Short and middle term outcomes of controllable fenestrated TEVAR using physician modified stent-grafts for aortic arch pathology

Xiangchen Dai

Tianjin medical university gengeral hospital, Tianjin, China, 300052

Objective

To evaluate short and middle term outcomes of controllable fenestrated thoracic endovascular aortic repair（f-TEVAR) using physician modified stent-grafts（PMSGs）for aortic arch pathology.

Methods

From November 2015 through November 2018, 82 consecutive patients underwent controllable f-TEVAR by PMSGs for aortic arch pathology. Pre-, intra- and postoperative clinical data were recorded.

Results

Mean duration for stent graft modification was 38.29 minutes (range 30-125 minutes). **82** PMSGs were modified and deployed. Covering part of PMSGs were anchored from Z0 , Z1 and Z2 in 5, 11 and 66 patients respectively. Auxiliary guide wire were added to all devices and posterior diameter-reducing ties were added to all multiple fenestrated stent grafts except one Valiant stent graft. Endovascular exclusion of the aortic arch was achieved in all the cases. The technical success rate was **97.56%(80/82)**. **2** early sigle fenestration cases were misaligned and LSA revascularization were performed by chemney stent. Intraoperative mortality was **1.22% (1/96)**. One patient with triple small fenestrations died of sudden cardiac arrest intraoperatively after deployment of PMSG and all supra-aortic branch stents. An immediate type Ia endoleak acused by chemney TEVAR was sealed by coil. There were **no** obvious intaroperative type III endoleaks. There were **no** more patients died, **no** stroke or paraplegia within 30 days. One type III endoleak occured in a patient of Z2 group postoperative 7 days and was sealed by occluder. **95** patients were followed-up at mean **16.1 (range 1–36)** months. **2** additional patient died of non-aortic cause of death and overall mortality was **3.66%**. **One** Retrograde type A dissection occurred in a patient of Z0 group postoperative 40 days and repaired by open surgery. All supra target aortic trunks are patent without fenestration-related type I or III endoleaks.

Conclusions

Controllable f-TEVAR by PMSG for aortic arch pathology is both feasible and effective. Auxiliary guide wires and diameter-reducing ties are the most important safeguard of controllable alignment. Durability concerns will need to be assessed in additional studies with long term follow up.

Keywords

thoracic aorta, aortic arch, aorta, fenestrated thoracic endovascular aortic repair, physician modified stent-grafts