

## THE IMPACT OF AN ENDOVASCULAR TEAM ON INSTITUTIONAL EVAR OUTCOMES

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**BACKGROUND:** Endovascular aortic aneurysm repair (EVAR) is a technically demanding, resource intensive procedure associated with a significant learning curve. In July 2002, the Department of Defense allocated nearly \$5,000,000 for "Advances in Medical Practice" (AMP) and EVAR within the six major military medical centers in the US Army. We sought to determine the impact of several institutional changes associated with the use of these funds.

**METHODS:** We performed a single-institution, retrospective comparison of our early EVAR outcomes in physiologically similar patients before and after the use of AMP money and the acquisition of a trained and equipped endovascular operative team. Morbidity, mortality, and operative variables were the main outcomes. Mean follow-up interval was 1.5 years.

**RESULTS:** A total of 102 conventional open and endovascular AAA repairs have been performed at our institution since our first EVAR in May 2000. 10 of 51 (20%) total AAA patients were treated with EVAR by a general vascular surgical team prior to the addition of an endovascular specialty team to the service in July 2002. An additional 18 of 51 (35%) patients have been treated with EVAR since that time. During the first year evaluated, 20% of aneurysms were repaired with EVAR versus 57% during the most recent year. Devices used during this time included Ancure (Guidant, 43%), Aneurix (Medtronic, 7%), Zenith (Cook, 39%), and Excluder (Gore, 11%). Patients treated by the endovascular team had significantly less mean EBL, PRBC transfused, IV contrast used, and trended towards shorter operative times (table). Morbidity, mortality, endoleaks, and other variables were similar. Complex repairs requiring adjunctive procedures outside the realm of normal EVAR were performed more frequently by the endovascular team (33% vs 20%), and were associated with increased mean operative times (327±32 vs 205±12 min,  $p<0.001$ ). Adjusting for this confounder with linear regression, endovascular team EVAR was independently associated with decreased mean operative time (-80 min), EBL (-800 mL), PRBC transfused (-1.8 units), and IV contrast (-148 mL, all  $p<0.05$ ).

Outcome (±SEM)	Vascular Team (N=10)	Endovascular Team (N=18)	Sig. (P)*
<b>Endovascular/Open Repair</b>	<b>20%</b>	<b>35%</b>	<b>&lt;0.001</b>
Mean AAA Size (cm)	5.7±0.2	5.4±0.3	0.48
Mean Operative Time (min)	280±30	217±17	0.06
<b>Mean EBL (mL)*</b>	<b>935±216</b>	<b>162±34</b>	<b>&lt;0.001</b>
<b>Mean PRBC Transfused (U)*</b>	<b>2.2±0.1</b>	<b>0.4±0.2</b>	<b>0.02</b>
<b>Mean IV Contrast Used (mL)*</b>	<b>222±25</b>	<b>82±9</b>	<b>&lt;0.001</b>
Mean Length of Stay (days)	3.4±0.8	2.7±0.4	0.44
Any Perioperative Complication	50%	22%	0.21
Total Endoleak	10%	17%	0.99
All Cause Mortality	10%	0%	0.99

\* $P<0.05$  two-tailed significance with  $\chi^2$ , Fisher's exact, or student's *t* tests as appropriate

SEM = standard error of mean; EBL = estimated blood loss; PRBC = packed red blood cells

**CONCLUSIONS:** At a major military medical center, EVAR has become the preferred technique for the repair of abdominal aortic aneurysms. EVAR by a dedicated endovascular surgical team favorably impacts several important operative variables and may improve overall outcomes. Some of these operative variables may be device-specific.