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Telemetrically adjustable pulmonary artery banding with the FloWatch device: the Greek experience

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Introduction: Pulmonary blood flow control in congenital heart diseases (CHDs) has been a "dream" for decades which have come true. We present the first series in Greece of patients with CHDs and pulmonary hypertension, who had telemetrically adjustable pulmonary artery banding (PAB) with the FloWatch® device.

Methods: There were 10 infants (4 male). Median age at the time of surgery was 38 (range, 9-290) days, and median body weight was 3.6 (range, 3.0-6.2) kg. CHDs were: ventricular septal defect (n=6), complete atrioventricular septal defect (n=4), patent ductus arteriosus (n=4), secundum atrial septal defect (n=2), aortic coarctation (n=1). All patients were in heart failure under maximal pharmaceutic support.

Results: The implantation of the device was easy. Mortality was nill. Three patients had had septic complications. In one patient, an infected pericardial effusion was revealed intraoperatively. Drainage of the effusion and the appropriate antibiotic treatment led to a smooth postoperative course. A second patient developed fever during surgery, and 24 hours later, septic shock. She was resuscitated successfully, and her course was uneventful thereafter. A third patient had prolonged fever of unknown origin and fluid collection in the mediastinum. An exploratory repeat sternotomy was done and the fluid was drained. Postoperative course was uneventful thereafter. In no case the device was explanted. The device was gradually adjusted with the guidance of bedside echocardiography within the next 2-3 days till the desired pressure gradient across PAB was achieved. Median ICU and hospital stay were 2 and 12 days, respectively. All patients undergone total repair of their CHD 18 to 35 months after FloWatch implantation. The explantation of the device was easy. No pulmonary artery reconstruction was required. In two cases with a spontaneously closed or insignificant VSD, the redo procedure included only FloWatch® removal, without the need of CPB in one case.

Conclusions: 1. The FloWatch® device can precisely control pulmonary blood flow in both directions (decrease - increase). 2. Surgical mortality, and surgical morbidity for PAB adjustment is nill. 3. The device demonstrated resistance to an infected / septic environment without the need for explantation.