

ABSTRAK

HUBUNGAN *SKELETAL MUSCLE INDEX* IBU HAMIL TERHADAP BERAT BADAN DAN PBL BAYI

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Latar belakang Berat badan lahir (BBL) dan panjang badan lahir (PBL) merupakan indikator penting kesehatan bayi baru lahir. Status gizi dan komposisi tubuh ibu dimana termasuk massa otot, mempengaruhi pertumbuhan janin selama kehamilan. Massa otot yang baik mencerminkan status gizi sebelum kehamilan yang adekuat. *Skeletal Muscle Index* (SMI) merupakan parameter massa otot yang mencerminkan protein tubuh dan dapat dinilai menggunakan *Bioelectrical Impedance Analysis* (BIA). Penelitian mengenai hubungan SMI ibu hamil dengan ukuran lahir bayi belum ada dalam publikasi ilmiah

Tujuan: Menganalisis hubungan antara *SMI* ibu hamil dengan BBL dan PBL bayi.

Metode: Dilakukan penelitian observasional analitik dengan desain *cross-sectional* yang melibatkan 54 ibu hamil usia 19–35 tahun dengan kehamilan tunggal yang menjalani pemeriksaan komposisi tubuh menggunakan BIA pada usia kehamilan 13–28 minggu. Variabel bebas adalah SMI ibu hamil. Variabel terikat adalah BBL dan PBL bayi. Analisis dilakukan menggunakan uji korelasi *Spearman* serta regresi linear berganda.

Hasil: Rerata BBL dan PBL bayi adalah 2960 g (1300-4300) dan 48,9±2,1 cm. Analisis menunjukkan tidak terdapat hubungan antara SMI ibu hamil dengan BBL bayi ($r=-0,060$; $p=0,664$) dan PBL bayi ($r=0,026$; $p=0,850$). Usia kehamilan berhubungan dengan PBL bayi ($r=0,355$; $p=0,008$) tetapi dengan BBL bayi tidak berhubungan ($r=0,252$; $p=0,067$). Namun setelah dilakukan analisis multivariat dan dikontrol terhadap variabel perancu, ternyata hanya usia kehamilan yang berhubungan bermakna terhadap BBL ($B=0,058$ $\beta=0,451$; $p=0,001$; $CI=0,023-0,092$) dan PBL ($B=0,563$; $\beta=0,424$; $CI=0,197-0,928$; $p=0,003$), sedangkan SMI ibu hamil tidak berhubungan dengan ukuran lahir

Kesimpulan: *SMI* ibu hamil tidak berhubungan dengan BBL maupun PBL bayi. Usia kehamilan merupakan faktor determinan kuat BBL dan PBL bayi

Kata kunci: *Skeletal Muscle Index*, ibu hamil, berat badan lahir, panjang badan lahir, *Bioelectrical Impedance Analysis*.

ABSTRACT

THE ASSOCIATION BETWEEN SKELETAL MUSCLE INDEX IN PREGNANT WOMEN AND INFANT BIRTH WEIGHT AND BIRTH LENGTH

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Background: Birth weight (BW) and birth length (BL) are important indicators of neonatal health. Maternal nutritional status and body composition, including muscle mass, influence fetal growth during pregnancy. Adequate muscle mass reflects good pre-pregnancy nutritional status. Skeletal Muscle Index (SMI) is a parameter of muscle mass that reflects body protein reserves and can be assessed using Bioelectrical Impedance Analysis (BIA). To date, studies investigating the relationship between maternal SMI and neonatal birth size have not been reported in the scientific literature

Objective: To analyze the association between maternal SMI and infant birth weight and birth length.

Methods: An analytical observational study with a cross-sectional design was conducted involving 54 pregnant women aged 19–35 years with singleton pregnancies. Maternal body composition was assessed using BIA at 13–28 weeks of gestation. The independent variable was maternal SMI. The dependent variables were neonatal birth weight and birth length. Data were analyzed using Spearman correlation tests, followed by multiple linear regression analysis.

Results: The mean birth weight and birth length were 2,960 g (1,300–4,300 g) and 48.9 ± 2.1 cm, respectively. No significant association was found between maternal SMI and birth weight ($r = -0.060$; $p = 0.664$) or birth length ($r = 0.026$; $p = 0.850$). Gestational age was significantly associated with birth length ($r = 0.355$; $p = 0.008$), but not with birth weight ($r = 0.252$; $p = 0.067$). However, after multivariable analysis adjusting for potential confounding factors, gestational age was the only variable significantly associated with birth weight ($B = 0.058$; $\beta = 0.451$; $p = 0.001$; 95% CI: 0.023–0.092) and birth length ($B = 0.563$; $\beta = 0.424$; 95% CI: 0.197–0.928; $p = 0.003$). Maternal SMI was not significantly associated with neonatal birth size.

Conclusion: Maternal SMI was not associated with infant birth weight or birth length. Gestational age was a strong determinant of infant birth weight and birth length.

Keywords: Skeletal Muscle Index, pregnant women, birth weight, birth length, Bioelectrical Impedance Analysis.