

Re-intervention after thoracic endovascular aortic repair is high, but we should keep optimistic

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During the past decades, the treatment of aortic dissection has greatly altered after the introduction of thoracic endovascular aortic repair (TEVAR). This technique is less invasive and incurs lower risks of mortality and morbidity. However, the long-term efficacy of TEVAR remains controversial with a concern of late treatment failure. In a comparative analysis about open repair and TEVAR for chronic type B aortic dissection (1), van Bogerijen and his colleagues found that treatment efficacy (87.5% *vs.* 96.7%, $P=0.026$) in the endovascular strategy group was inferior at 3 years. Given the growing numbers of endovascular procedures for aortic dissection, studies focusing on re-intervention are crucial to TEVAR.

In this respect, the article from Zhang and colleagues (2) is pertinent and timely to the emerging issue. The authors evaluated 27 studies with data from 2,029 TEVAR of 2,403 aortic dissection cases and a mean follow-up of 33.7 months. The pooled incidence of re-intervention is 15%. The most common reasons for re-intervention were endoleak (33.2%), false-lumen perfusion and aortic dilation (19.8%), and new dissection (6.9%).

In the study by Zhang and colleagues (2), relatively high re-intervention rate was mentioned but the heterogeneity among the data was large. This suggests less conclusive results. Moreover, high re-intervention rate might not

mean poor outcome. In a meta-analysis by Moulakakis and colleagues (3) about acute complicated type B aortic dissection, 2,531 patients treated with TEVAR had survival rates ranged from 62% to 100% at 1-year and from 61% to 87% at 5-years. In comparison, survival rates ranged from 74.1% to 86.0% at 1-year and from 44.0% to 82.6% at 5-years after open surgical repair. The Investigation of Stent Grafts in Aortic Dissection With Extended Length of Follow-up (INSTEAD-XL) trial (4), which included 140 patients with stable type B aortic dissection and randomized to optimal medical treatment and TEVAR ($n=72$) or optimal medical treatment alone ($n=68$), also found that TEVAR in addition to optimal medical treatment is associated with improved 5-year aorta-specific survival and delayed disease progression. In fact, TEVAR has introduced new concept and technology to manage type B aortic dissection. Complications are more easily detected and the re-interventions after TEVAR are more likely to be achieved in a less invasive manner by another endovascular procedure. This may be the reason why more re-interventions were required after TEVAR, but the outcome was relatively favorable.

It is not surprising to know that endoleak, persistent false lumen perfusion, and new dissection are related to re-intervention because these three factors are also major negative factors for aortic remodeling after TEVAR.

However, covariates on re-intervention didn't comprise morphologic factors for regression analysis in the present study. Further evaluation including morphologic signs should be encouraged to add more information to re-intervention.

Type B aortic dissection remains a challenging clinical problem and controversy about optimal therapy still exists. However, the introduction of TEVAR has shifted the management paradigm gradually. According to the 2014 European Guidelines (5), TEVAR should be considered for acute uncomplicated type B aortic dissection (class IIa, level of evidence B). In complicated cases, TEVAR is recommended (class I, level of evidence C). Furthermore, a recent systemic review about management strategy for chronic type B aortic dissection by Kamman and colleagues (6) had shown that time until treatment equipoise for TEVAR was 9.9 months, compared to 2.7 years for open repair. This suggests that TEVAR is the intervention with earlier beneficial impact. The impact of TEVAR for aortic dissection is evolving rapidly. One should be optimistic to future studies and innovations on management protocols or device designs to address aortic dissection.

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Footnote

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