

Anticoagulation therapy for preventing thromboembolism in children after extracardiac conduit Fontan procedure: does it make a difference?

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Objective:

The risk of thromboembolic complication for Fontan patients is well-documented despite of empiric use of antithrombotic therapy.

Aim:

The study aimed to estimate the incidence of thromboembolism among patients underwent extracardiac conduit (ECC) Fontan procedure receiving anticoagulation therapy alone, or as adjunctive to antiplatelet therapy.

Method:

85 patients were evaluated [male-to-female ratio: 50:35, median age:10.3 years (IQR:7.3-14.5), median follow-up:4.6 years (IQR:2.8-7.6)] after ECC Fontan palliation performed between 1999.01.01-2010.12.31 at our centre. All patients received iv. heparin in the very early postoperative days; followed by either oral vitamin K antagonist (VKA) lifelong, or VKA and aspirin sequentially: VKA for 6 months after non-fenestrated ECC Fontan palliation or postoperative interventional closure of fenestration, continued with aspirin lifelong. Effect of different therapeutic strategies on the occurrence of thromboembolic events was analyzed. Peripheral vein thromboses were excluded. Factors predisposing to thromboembolism in Fontan circulation were also explored.

Results:

Thirtyfour patients (40%) received VKA monotherapy (5 patients with and 21 patients without fenestration, respectively, and 8 patients with fenestration closed interventionally). Fifty patients (59%) received sequential antithrombotic therapy: 25 patients without fenestration and 25 patients with interventionally closed fenestration. 1 patient died unrelated to thromboembolism on the 1st postoperative day.

The overall clinically symptomatic thromboembolism rate was 4.7% (4/85 patients). Thromboembolism was recognized as seizures or hemiparesis after a median of 1.03 years (IQR:0.1-2.9) postoperatively, confirmed by MRI (3 cases) or CT (1 case). Three patients were on VKA therapy (INR 2±0.2) at the time of thromboembolism regardless of the final type of antithrombotic regimen, and 1 patient on iv. heparin (PTI 54). Fenestration was open in 2 patients. Factors predisposing to thromboembolism in Fontan circulation, such as arrhythmia, ventricular dysfunction, severe valvular regurgitation, protein-losing enteropathy, polycythaemia or hereditary thrombophilia, could not be demonstrated simultaneously.

Conclusion:

- 1.Thromboembolism after ECC Fontan procedure was relatively rare among our patients.
- 2.Applied antithrombotic regimens showed no difference, since almost all events occurred on VKA therapy.
- 3.Thromboembolism was not associated with failing Fontan circulation or factors predisposing to thromboembolism.
- 4.Thromboembolism rate was not higher in patients with open fenestration than in rest of the cohort.