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RELATION BETWEEN CT-DERIVED SKELETAL MUSCLE AREA AT FOURTH THORACIC VERTEBRA LEVEL AND THIRD LUMBAR VERTEBRA LEVEL

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Presentation Method: Oral or Poster presentation

Please indicate your professional occupation: Dietitian

The presenting author fulfills the above conditions and wants to apply for a travel award: Yes

I confirm that the presenting author is under the age of 35: Yes

Rationale: Low skeletal muscle area (SMA) at admission to the intensive care unit, as measured at lumbar vertebra (L3) level, predicts hospital mortality independent of APACHE II score[1]. However, abdominal CT-scans are not always available, while diagnostic thoracic CT-scans, including the level of the fourth thoracic vertebra (T4), may be. Therefore, the aim was to determine whether SMA at T4 correlates to SMA at L3 level and identify the same patients.

Methods: SMA at L3 and T4 level was determined using SliceOMatic software, with HU range of -29 to +150. Pearson's correlation coefficient was used to determine the relation between SMA at T4 and L3 level. Regression analysis was used to translate mortality related cutoff values of L3 level into cutoff values at T4 level.

Results: Sixty-two T4 and L3 scans were analyzed. Mean age was 63±15y, 63% male. Mean APACHE was 23±8. Mean SMA was 123±4 cm^2 at L3 and 169±5 cm^2 at T4 level, with correlation 0.822 ($p<0.001$). Cutoff values for SMA at T4 of 225 cm^2 for males and 146 cm^2 for females were found. At L3 level 79% the patients was categorized as having low SMA and 75% at T4 level. At T4 level, 79% of the patients were classified as low or normal SMA using L3 as reference. For T4 versus L3 low SMA identification, sensitivity was 86%, specificity 54%, positive predictive value 88% and negative predictive value 50%.

Conclusion: Skeletal muscle area (SMA) at T4 level is higher than at L3 level. CT-derived SMA at T4 correlates strongly to L3 level. Since these L3-derived T4 level cutoffs are sensitive for low SMA but not specific, new mortality-based T4 cutoffs may have to be defined based on a larger cohort.

References: [1]PMID: 24410863

Disclosure of Interest: None Declared

Keywords: CT-scan, skeletal muscle area