Commentary: To STABILISE or not: Is the additive time of additive benefit?

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Techniques for repair of acute type A dissection have been refined significantly in previous decades. However, with specific regard to DeBakey type I dissections, the fate of the remnant descending and abdominal aorta have posed a significant challenge to surgeons. It has been reported that around 40% of patients treated for DeBakey type I dissection will require a distal aortic reintervention. Risk factors for aneurysmal degeneration of the residual dissection include a patent false lumen, size and number of distal fenestrations, and a large aortic size at presentation. Distal aortic reintervention following DeBakey I repair is associated with significant morbidity and mortality, and in the presence of aneurysmal degeneration of the perivisceral aortic component, often requires an open thoracoabdominal repair. This observation has led some to advocate for a more aggressive approach at the initial operation, including a paradigm of liberal aortic arch replacement, frozen elephant trunk,2 or interval single-branched arch thoracic endovascular aortic repair (TEVAR). These approaches have the potential to encourage false lumen thrombosis and distal aortic remodeling; however, intense debate exists regarding their generalizability at all centers performing type A dissection repair. The fundamental concept for acute type A repair continues to center around the prevention of rupture, malperfusion, and tamponade; not necessarily prevention of long-term aortic sequelae. Therefore, operative techniques to effectively address distal aortic pathology following DeBakey type I dissection repair and minimize resultant morbidity are of extreme importance to cardiovascular surgeons.

It is impossible to overstate the revolutionary effect TEVAR has had on treatment of type B aortic dissection. Endovascular techniques have been refined to address multiple types of pathology in the descending and abdominal aorta, and novel devices are being developed and are in clinical trials for use in the aortic arch. Faure and colleagues4 present a compelling case series utilizing the stent-assisted balloon-induced intimal disruption and relamination (STABILISE) technique in patients with distal dissection following DeBakey type I dissection repair. Originally described in 2014 by Hofferberth and colleagues,5 the STABILISE technique involves the use of a TEVAR device in the descending thoracic aorta followed by uncovered stacked Z-stents (Cook Medical, Bloomington, Ind) placed in the perivisceral abdominal aorta. The Z-stents are then serially balloon dilated to rupture the intimal flap and promote relamination of the aortic wall. In the present case series of 16 patients, technical success was reported in 100% of patients with 1 in-hospital mortality (6%). One patient required a reintervention for type 1a endoleak. At final follow-up, all patients had complete aortic remodeling and no aortic enlargement as of the final computed tomography scan. Previous reports of TEVAR for
treatment of type B dissection revealed a 90% rate of complete remodeling at the stent graft level; another series reported only a 78% rate of complete false lumen thrombosis in the thoracic/visceral aortic level following TEVAR. A key concept moving forward will be indications and timing for distal aortic intervention following DeBakey type I dissection repair. In the report from Faure and colleagues, indications for STABILISE were persistent false lumen patency with either malperfusion or an aortic diameter >40 mm following open repair. Interventions were performed during the index hospitalization. Moving forward, it will be critical to assess individual patients’ anatomy for distal intervention; specifically, the number of visceral branches supplied by the false lumen. Visceral stent patency was previously reported to be 93% in patients undergoing the STABILISE technique. Obviously, a failed visceral stent would be catastrophic in certain scenarios, especially the superior mesenteric artery. Further inquiry into this technique, especially with regard to the prophylactic indication of enlarged aortic diameters, will be needed before widespread adoption. In the meantime, this represents a potential novel therapy for treating a historically vexing problem.

References