason of re-operation.

Bicuspid aortic valve which occurs in about 60–78% of patients with CoA [7, 11, 14–18] is an important therapeutic problem, related to, among others, the prophylaxis of infective endocarditis during the long term observation, especially after surgery with the use of artificial body (vascular prosthesis or patch). This problem is especially important now in the times of very common antibiotic therapy. The progressive aortic regurgitation, often associated with widening of the ascending aorta and infective endocarditis in patients after the surgery of CoA, are very dangerous and pose important problems both for the cardiologist and cardiac surgeon.

Coarctation of the aorta, its surgical treatment and late complications associated with this defect are important problems requiring complex co-operation of specialists from different fields of medicine, what might be crucial in the choice of the optimal method of treatment for each patient with CoA.

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