Increased rates of delirium in Octagenarians after Complex Endovascular Aortic Repair compared with Simple Endovascular Aneurysm Repair

Aldin Malkoc, M.D., Arrowhead Regional Medical Center, Colton, California, USA
Trung D. Vo, M.D., Kaiser Permanente Bernard J. Tyson School of Medicine, Fontana, California, USA
Jason Behseresht, M.D., Kaiser Permanente Bernard J. Tyson School of Medicine, Fontana, California, USA
Majid Tayyarah, M.D., Kaiser Permanente Bernard J. Tyson School of Medicine, Fontana, California, USA
Jeffrey Hsu, M.D., Kaiser Permanente Bernard J. Tyson School of Medicine, Fontana, California, USA
Iden Andacheh, M.D., Kaiser Permanente Bernard J. Tyson School of Medicine, Fontana, California, USA

Objective:

With an increasingly aging population, surgical fitness should be evaluated prior to simple endovascular aneurysm repair (sEVAR) and complex endovascular aortic repair (cEVAR). Patients undergoing EVAR repair with development of delirium has been associated with increased length of intensive care unit and hospital length of stay. We aim to investigate the clinical outcomes of octogenerians requiring sEVAR compared with cEVAR.

Methods:

Retrospective review of patients undergoing sEVAR and cEVAR at a single quaternary vascular center from 2019-2023. cEVAR was defined as physician-modified endografts (PMEGs) involving four-vessels. Patients aged 80 to 90 were analyzed. This cohort was divided into two groups: those receiving sEVAR and those undergoing cEVAR. 34 unique octogenarian patients were identified in this time period; 27 in the sEVAR group and 9 in the cEVAR. Procedural data included length of stay (LOS), 3D overlays for surgical guidance, contrast volume (ml), fluoroscopy time (min), procedure length (mins), mortality, blood loss (ml), pre-operative and post operative renal function, 30-day readmission, and post-op delirium. Post-op delirium was defined as any alteration in mental status which necessitated medical treatment. Univariate analyses were performed and a p-value less than 0.05 was considered statistically significant.

Results:

There was statistical difference in radiation exposure in mGy (916 +/- 650 vs. 4,995 +/- 2,976, p=0.007) and procedure length (213.4 +/- 44.1 vs. 558 +/- 142, p=0.001) and increase length of stay in the cEVAR (2.8 days +/- 5.1 vs. 7.2 +/- 7.1, p = 0.002). There was a statistical increase in post operative delirium in the PMEG group (33%) compared to the simple EVAR group (3%) (p = 0.014). Average follow up for the sEVAR group was 36.3 months and average follow up for cEVAR group was 20.1 months.

Conclusion:

Octogenarians in our limited cohort had different outcomes when comparing the two procedures. Patients requiring cEVAR had increased radiation exposure, increased length of procedure time, and increased length of stay. In addition, there was a statistically significant incidence of delirium seen in the cEVAR group. While our sample size limits generalization, our findings warrant further investigation to better identify, remedy, and prevent adverse events in octagenarians after cEVAR procedures.