Abstract Type : Poster exhibition
Abstract Submission No.: A-0263
Abstract Topic : Renal Conservative Care + Geriatric Nephrology + Sarcopenia

Skeletal muscle density measured in L3 computerized tomography is a prognostic marker in patients initiating hemodialysis

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Objectives : Skeletal muscle density (SMD), assessed via L3 computed tomography (CT), is a critical marker of muscle quality and has shown significnat prognostic value in various clinical settings. We aimed to investigate skeletal muscle density using CT imaging in patients initating hemodialysis and verified its relationship with mortality and other variables.
Methods : Forty hundred fifty-eight patients initial hemodialysis patients in Daejeon Saint Mary Hospital were enrolled in this retrospective study. Non-enhanced abdomen CT and image J program was used to analyze SMD and skeletal muscle index (SMI). We obtained sex-specific cut-offs value of the abdominal SMI and SMD by drawing ROC curve for mortality. Then we applied those cut-offs to identify low skeletal muscle density group and low skeletal muscle index group.
Results : During a median follow-up of 24 months, 204 (44.5%) patients died. Skeletal muscle density showed better ability to predict survival [AuROC 0.778 (95% CI 0.706 - 0.850) for women and AuROC 0.734 (95% CI 0.677 - 0.791) for men] while skeletal muscle index predict survival only in male [AuROC 0.476 (95% CI 0.386 - 0.567) for women and AuROC 0.606 (95% CI 0.539 - 0.674) for men]. In the fullly adjusted cox regression analysis, the patients with low skeletal muscle density had a higher risk of death than the patients with values above the refernece cut-off. (adjHR 1.934 95% CI 1.322 - 2.831, p-value < 0.001) While the patients with low skeletal muscle index had a ghier risk of death than the patients with value above the reference cut-off. (adjHR 1.566 95% CI 1.152 - 2.130, p-value = 0.004).
Conclusions : Low skeletal muscle density assessed by CT is independently associated with all-cause mortality in patients initiating hemodialysis.

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June 19 (Thu) – 22 (Sun), 2025 Coex, Seoul, Korea
Beyond Challenges, Towards Healthier Kidney
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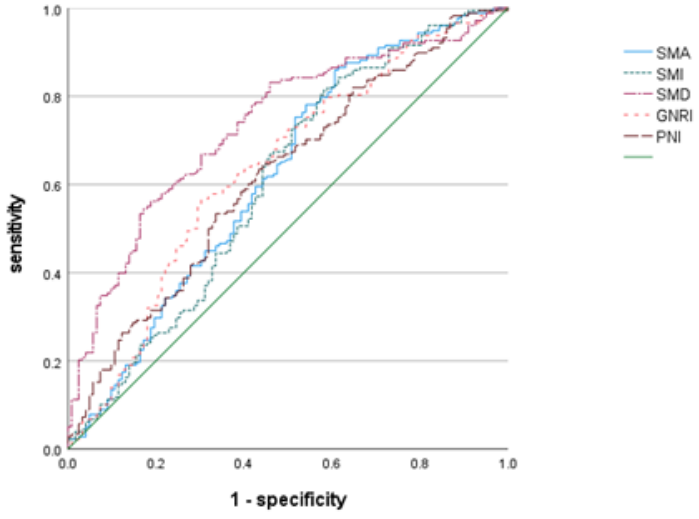
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