The impact of patient demographics on the third lumbar vertebral skeletal muscle index (L3SMI) of patients with obesity

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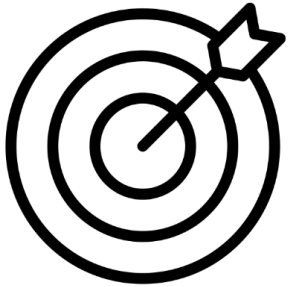
Background

Sarcopoenia in the context of Obesity is associated with poor health

Skeletal Muscle Index (SMI) is a surrogate marker for sarcopoenia

SMI is calculated using Computer Tomography (CT) at a specific vertebral level

Objectives & Methods

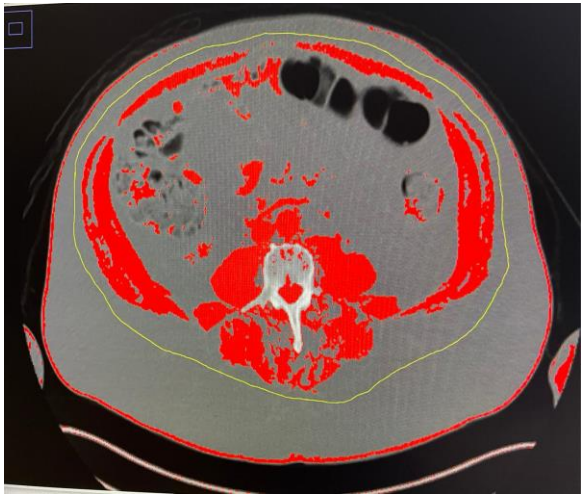


- **Objectives:** Determine whether patient demographics (age, gender, ASA, ethnicity) impacts SMI score in patients living with Obesity

- **Methods:**
  - Patients with Obesity due to undergo Bariatric surgery who had a CT Abdomen/Pelvis for any reason within 2 years
  - SMI calculated using the validated L3SMI (L3 Vertebra) level technique
  - Comparisons between different patient groups

CT Measurement

- Software to measure Skeletal Muscle Index at L3 vertebra (L3SMI)
- Total muscle surface area @ L3/squared height
- Reported as cm^2/m^2



Skeletal Muscle Index = $\frac{\text{Total Muscle Surface Area (at L3 vertebra)}}{\text{Height in m}^2}$

Results (n= 72)

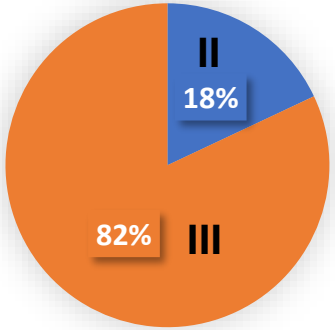
Sex

84.7%

BMI (Median)

43.5 Kg/m² (40.7 – 48.6)

ASA



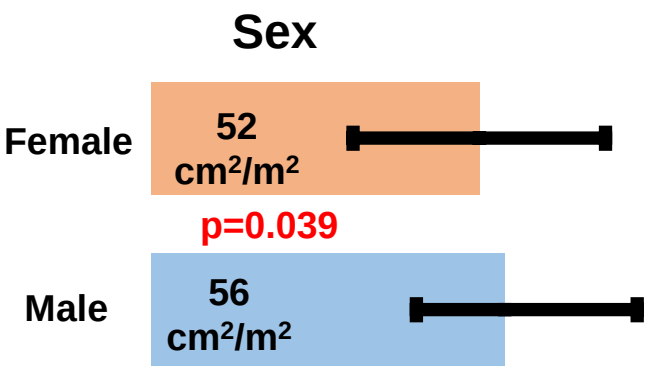
Age (Median)

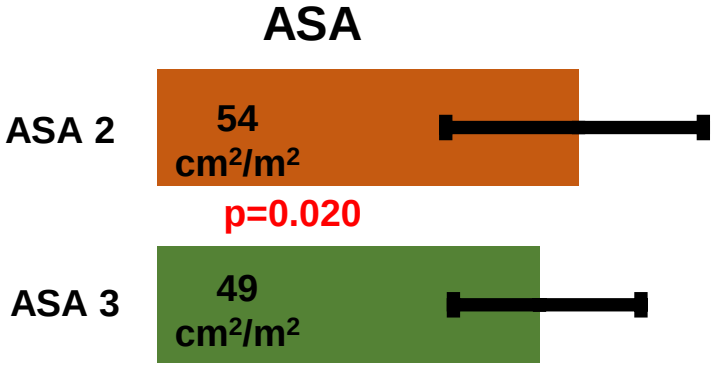
48 years (39 – 57)

L3SMI (Median)

53 cm²/m² (52 – 56)

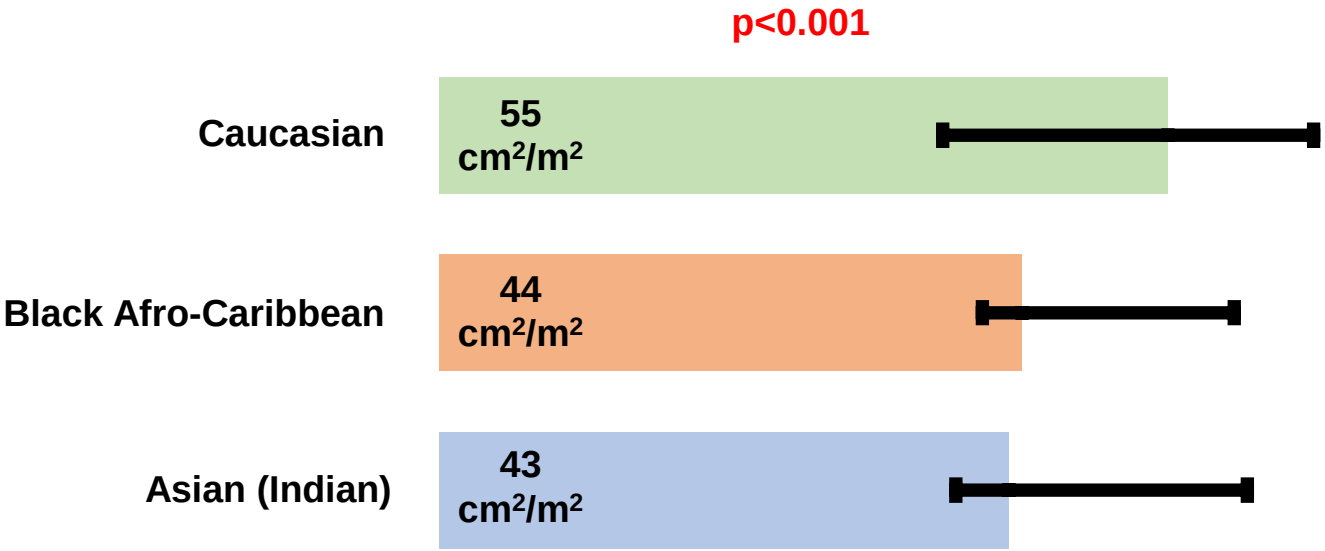
Results: Sex and ASA





Age: no statistical difference

Results: Ethnicity



Conclusion

- There are differences in SMI amongst patient groups based on **Sex**, **ASA** Grade and **Ethnicity**
- Females, patients with higher ASA Grade and those of Black Afro-Caribbean and South Asian (Indian) had a lower baseline SMI
- However, older age does not necessarily signify a lower SMI compared to younger age groups
- Further work in exploring this differences is required to guide pre-operative interventions such as exercise and physiotherapy programs in patients with lower SMI

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