ABSTRAK

PROFIL KEAMANAN VENTILATOR EMERGENSI VENINDO R-03 DENGAN PENILAIAN *IL-6* PADA PASIEN PASKA OPERASI DI ICU RSUP DR. SARDJITO YOGYAKARTA

Akhmad Yun Jufan

Latar belakang: Tim Kolaborasi Pengembang Ventilator UGM mengembangkan Ventilator Indonesia (Venindo) R-03 sebagai solusi peningkatan kebutuhan ventilator emergensi di era pandemi COVID-19. Venindo R-03 terbukti dalam uji klinis memberikan oksigenasi dan ventilasi yang adekuat, serta aman. Dalam riset pengembangannya dibutuhkan penelitian lanjutan terkait komplikasi. Studi tentang biomarker potensial IL-6 dalam *ventilator-induced lung injury* memberikan gambaran patofisiologi mekanisme cedera paru dan prediktor hasil klinis.

Tujuan: Untuk menilai keamanan Venindo R-03.

Metode: Penelitian ini merupakan penelitian quasi eksperimental pre dan post intervensi ventilator pada pasien yang memerlukan perawatan di ICU dengan bantuan ventilasi mekanik paska menjalani operasi dengan anestesi umum menggunakan endotracheal tube di RSUP dr. Sardjito.

Hasil: Penelitian ini menunjukkan bahwa terjadi penurunan kadar IL-6 sebelum dan sesudah intervensi dengan penggunaan ventilator Venindo R-03 yang bermakna secara statistik. Rerata kadar IL-6 pada sebelum pemasangan ventilator sebesar 38,85 ± 13,23 pg/mL, rerata kadar IL-6 setelah pemasangan ventilator sebesar 33,36 ± 10,44 pg/mL, $p<0,05$. Penggunaan ventilator Venindo R-03 tidak mempengaruhi status oksigenasi individu dari kondisi dasar sebelum pemasangan ventilator dibuktikan dengan rata-rata nilai OI, rasio PF, dan OSI yang tidak berbeda bermakna (OI pre vs OI post 4,96 ± 5,11 vs 4,58 ± 4,79, $p = 0,724$; rasio PF pre vs rasio PF post 418.56 ± 149.84 vs 446.65 ± 167.95, $p = 0,308$; OSI pre vs OSI post 7.12 ± 3,56 vs 6,29 ± 2,57, $p = 0,474$).

Kesimpulan: Terdapat perbedaan bermakna kadar IL-6 setelah penggunaan Ventilator Emergensi Venindo R-03 pada pasien paska operasi di ICU RSUP DR. Sardjito Yogyakarta

Kata kunci: Ventilator Emergensi, Venindo R-03, IL-6, *ventilator-induced lung injury*

ABSTRACT

SAFETY PROFILE OF EMERGENCY VENTILATOR VENINDO R-03 BY EVALUATING IL-6 IN POST OPERATIVE PATIENT AT ICU RSUP DR. SARDJITO YOGYAKARTA

Akhmad Yun Jufan

Background: The UGM Ventilator Developer Collaboration Team developed the Indonesian Ventilator (Venindo) R-03 as a solution to the increasing need for emergency ventilators in the era of the COVID-19 pandemic. Venindo R-03 is proven in clinical trials to provide adequate oxygenation and ventilation, and is safe. In its development research, further research related to complications is needed. Studies on potential biomarkers of IL-6 in ventilator-induced lung injury provide an overview of the pathophysiological mechanisms of lung injury and predictors of clinical outcome.

Purpose: To assess the safety of Venindo R-03.

Methods: This study was a quasi-experimental study of pre and post ventilator intervention in patients who require treatment in the ICU with the help of mechanical ventilation after undergoing surgery under general anesthesia using an endotracheal tube at Dr. Sardjito Hospital.

Result: This study showed that there was a decrease in IL-6 levels before and after the intervention after using the Venindo R-03 ventilator. The mean IL-6 level before ventilator installation was 38.85 ± 13.23 pg/mL, the mean IL-6 level after ventilator installation was 33.36 ± 10.44 pg/mL, $p<0.05$. The use of the Venindo R-03 ventilator did not affect the individual's oxygenation status from the baseline condition before installing the ventilator as evidenced by the average values of OI, PF ratio, and OSI which were not significantly different (OI pre vs OI post 4.96 ± 5.11 vs 4.58 ± 4.79, $p = 0.724$; PF pre vs post PF ratio 418.57 ± 149.84 vs 446.66 ± 167.95, $p = 0.308$; OSI pre vs OSI post 7.12 ± 3.56 vs 6.29 ± 2.57, $p = 0.474$).

Conclusion: There was a significant difference in IL-6 levels after using the Venindo R-03 Emergency Ventilator in post-operative patients in the ICU at RSUP DR. Sardjito Yogyakarta

Keywords: Emergency Ventilator, Venindo R-03, IL-6, ventilator-induced lung injury