

Calcium Channel Blockers enhance sac shrink following Endovascular Aneurysm Repair

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Background

- MMPs critical to AAA development / rupture
- Also linked to sac shrink & endoleak post EVAR
- Statins, ACEi & calcium channel blockers modulate MMPs *in vitro*
- May attenuate AAA growth *in vivo*
- **Little previous work on the role of these pharmacotherapies post EVAR**

Aims

- To determine if statins, ACEis or CCBs alter sac shrinkage post EVAR

Hypothesis

- Medication that exerts an effect on AAA development and growth may also have beneficial effects on sac shrinkage after EVAR

Methods

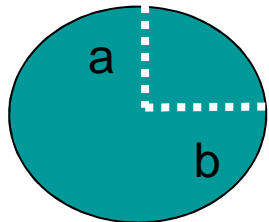
- All EVARs 2005-2008 at our centre retrospectively reviewed
- Demographics, risk factors, Glasgow Score
- Medications at time of EVAR
- All scans re-measured (AP / Trans)
 - CT & USS
- Mortality and endoleak development
 - 2 years follow up

Methods

- Measuring Sac Shrinkage Rates

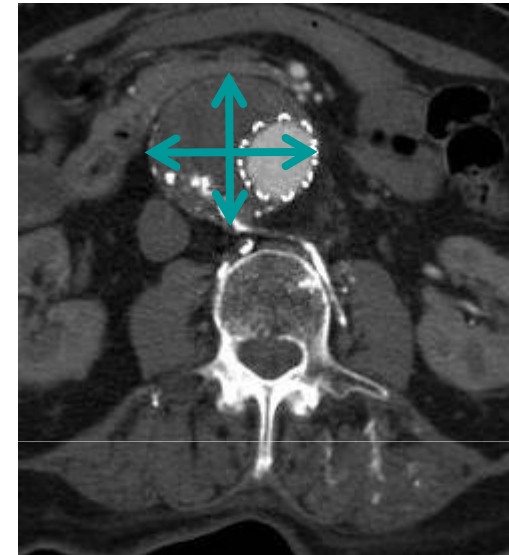
- Idealised cross sectional area

- Using Formula πab



a = maximal AP diameter/2

b = maximal trans diameter/2



- Percentage change from pre-operative imaging at:

- 1 month, 6 months, 1 year, 2 years

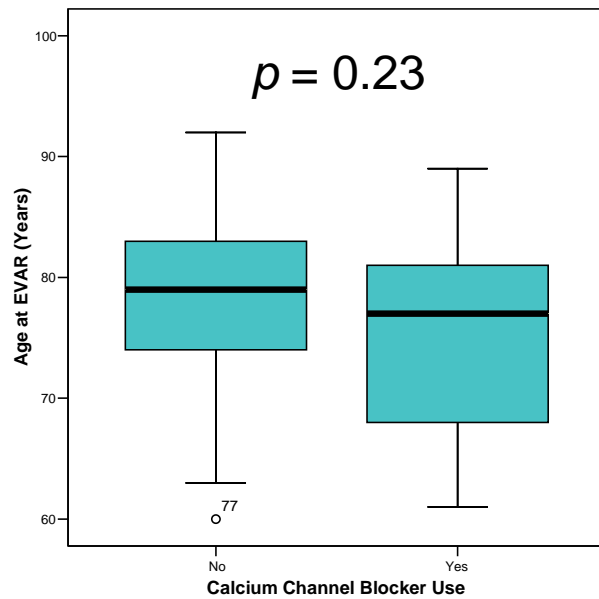
- Linear regression model used to identify significant factors effecting sac shrink

Results

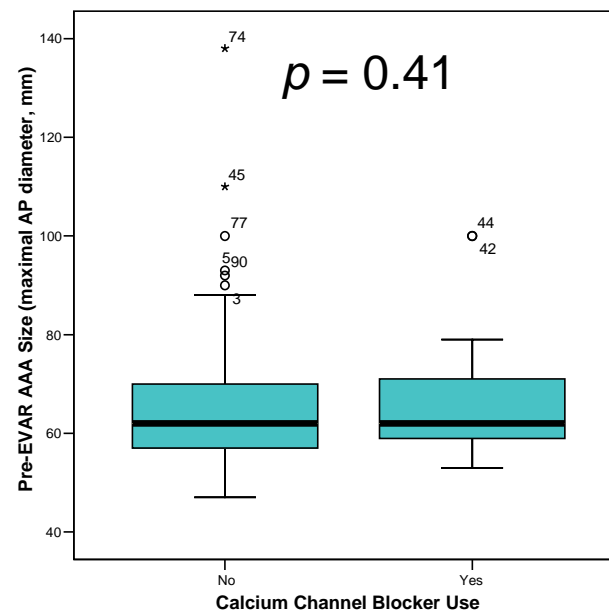
- Data available for 112 patients
 - Median Age 78 (73-83) years
 - 89% male preponderance
- Only Calcium Channel Blockers (CCB) had a significant effect on sac shrinkage
- Further analysis will focus on CCB use
 - CCB group = 21 patients
 - Control group = 91 patients

