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Analysis of blood urea nitrogen/albumin ratio, pneumonia severity index, and interleukin 8 levels in patients undergoing pulmonary rehabilitation and shortwave diathermy

Abstract:

Early mobilization has become standard management for patients with Pneumonia, and physical activity in hospitalized patients remains limited and has not become a priority therapy in clinical practice. The aim of this study is to analyze the effects of Pulmonary Rehabilitation (PR) and Shortwave Diathermy (SWD) on the Blood Urea Nitrogen (BUN)/Albumin ratio, Pneumonia Severity Index (PSI), Interleukin-8 (IL-8) levels, and length of Stay (LOS) in Pneumonia inpatient. This is a randomized experimental study with a pre-post-test control group. Involved 24 hospitalized Pneumonia patients from 2022 until 2023 at Dr. Saiful Anwar General Hospital and Lawang General Hospital. Subjects were divided into three groups: a control group, an intervention group (PR only), and an intervention group (PR and SWD) for 5 days. This data was analyzed by comparing the delta of each group. The severity index was measured with PSI and CURB-65, and blood samples were collected before and after intervention to measure the BUN/Albumin ratio and IL-8 levels. There was a significant decrease in the BUN/Albumin ratio after intervention ($p=0.03$). IL-8 levels and LOS showed a declining trend, although not showing statistically significant differences ($p=0.208$; $p=0.249$). There was a significant correlation between PSI and IL-8, as well as the BUN/Albumin ratio ($p=0.015$; $p=0.002$ | $p=0.001$). This study highlights a decrease in IL-8 levels and the BUN/Albumin ratio, and a shortened LOS in Pneumonia patients receiving PR and SWD therapy for 5 days. This study strengthened the evidence that PR and SWD can be routine support therapies for patients with Pneumonia.

Biography

Cindy Carrissa Primaputri completed her medical education at Maranatha Christian University, Bandung, and West Java, Indonesia in 2016 and continued her study to become a Pulmonologist in 2021. Now, she is a Senior Resident in Pulmonary and Respiratory Medicine at Universitas Brawijaya, Malang, and East Java, Indonesia. This study was conducted to fulfill the requirements for obtaining a specialist degree as a Pulmonologist.