

## **PANDA Journal Watch: October 2018**

### **Antiplatelet vs. anticoagulant therapy in extracranial dissection**

This report reviews the more recent literature on this subject and summarises the key study findings.

Carotid and vertebral artery dissections are risk factors for thromboembolic stroke in up to 25% of patients younger than 45 years. The cause of supraaortic dissections can be spontaneous or traumatic. Dissections are characterized by penetration of blood through a tear, which develops in one or more layers of the wall producing an intramural haematoma.

Acute interventions to prevent acute ischaemic stroke recurrence in children with extracranial dissection include thrombolysis or antithrombotic therapy, namely unfractionated heparin, low molecular weight heparin, aspirin and clopidogrel. There is no clear evidence to support the use of one treatment over the other, although anticoagulation has typically been preferred (based on adult, class IV studies) and more widely used in patients with severe stenosis, occlusion or pseudoaneurysm, based on the hypothesis that it is more effective in preventing a thromboembolic complication.

Evidence that antiplatelet treatment may be just as effective as anticoagulation therapy is emerging.

### **Anticoagulation vs Antiplatelet Treatment in Patients with Carotid and Vertebral Artery Dissection: A Study of 370 Patients and Literature Review**

Daou et al, *Neurosurgery* 80:368–379, 2017

A retrospective observational study of 370 patients with carotid and vertebral artery dissections compared antiplatelet and anticoagulation treatment with the rate of new or recurrent events.

In patients with extracranial dissection, 160 patients (54.4%) were started on antiplatelet treatment, 85 patients (28.9%) on anticoagulation, and 33 patients (11.2%) on combined treatment. Sixteen patients (5.4%) did not receive antithrombotic treatment. The association between ischemic/hemorrhagic outcomes and antithrombotic treatment was not statistically significant ( $P = 0.6$ ) and the association between clinical outcome and antithrombotic treatment was not statistically significant ( $P = 0.2$ ).

In patients with spontaneous dissections, 144 out of 262 patients were started on antiplatelet treatment (55%). Seventy-seven patients were started on anticoagulation treatment (29.4%). Thirty-three patients were started on a combined regimen of anticoagulation and antiplatelet agents (12.6%). Eight patients were not given any antithrombotic treatment (3%). Patients who were on antiplatelet treatment received aspirin alone in 32% of cases, clopidogrel

alone in 18%, and both in 50%. Patients who received anticoagulation with or without additional antiplatelet treatment were started on heparin (79.2% unfractionated heparin, 20.8% low molecular weight heparin) then changed to warfarin. The association between ischemic/hemorrhagic outcomes and antithrombotic treatment was not statistically significant. Whether antiplatelet treatment consisted of aspirin, clopidogrel, both aspirin and clopidogrel, and whether anticoagulation treatment included unfractionated or low molecular weight heparin, no significant difference in any of the outcomes was observed. The association between clinical outcome and antithrombotic treatment was not statistically significant.

The study concluded that the rate of new or recurrent events is similar with antiplatelet and anticoagulation treatment in treating intracranial and extracranial carotid and vertebral artery dissection.

Limitations include the retrospective nature and small number of subjects included compared to the CADISS study (see below), it was based in a single center only as well as the loss of follow up of patients.

### **Management of pediatric craniocervical arterial dissections**

Pandey et al, *Childs Nerv Syst* (2015) 31:101–107

A retrospective observational study by *Pandey et al* consisted of 42 patients with craniocervical arterial dissections (CCADs), 34 due to trauma, the remainder thought to be spontaneous. Thirty-one of 42 patients (73.8 %) underwent either medical or surgical/endovascular treatment. Twenty-two patients underwent medical treatment only with either antiplatelet therapy (aspirin and/or clopidogrel). Two cases had recurrent AIS while on antiplatelet medication and 1 case of intracranial haemorrhage while on anticoagulation.

The study concluded that the majority of patients were able to achieve good clinical outcome and remained symptom-free on antiplatelet therapy.

Limitations include that the study was of a retrospective nature, only included a single center, terminology used in the records were not consistent which may have led to an over- or underestimation of the number of cases identified and the length of follow up was variable.

## **Antiplatelet treatment compared with anticoagulation treatment for cervical artery dissection (CADISS): a randomised trial**

CADISS trial investigators, Markus HS, Hayter E, Levi C, Feldman A, Venables G, Norris J. *Lancet Neurol*. 2015 Apr;14(4):361-7. doi: 10.1016/S1474-4422(15)70018-9. Epub 2015 Feb 12.

The CADISS study (Cervical Artery Dissection in Stroke Trial) was a randomized trial based in the UK and Australia with specialized stroke or neurology services that included patients with external carotid and vertebral artery dissection to receive antiplatelet or anticoagulant drugs for 3 months.

250 participants were included (118 carotid, 132 vertebral), 126 received antiplatelet treatment and 124 anticoagulant therapy based on a telephonic randomization.

There wasn't a significant difference between stroke recurrence or death between the groups. In conclusion there wasn't a difference in efficacy of antiplatelet and anticoagulant drugs in preventing stroke and death in patients with symptomatic external carotid and vertebral artery dissection.

Positive aspects of the study include the fact that it was randomized, a large number of patients included and it included hospitals in 2 countries, namely United Kingdom and Australia.

There were some limitations to the study. In approximately 20% of patients the diagnosis of dissection was not confirmed for various reasons, and there were no pre-specified imaging criteria which may have affected the accuracy of the diagnosis.

Further randomized studies are needed on the subject. Based on the evidence we have, our practice is to administer antiplatelet treatment for extracranial dissection.

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