

**KORELASI ANTARA MASSA OTOT RANGKA
BERDASARKAN SKELETAL MUSCLE INDEX
PADA PEMERIKSAAN COMPUTED TOMOGRAPHY SIMULATOR
DENGAN STADIUM KANKER SERVIKS**

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INTISARI

Latar Belakang: Kanker serviks merupakan penyebab utama morbiditas dan mortalitas pada perempuan di Indonesia. Penurunan massa otot rangka yang diukur melalui *Skeletal Muscle Index* (SMI) berpotensi memengaruhi perjalanan penyakit. Pemeriksaan CT simulator yang rutin dilakukan untuk perencanaan *Concurrent Chemoradiotherapy* (CCRT) dapat dimanfaatkan untuk menilai massa otot secara kuantitatif.

Tujuan: Menilai korelasi antara SMI dengan stadium kanker serviks serta pengaruh kadar hemoglobin (Hb), rasio neutrofil-limfosit (NLR), dan indeks massa tubuh (IMT).

Metode: Penelitian cross-sectional retrospective terhadap pasien kanker serviks yang menjalani CT simulator di RSUP Dr. Sardjito Yogyakarta (Juli 2024–Maret 2025). Pengukuran Skeletal Muscle Area dilakukan pada potongan aksial setinggi L3 menggunakan 3D *Slicer*. Analisis menggunakan uji korelasi Spearman dan regresi linier berganda.

Hasil: Analisis bivariat menunjukkan korelasi negatif signifikan antara stadium kanker serviks dan SMI ($p = 0,001$). Namun, setelah dikontrol terhadap kadar Hb, NLR, dan IMT, hubungan tersebut menjadi tidak bermakna ($p = 0,101$). Hb ($p = 0,005$), NLR ($p = 0,024$), dan IMT ($p < 0,001$) menunjukkan hubungan signifikan dengan SMI

Kesimpulan: Terdapat korelasi negatif antara stadium kanker serviks dengan SMI pada analisis awal, tetapi bukan merupakan faktor independen setelah dikontrol oleh variabel nutrisi dan inflamasi. Faktor Hb, NLR, dan IMT memiliki pengaruh yang kuat terhadap SMI, menunjukkan bahwa perubahan massa otot rangka pada pasien kanker serviks bersifat multifaktorial dan dipengaruhi oleh status metabolik serta inflamasi sistemik

Kata Kunci: Skeletal Muscle Index, sarkopenia, kanker serviks, CT simulator, hemoglobin, NLR, IMT.

***CORRELATION BETWEEN SKELETAL MUSCLE MASS
BASED ON THE SKELETAL MUSCLE INDEX
ON COMPUTED TOMOGRAPHY SIMULATOR EXAMINATION
AND CERVICAL CANCER STAGE***

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ABSTRACT

Background: Cervical cancer remains one of the leading causes of morbidity and mortality among women in Indonesia. Loss of skeletal muscle mass (sarcopenia), assessed by the Skeletal Muscle Index (SMI), may influence disease progression. The CT simulator routinely used for Concurrent Chemoradiotherapy (CCRT) planning can be utilized to quantitatively evaluate muscle mass.

Objective: To assess the relationship between SMI and the stage of cervical cancer, as well as the influence of hemoglobin (Hb), neutrophil-to-lymphocyte ratio (NLR), and body mass index (BMI).

Methods: A retrospective cross-sectional study was conducted on patients with cervical cancer who underwent CT simulation at Dr. Sardjito General Hospital, Yogyakarta, from July 2024 to March 2025. Skeletal Muscle Area was measured on axial slices at the L3 vertebral level using 3D Slicer software. Data were analyzed using Spearman correlation and multiple linear regression tests.

Results: Bivariate analysis showed a significant negative correlation between cervical cancer stage and SMI ($p = 0.001$). However, after adjusting for Hb, NLR, and BMI, the relationship became nonsignificant ($p = 0.101$). Hb ($p = 0.005$), NLR ($p = 0.024$), and BMI ($p < 0.001$) were significantly associated with SMI.

Conclusion: There was a negative correlation between cervical cancer stage and SMI in the initial analysis, but it was not an independent factor after adjustment for nutritional and inflammatory variables. Hb, NLR, and BMI showed stronger influences on SMI, indicating that skeletal muscle mass changes in cervical cancer are multifactorial and influenced by metabolic status and systemic inflammation.

Keywords: Skeletal Muscle Index, sarcopenia, cervical cancer, CT simulator, hemoglobin, NLR, BMI.