

## Background

- Sarcopenia, skeletal muscle mass loss, has been linked with post-operative adverse outcomes.<sup>1</sup>
- This interaction is not well understood following complex abdominal aortic aneurysms repair with key-hole fenestrated endovascular aortic stent graft insertion (FEVAR).

## Aims

To evaluate the relationship between peri-procedural sarcopenia and complex aortic aneurysm repair outcomes

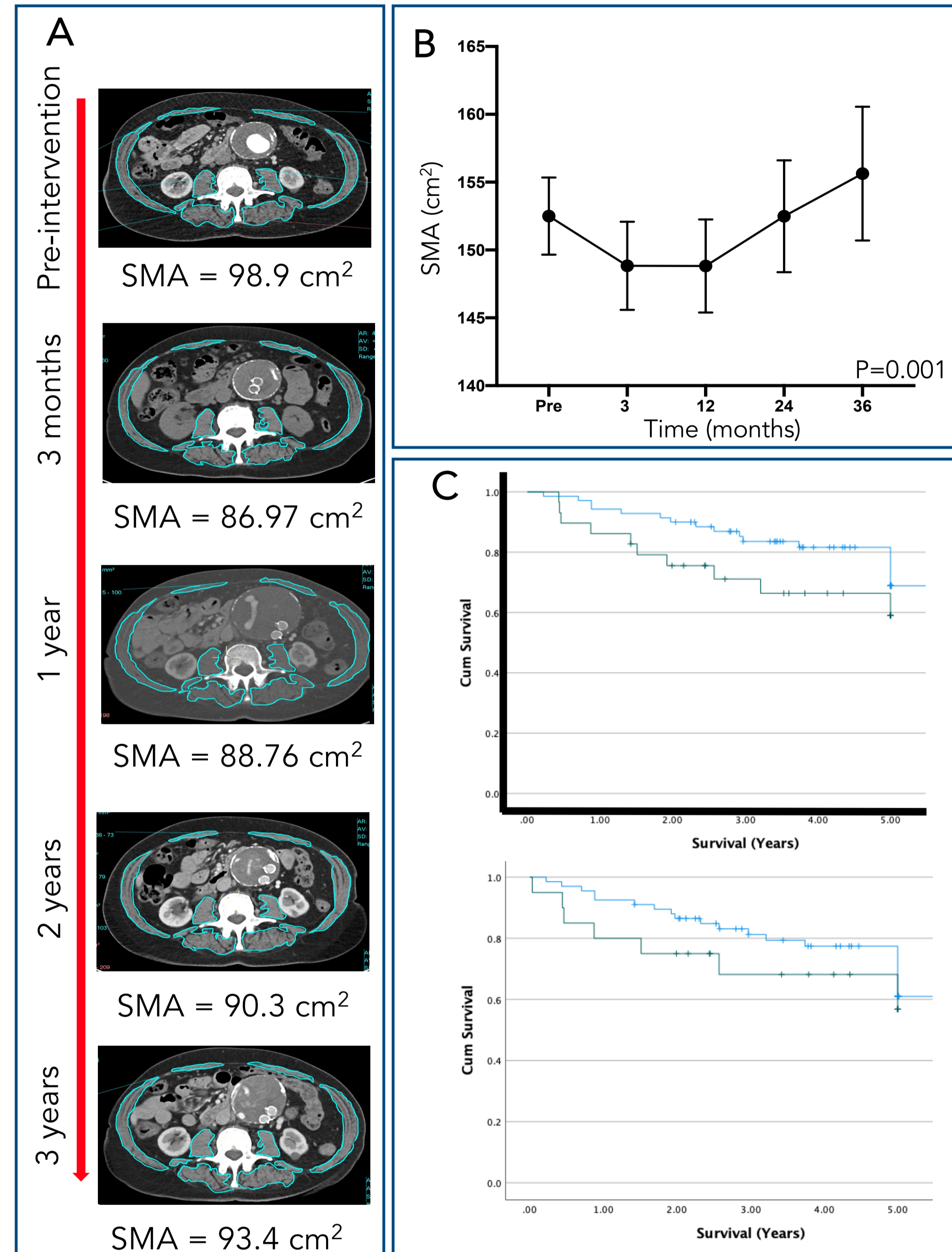
## Method

A database of all complex aortic aneurysm repairs performed by key-hole fenestrated stent endo-grafts (FEVARs) between 2007 and 2021 at Newcastle Hospitals was reviewed.

Sarcopenia was evaluated by measuring skeletal muscle surface area at the lumbar vertebral level 3 on Computed Tomography (CT) images using appropriate cut-off values. Baseline and longitudinal clinical data were captured. The primary outcome was to evaluate the relationship between sarcopenia and survival.

## References

1) Santilli V, Bernetti A, Mangone M, Paoloni M. Clinical definition of sarcopenia. Clin Cases Miner Bone Metab. 2014 Sep;11(3):177-80.



**Figure 1. Longitudinal changes of sarcopenia post-FEVAR**

A) An example of peri-FEVAR skeletal muscle area changes on patients CT images. B) Sarcopenia worsened within 3 months after FEVAR (P=0.001) and took 3 years to recover (Pre-op sarcopenia=14.7%, 3 months=21.3%, 1-year=19.1%, 2-year=14.7%, 3-year=10.3%). C) Kaplan Meier's survival analysis of pre and post FEVAR sarcopenia. SMA, skeletal muscle area.

## Results

- ✓ 184 Patients (88.6% males) underwent FEVAR
- ✓ Median age 74.3 years [IQR 69-78]
- ✓ 11.4% had pre-operative sarcopenia, deteriorating to 18.5% post FEVAR (P=0.001) and took 3 years to recover.
- ✓ Pre-operative sarcopenia (P=0.001) was the only predictor for post-operative sarcopenia
- ✓ 3 month, 1-year and 2-year sarcopenia levels (P=0.02), chronic kidney disease (P=0.008, HR 2.6, CI 1.28-5.32) and pre-intervention haemoglobin levels (P=0.007, HR 0.98, CI 0.97-1.1) were significant predictors for 4-year survival.

## Conclusion

Despite the minimally invasive nature of FEVAR, sarcopenia worsens post-operatively and takes two years to recover. Although there was no clear direct relationship between sarcopenia and clinical outcomes here, perhaps through further study improved post intervention rehabilitation will accelerate recovery for this prophylactic intervention.

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