Matching

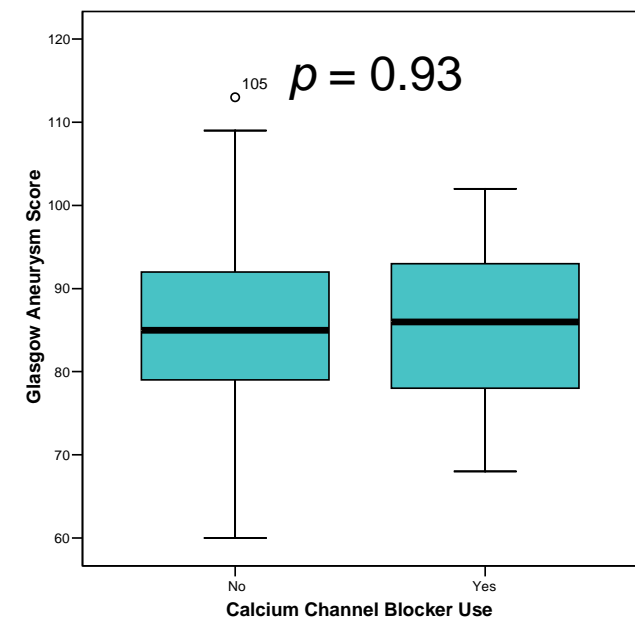
Age



AAA Size



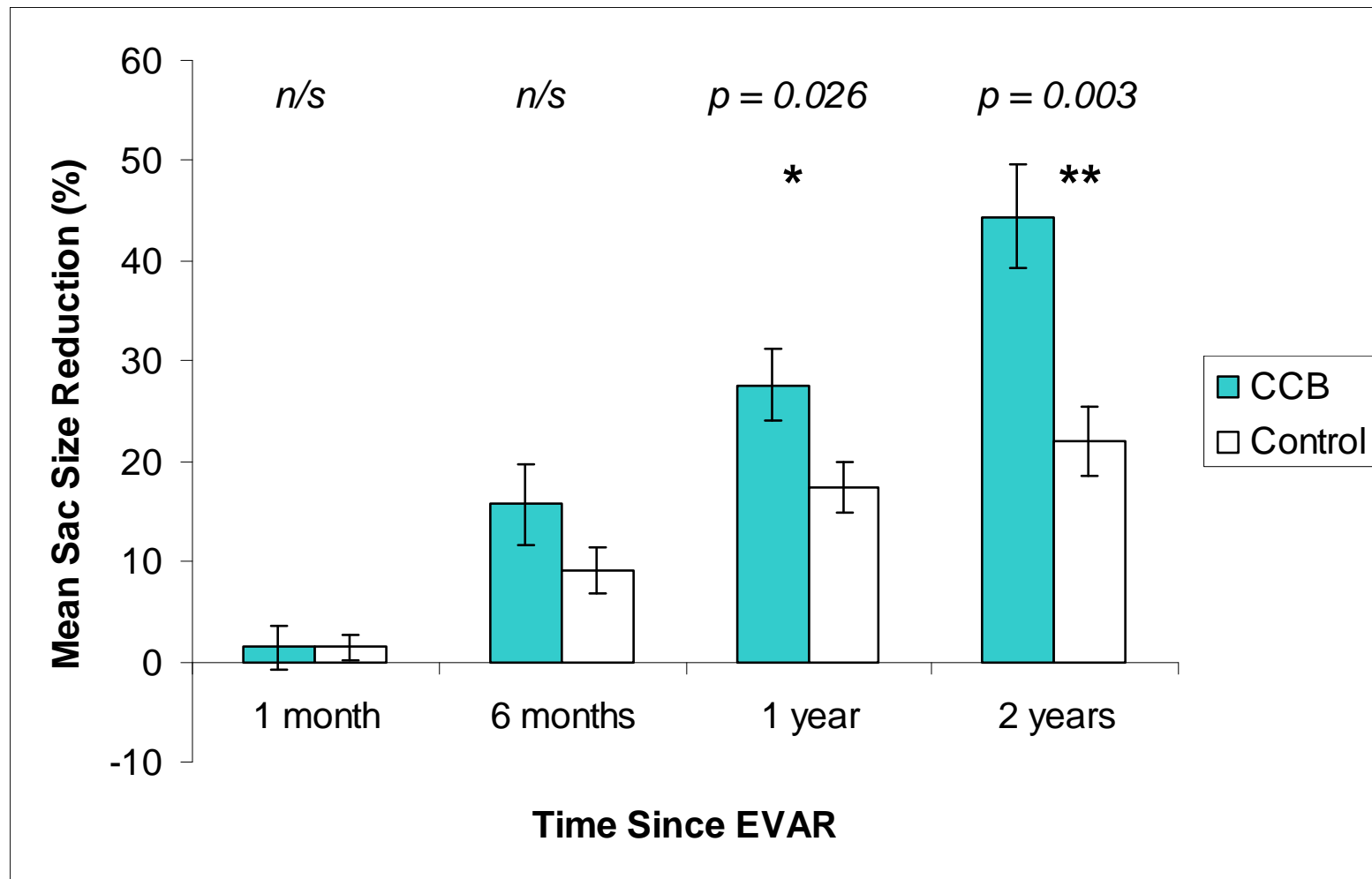
Glasgow Aneurysm Score



- Well matched for other medication use
- Well matched for endograft manufacturer

p values calculated using unpaired Mann-Whitney U

CCB and sac shrink



p values for difference in mean on t-test (normally distributed)

CCB and sac shrink

	<i>Mean Difference (%)</i>	<i>95% CI lower</i>	<i>95% CI upper</i>	<i>Crude p</i>	<i>Adjusted p†</i>	<i>Effect Size Cohen's d</i>
1 month	-0.04	-5.2	5.1	0.99	n/a	n/a
6 months	6.6	-3.0	16.3	0.17	n/a	0.38
1 year	10.3	1.3	19.3	0.026*	0.038*	0.55
2 years	22.5	9.2	35.8	0.003**	0.009**	1.07

† on logistic regression analysis. Model including medications, graft type & age.

Discussion

- CCBs enhance sac shrink after EVAR
 - Independent of other MMP modulating agents
- Important clinical observation
- Warrants further study and molecular and clinical level
- Implications for pathogenesis and treatment of disease process