

ABSTRAK

Latar Belakang: Operasi penggantian katup jantung merupakan salah satu penatalaksanaan utama pada penyakit jantung struktural. Setelah operasi, pasien membutuhkan ventilasi mekanik, dan durasi penggunaannya berkaitan dengan luaran klinis. Duasi penggunaannya dipengaruhi oleh faktor praoperatif, intraoperatif, dan pascaoperatif. Menganalisis hubungan antara faktor-faktor tersebut penting untuk mengoptimalkan durasi penggunaan ventilasi mekanik pada pasien pascaoperasi penggantian katup jantung.

Metode: Penelitian observasional analitik dengan desain potong lintang yang melibatkan pasien pascaoperasi penggantian katup di RSUP Dr. Kariadi Semarang periode Januari 2024-Februari 2025. Data diperoleh dari rekam medis. Analisis hubungan menggunakan uji Spearman dan analisis regresi linear berganda untuk analisis multivariat.

Hasil: Jumlah total subjek adalah 44 pasien, terdiri dari 17 laki-laki dan 27 wanita dengan usia rata-rata $45,25 \pm 9,772$ tahun. Rerata durasi CPB $37,48 \pm 12,943$ menit, durasi AOX $27,68 \pm 11,22$ menit, nilai RNL pascaoperasi $5,43 \pm 2,13$, durasi ventilasi mekanik $23,13 \pm 8,36$ jam. Terdapat hubungan signifikan antara durasi CPB, durasi AOX, dan nilai RNL pascaoperasi dengan durasi ventilasi mekanik. Usia, jenis kelamin, dan jenis operasi tidak berhubungan signifikan. Analisis regresi linier berganda menunjukkan bahwa durasi CPB, durasi AOX, dan nilai RNL pascaoperasi merupakan prediktor signifikan durasi penggunaan ventilasi mekanik.

Kesimpulan: Durasi CPB, durasi AOX, dan nilai RNL pascaoperasi berhubungan signifikan dengan durasi penggunaan ventilasi mekanik pada pasien pascaoperasi penggantian katup jantung.

Kata Kunci: *Cardiopulmonary Bypass (CPB), Aortic Cross Clamp (AOX), Rasio Neutrofil Limfosit (RNL), ventilasi mekanik, operasi penggantian katup jantung.*

ABSTRACT

Introduction: Heart valve replacement surgery is one of the main treatments for structural heart disease. After surgery, patients require mechanical ventilation, and the duration of its use is related to clinical outcomes. Its duration of use is influenced by preoperative, intraoperative, and postoperative factors. Analyzing the correlation between these factors is important to optimize the duration of mechanical ventilation use in patients after heart valve replacement surgery.

Methods: This analytic observational study with a cross-sectional design involved postoperative valve replacement patients at Dr. Kariadi Hospital from January 2024 to February 2025. Data were obtained from medical records. Correlation analysis was performed using Spearman test, and multiple linear regression was used for multivariate analysis.

Results: The total subject was 44 patients, consisting of 17 men and 27 women with a mean age of $45,25 \pm 9,772$ years. Mean CPB duration $37,48 \pm 12,943$ minutes, AOX duration $27,68 \pm 11,22$ minutes, postoperative NLR $5,43 \pm 2,13$. Mean duration of mechanical ventilation $23,13 \pm 8,36$ hours. There was a weak significant correlation between CPB duration ($r=0,332$; $p=0,028$), AOX duration ($r=0,308$; $p=0,042$), and postoperative NLR value ($r=0,351$; $p=0,020$) with the duration of mechanical ventilation. Age, sex, and type of surgery were not significantly correlated. Multiple linear regression analysis showed that CPB duration, AOX duration, and postoperative NLR values were significant predictor of duration of mechanical ventilation.

Conclusions: CPB duration, AOX duration, and postoperative NLR value were significantly correlated with duration of mechanical ventilation in patients after heart valve replacement surgery.

Keywords: Cardiopulmonary bypass (CPB), Aortic cross-clamp (AOX), Neutrophil-to-Lymphocyte Ratio (NLR), mechanical ventilation, heart valve replacement surgery.