

Stroke after Fontan: Impact of Anticoagulation Therapy during Long-term Follow-up

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Background: Stroke after Fontan operation causes morbidity and mortality. Prophylactic anticoagulation therapy to prevent stroke is controversial. We assessed the effects of long-term anticoagulation on the incidence of late stroke after Fontan in a single-center cohort.

Methods: Between 1973 – 2012, 1052 patients had Fontan operation at Mayo Clinic. In 2015 we assessed long-term follow-up (>30 yrs from operation) for these patients. 626 of 1052 patients were still alive and received a follow-up questionnaire. 304/626 (49%) returned the questionnaire. Those with stroke prior/during Fontan were excluded.

Results: Of the 304 patients who returned the survey: 97 received aspirin only, 127 Vitamin K antagonist (VKA) only, 61 both aspirin and VKA, 19 received neither aspirin or VKA. There were 7 (2%) patients with stroke 9 mos to 26 yrs after Fontan (mean age 31 yrs, 22-51 yrs). 6/7 had an atrio-pulmonary connection. Four of 97 (4.1%) patients receiving only aspirin had a stroke. One of 127 (<1%) patients receiving only VKA had a stroke and 2/61 (3.3%) patients who received both aspirin and VKA had a stroke. None of the 19 patients taking no anticoagulation had a stroke.

There was no correlation between patient age and anticoagulation. 5/7 stroke patients had pulmonary atresia/intact septum or pulmonary artery distortion. Two received antiarrhythmic medications, none had a mechanical valve.

Conclusions: Previous studies have shown that aspirin and VKA are equivalent in preventing thromboembolic events short-term (<5 yrs) after Fontan. In long-term follow-up (>30 years after Fontan) the risk of stroke is small (2%). Anticoagulation therapy does not impact incidence of stroke. Instead, risk factors that have previously been identified such as: pulmonary valve atresia/intact ventricular septum, pulmonary artery distortion, atrial arrhythmia, mechanical valves, atrio-pulmonary connection and residual fenestration with right-to-left shunt may be more important when assessing anticoagulation choice for patients after Fontan.