**DEBATE: Outcome Of TEVAR For TBADS Depends On The Indication For Treatment: They Do Not All Need Interventional Treatment.**

Peter R Taylor

All patients with type B aortic dissection (TBAD) require medical treatment with anti-hypertensive agents for life. Those that run a complicated course benefit from intervention and recently open surgery has been replaced by thoracic endovascular aortic repair (TEVAR). A recent meta-analysis has shown that the mortality for endovascular repair is one fifth that for open surgery. (1) The accepted indications for intervention include rupture and end-organ ischaemia. (2) The contention of this paper is that the outcome after endovascular intervention for acute type B aortic dissection is dependent upon the indication for intervention.

There is a considerable variation in the literature concerning the outcome after endovascular intervention for acute type B aortic dissection. The results from the ADSORB trial, a randomised trial of best medical therapy with or without stent graft for uncomplicated type B aortic dissection showed a zero mortality for both groups. (3) Patients with continuing pain and refractory hypertension are also candidates for intervention and recent registry data has shown that this group of patients have a higher mortality than those who are truly uncomplicated. The International Registry for Acute Aortic Dissection (IRAD) has shown that patients classified as “uncomplicated” have an overall 4% in-hospital mortality. (4) Those patients who were treated solely with medical therapy had a mortality of 1.5%. If these patients developed complications requiring intervention then the mortality for endovascular intervention was 9% and increased to 28% for surgery.

The guidelines from the Society of Vascular Surgery suggest that endovascular repair of complicated patients who have end-organ ischaemia or rupture have a significant major adverse event rate with a mortality of 10.6%, stroke rate of 9.4%, paraplegia rate of 9.4% and renal failure in 9.4%. (2) Another small study on acute complicated type B dissection treated with endovascular repair had a mortality of 21% and a morbidity rate of 76%. (5) These included 46% with rupture, 33% with end-organ ischaemia and 21% with pain. The VIRTUE registry showed a mortality of 8% in 50 patients, 11 of whom had rupture, end-organ ischaemia in 16 and pain and hypertension in 40. (6)

Much lower adverse events were reported by Guangqui et al in a study which showed an in-hospital mortality of 1.4% and a stroke rate of 4.2%. (7) The majority of patients were treated for hypertension, pain or an aortic diameter greater than 5cm with less than a third treated for malperfusion and rupture. Another study by Shu et al showed a low in-hospital mortality of 4.4% in 45 patients treated for complicated acute type B dissection. (8) The indication for treatment in this study was impending rupture in 60%. The definition of impending rupture was an enlarged aortic diameter in the dissected region with evidence of haemothorax with no evidence of extravasated contrast medium. This is not widely used as an indication for intervention and highlights the difficulty in making comparisons between studies.

The results from studies reporting on the endovascular treatment of acute complicated aortic dissection therefore vary widely from 1.4% to 21%. Patients who are truly uncomplicated have a lower in-hospital mortality (6.1%) compared to those with complications including rupture, end-organ ischaemia, hypertension and refractory hypertension (20%). (9) The indication for intervention can be end-organ ischaemia and rupture at the most severe end of
the spectrum to pain and “impending rupture” at the opposite extreme. It is important that the indication for intervention is clearly stated as comparison between studies is otherwise very difficult to make.

Do all acute type B aortic dissections require a stent graft? There is some long-term data which suggests that although aortic related mortality is less with TEVAR at 28 months, the overall survival of patients treated medically was not significantly different nor was the aortic-related adverse event rate. Therefore current evidence does not suggest that all patients with type B dissection should be treated with TEVAR.

References:
6. Investigators TVR. The VIRTUE Registry of Type B Thoracic Dissections - Study Design and Early Results. European Journal of Vascular and Endovascular Surgery 2011;41:159-66