

ABSTRAK

HUBUNGAN ANTARA *STANDARDIZED PHASE ANGLE* (SPA) DAN *HANDGRIP STRENGTH* (HGS) DENGAN LAMA PENGGUNAAN VENTILASI MEKANIK PADA PASIEN BEDAH JANTUNG

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Latar belakang: Durasi ventilasi mekanik memanjang (*Prolonged Mechanical Ventilation/PMV*) merupakan tantangan utama pada pasien pasca bedah jantung dan mempengaruhi prognosis klinis. Penilaian status gizi menggunakan *Phase Angle* (PA) dengan alat *Bioelectric Impedance Analysis* (BIA) frekuensi tunggal dan kekuatan otot dengan *Handgrip Strength* (HGS) berperan sebagai indikator prediktif.

Tujuan: Menginvestigasi hubungan *Standardized Phase Angle* (SPA) yang diukur menggunakan alat BIA frekuensi multi dan HGS sebelum dan sesudah operasi dengan lama penggunaan ventilasi mekanik pada pasien bedah jantung

Metode penelitian: Penelitian *cross sectional* dilakukan pada 32 pasien bedah jantung elektif. SPA diukur menggunakan *Bioelectrical Impedance Analysis* (BIA) dan HGS dinilai dengan dinamometer genggam. Uji normalitas menggunakan *Uji Shapiro-Wilk*. Uji korelasi *Pearson* dan *Spearman* digunakan untuk menguji hubungan antar variabel.

Hasil: SPA dan HGS sebelum dan sesudah operasi, serta status gizi yang dinilai menggunakan *Malnutrition Screening Tool* (MST) sebelum operasi tidak berhubungan bermakna dengan lama penggunaan ventilasi mekanik ($p>0,05$), namun Indeks Massa Tubuh (IMT) menunjukkan hubungan positif yang bermakna dengan durasi ventilasi mekanik ($p=0,038$, $r=0,369$).

Simpulan: IMT yang berhubungan secara bermakna dengan lama penggunaan ventilasi mekanik, menunjukkan relevansinya sebagai indikator risiko klinis yang perlu dipertimbangkan dalam tata laksana pasien bedah jantung.

Kata kunci: bedah jantung elektif, SPA, HGS, IMT, ventilasi mekanik

ABSTRACT

ASSOCIATION OF STANDARDIZED PHASE ANGLE (SPA) AND HANDGRIP STRENGTH (HGS) WITH THE DURATION OF MECHANICAL VENTILATION IN CARDIAC SURGERY PATIENTS

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Background: *Prolonged Mechanical Ventilation (PMV) is a major challenge in post-cardiac surgery patients and affects clinical prognosis. Assessment of nutritional status using Phase Angle (PA) measured by single-frequency bioelectric impedance analysis (BIA) and muscle strength evaluation using handgrip strength (HGS) play a role as predictive indicators.*

Objective: *To investigate the association between standardized phase angle (SPA) measured using a multi-frequency BIA and HGS before and after surgery with the duration of mechanical ventilation in cardiac surgery patients.*

Methods: *A cross-sectional study was conducted involving 32 elective cardiac surgery patients. SPA was measured using Bioelectrical Impedance Analysis (BIA) and HGS was assessed using a hand dynamometer. The Shapiro-Wilk test was used to assess normality. Pearson and Spearman correlation tests were used to analyze the associations between variables.*

Results: *SPA and HGS, both before and after surgery, as well as nutritional status assessed using Malnutrition Screening Tool (MST) prior to surgery, were not significantly associated with the duration of mechanical ventilation ($p > 0.05$). However, Body Mass Index (BMI) showed a significant positive association with the duration of mechanical ventilation ($p = 0.038$, $r = 0.369$).*

Conclusion: *BMI was significantly associated with the duration of mechanical ventilation, highlighting its relevance as a clinical risk indicator that should be considered in the management of cardiac surgery patients.*

Keywords: *elective cardiac surgery, SPA, HGS, BMI, mechanical ventilation*