Liverpool Heart and Chest Hospital

Anticoagulation Guidelines

Type B Acute Aortic Syndromes

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Acute Type B aortic syndromes have a number of aetiologies and present as a number of different pathologies including: intimal disruption, intramural haematoma, penetrating ulcers, dissection, with some being acute on chronic processes complicated by aneurysms and endovascular clot. Rare cases include vasculitic and mycotic processes. The majority are however simple uncomplicated distal aortic dissections without evidence of malperfusion or impending rupture. In this latter group treatment is Best Medical Management with blood pressure control, analgesia and close monitoring for a more malignant course (See LANTAS Guidelines – Liverpool Acute Network for Thoracic Aortic Services). The intention is to steward these pathologies into a chronic state where if required, lower risk intervention may be attempted. A complexity arises when such patients have co-morbid conditions requiring some form of anticoagulation with warfarin, NOAC or DAPT. Ideally the

physician would prefer to avoid such treatments and allow thrombosis within the false lumen and for haemorrhagic processes within the aortic wall to organise and mature. The issue then becomes complex with a balance of risks assessment between withdrawl of anticoagulation and risks of progression of acute aortic syndrome through inhibition of coagulation processes. This is a complex decision and should be made within the context of the MDT. In part however the major issue is the indication for coagulation:

1) **Mechanical aortic valve.** Warfarin should be stopped at the time of presentation pending review at the 5 day CT scan (See LANTAS Guidelines). Risk of valve thrombosis is low over such a period and little different to perioperative protocols for patients with a mechanical valve undergoing other procedures without “bridging”. A further risk analysis should be made at 5 days with either: further periods of complete omission of anticoagulation, consideration being given to treatment dose Enoxiparin (1.5mg/kg) or recommencement of warfarin.
2) **Mechanical mitral valve.** Warfarin should be stopped at the time of presentation pending review at the 5 day CT scan (See LANTAS Guidelines). Risk of valve thrombosis is higher than with a mechanical aortic valve and there should be a day to day review and assessment of the risk benefit ratio of omission of anticoagulation. A further risk

analysis should be made at 5 days with either: further periods of complete omission of anticoagulation, consideration being given to treatment dose Enoxiparin (1.5mg/kg) or IV heparin or recommencement of warfarin.

3) **Atrial fibrillation.** Warfarin and NOACs should be omitted at presentation and reviewed at the 5 day CT scan.
4) **Pulmonary embolism.** When anticoagulation is for a past medical history of PE, warfarin and NOACs should be omitted at presentation and reviewed at the 5 day CT scan. When there is evidence of new PE as concurrent pathology, a MDT risk assessment of the risk benefit balance is indicated depending on the size and position of the PE and the presence of DVT.
5) **Thrombophilia and Vasculitic processes.** On occasions DVT, PE and Acute Aortic Syndromes may be part of the same aetiology and there are complex dual prothrombotic and haemorrhagic processes on-going such as haemoptysis, pulmonary embolism and large vessel vasculitis. In these circumstances it is advised to involve expert opinion form physicians with experience in managing such conditions.
6) **Drug eluting coronary stents.** In patients with long standing coronary stents often single antiplatelet therapy may be acceptable with aspirin.

Platelet mapping may help identify responders and non-responders. For patients with recent DES's liaison with Cardiology is suggested to assess the risks of omission of DAPT in the early phases of aortic disease.

7) **Other.** Other more complex scenarios should be discussed with the MDT and specialist services as indicated.

Reversal of anticoagulation

On occasions patient may present with acute aortic syndromes precipitated or complicated by over anticoagulation states and in particular high INR states. Depending on the clinical presentation it may be necessary to reverse the anticoagulation either to a therapeutic range or to normal. A risk assessment will be required with caution being exercised for patients with mechanical aortic and mitral valves.

Routine process for prevention Venous Thromboembolism

These patients are often immobilised with IV labetolol and arterial blood pressure monitoring and routine hospital assessments for VTE prophylaxis should continue with the use of TED staockings in the absence of PVD and prophylactic dose subcutaneous fractionated heparin where indicated.

Complicated Acute Type B Aortic Syndromes

In such scenarios it may be necessary to be more aggressive in reversal of anticoagulation however this will depend on the complication and the indication for anticoagulation. Complicated syndromes involving malperfusion of renals, femoro-iliacs, viscerals and carotids will require wide ranging discussion and dependent on requirement for intervention and presence of mechanical valves in particular. Complicated synrdromes involving impending rupture or contained rupture will clearly need complete reversal of any anticoagulation.

Post operative patients

Patients who have undergone intervention on their distal aorta and have an indication for anticoagulation will require assessment in the early postoperative period and discussion between Intensivists and Surgeons.

General Comment

These scenarios and decisions are complex and should where possible be discussed within the context of the MDT and be bespoke for each patient.