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Does posterolateral thoracotomy with cardiopulmonary bypass play a role in the surgical management of aortic coarctation?

*Sandrio S. (1), Eichhorn J. (2), Gorenflo M. (2), Karck M. (1), Loukanov T. (1)
Department of Cardiac Surgery, University of Heidelberg, Germany (1)
Department of Paediatrics Cardiology, University of Heidelberg, Germany (2)*

Objectives:

The aim of this study was to evaluate the surgical treatment of aortic coarctation (CoA) through posterolateral thoracotomy using cardiopulmonary bypass (CPB) to increase the safety margin as part of spinal cord protection.

Methods:

Between 1997 and 2011, 15 patients underwent surgical repair of CoA through a left thoracotomy utilizing CPB. CPB cannulation was performed at aorta descendens distal from the CoA site and the main pulmonary artery for venous return. The clinical outcome regarding the development of restenosis, major neurologic complication as well as spinal deformities was studied.

Results:

There was no mortality. One patient acquired rethoracotomy for hemorrhagic control. At a mean follow-up of 4.0 years (range from 13 days to 14 years), two patient developed a recurrent stenosis at the CoA repair site. In the remaining 13 patients, echocardiography and MRI showed a widely patent anastomosis with no evidence of a hemodynamically significant gradient. None of the patients developed paraplegia, 3 patients demonstrated left diaphragmatic paresis and 3 patients developed transient left recurrent nerve palsy. No development of scoliosis as a result of current surgeries, no postoperative renal failure and visceral ischemia was observed. One patient developed chylothorax.

Conclusions:

CoA without hypoplasia of the proximal aortic arch and intracardiac anomalies can be repaired with low mortality and morbidity via a left thoracotomy with CPB. The use of CPB reduces spinal cord and lower body ischemia. It provides a sufficient amount of time for the anastomosis, which allows a better anastomotic quality. In addition, CPB offers a possibility to carry out hypothermic circulatory arrest in management of complex anatomy and intraoperative bleeding. We strongly recommend the use of CPB in complex CoA repair.