

#22 INFLUENCE OF PERI-RENAL FIXATION ON AORTIC SAC REMODELING AFTER EVAR

Lucy S. Brevetti, M.D., Gary B. Nackman, M.D.,
Rocco G. Ciocca, M.D., Alan M. Graham, M.D.

UMDNJ, Robert Wood Johnson Medical Center, New Brunswick, NJ

Purpose: The purpose of our study was to evaluate the influence of peri-renal fixation of endovascular aortic grafts on the rate of endoleak and aortic sac remodeling.

Methods: Retrospective analysis of all patients (pts.) following endovascular aortic aneurysm repair (EVAR) at our institution was performed. Pre and post-operative aortic dimensions were obtained from CT scans and angiograms. Intraoperative angiograms were reviewed and patients grouped by the proximity of the graft to the lowest renal arteries. Group I: flush with the lowest renal artery; II: 5 mm distal to lowest renal artery; and III: >5 mm distal to lowest renal artery.

Results: Of the 96 grafts placed between 2000 and 2002, 44 were AneuRx (Medtronic, Minneapolis, MN) and 52 were Ancure (Guidant, Menlo Park, CA) devices. There were 39 pts. in group I, 41 in group II, and 11 in group III, (data on 5 pts. was not obtained). At 6 mos., the mean decrease in sac diameter for all groups was 0.42 ± 0.08 cm (I: 0.66 ± 0.13 cm, II: 0.38 ± 0.11 cm, III: -0.18 ± 0.27 cm). There was no significant difference between each group. When peri-renal fixation (group I) was compared with non-peri-renal fixation (groups II and III), there was a significant difference in sac shrinkage at 6 mos. (0.66 ± 0.13 cm vs 0.29 ± 0.11 cm, respectively, $p < .05$, ANOVA). Group I had shorter necks and smaller aneurysms (2.2 ± 0.1 cm and 5.3 ± 0.1 cm) when compared with groups II and III (2.7 ± 0.1 cm and 5.7 ± 0.1 cm, $p < .05$, ANOVA). There was no difference in aortic neck diameter, or aortic neck diameter to graft ratio. When controlled for the variables studied (AAA diameter, length of neck, diameter of neck, diameter of neck to graft ratio, and any endoleak by 6 mos.), logistic regression analysis identified peri-renal fixation as the only significant factor in aortic sac shrinkage of >0.4 cm by 6 mos. (odds ratio: 16, $p < .01$). With the same variables, a linear regression model also identified peri-renal fixation as the only predictive factor in aortic shrinkage (regression coefficient: 0.46, $p < .05$). The endoleak free survival rate with peri-renal fixation was $96 \pm 5\%$ and without $80 \pm 7\%$ (Kaplan Meier, $p = .09$, logrank).

Conclusions: Peri-renal placement of endovascular grafts is associated with a trend towards fewer endoleaks, and improved aortic sac shrinkage independent of aortic neck length, AAA diameter, diameter of neck, and endoleak. Failure to achieve peri-renal placement of EVAG increased the likelihood of reduced or failed aortic sac shrinkage in this series.