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Impact of preoperative risk factors on 30-day mortality in non-ruptured abdominal aortic aneurysm repairs

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Thank you!

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Introduction

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- Abdominal aortic aneurysms (AAA) have traditionally been approached with an open repair (OAR)
- Endovascular repair (EVAR) has been increasing in popularity since first described by Parodi et al in 1991
- Multiple randomized trials demonstrate lower perioperative mortality after EVAR compared to OAR
 - Endovascular Aneurysm Repair 1 (EVAR-1) trial
 - Open versus Endovascular Repair (OVER) trial

Introduction

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- No correlation between preoperative vasculopathic risk factors and negative perioperative outcome has been demonstrated using a national safety database
- We aimed to assess impact of risk factors on 30day outcomes following non-ruptured AAA repair

Methods

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- All patients with a NSQIP diagnosis of AAA between 1/1/2005 and 1/1/2013 were reviewed
 - CPT code 35081 = OAR
 - CPT code 34800 = EVAR
- Patient demographics and outcomes were analyzed using chi-square and odds ratio with SYSTAT software

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- 6271 patients underwent repair of non-ruptured AAA
 - 1989 EVAR
 - 4282 OAR
- More patients with diabetes in the EVAR group
 - 16.6 vs 12.6%, p<0.001
- More smokers in OAR group
 - 42.4 vs 33.7, p<0.001
- Similar percentage with hypertension
 - 81.0 vs 80.4, p=0.587

A		EV	'AR	OAR		
	Number of Cases Diabetes:	19	89	4282		
.00	No	1622	81.5%	3730	87.1%	
.62	NIDDM	255	12.8%	419	9.8%	
	IDDM	68	3.4%	121	2.8%	
	Current Smoker:					
up	No	1318	66.3%	2465	57.6%	
	Yes	671	33.7%	1817	42.4%	
	HTN:					
	No	390	19.6%	814	19.0%	
	Yes	1599	80.3%	3468	81.0%	

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- Patients undergoing OAR had a significantly higher rate of:
 - 30-day return to the operating room (9.3 vs 5.6%, OR = 1.72 [1.39 2.15], p<0.0001)
 - − 30-day mortality (5.1 vs 3.4%, OR = 1.55 [1.17 − 2.04], p = 0.003)
 - OAR patients : 1.5 fold increase in risk of death

	EVAR Survived		EVAR Died		OAR Survived		OAR Died	
Number of Cases Outcomes: Unplanned return to OR within 30 days	19 92	921 4.8%	19	68 27.9%	4(313)63 7.7%	2 84	19 38.4%
Cases Dead In 30d	0	0%	68	100%	0	0%	219	100%
Cases Dead Past 30d	8	0.4%	0	0%	31	0.8%	0	0%

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- Patients undergoing EVAR were more likely to have zero adverse post-operative occurrences
- Higher percentage of unplanned intubation and prolonged ventilation in groups with 30 – day mortality

	EVAR Survived		EVAR Died		OAR Survived		OAR Died	
Post-Op Occurrences:								
0 Occurrences	1474	76.7%	10	14.7%	1097	27.0%	7	3.2%
Mean # of Occurrences Respiratory Occurrences	0	0%	2	2.9%	1	0%	3	1.4%
Unplanned Intubation	34	1.8%	19	27.9%	273	6.7%	45	20.5%
On Ventilator > 48h	47	2.4%	17	25.0%	414	10.2%	92	42.0%

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- Diabetes increased risk of dying by 46.6% (p=0.008)
- Smoking increased risk of dying by 62.8% (p<0.001)
- Hypertension was insignificant
- Adjusting for diabetes, smoking, or hypertension did not significantly change relative risk of death for OAR vs. EVAR

Conclusions

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- OAR has higher 30-day postoperative morbidity and mortality than EVAR
- Despite the significant impact of diabetes and smoking, when controlled for pre-operative risk factors, the estimated risk of death after OAR remained 55% higher
- Suggests that it is the type of repair that portends worse outcomes

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Questions??

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