

Perfusionist

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Delta Neutrophil Index And Mortality During Cardiopulmonary Bypass: An Observational Study

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Objective: This study aimed to investigate the relationship between the delta neutrophil index (DNI) during cardiopulmonary bypass (CPB) and postoperative mortality.

Methods: This retrospective cohort study was conducted with 200 patients who underwent open heart surgery with CPB between May 1, 2023, and March 1, 2024. Demographic data, laboratory results, and surgery durations were collected. Delta neutrophil index values were measured at specific intervals.

Results: Age, pump time, and cross-clamp duration were found to be associated with mortality. Higher DNI levels were significantly correlated with longer CPB times and increased mortality.

Conclusion: This study confirms that DNI is a strong biomarker for predicting mortality. The clinical utility of this biomarker should be further assessed through additional research.

Keywords: Cardiopulmonary bypass, death, delta neutrophil index.

Table 1. Evaluation of exposure factors associated with mortality status			
Variables	Odds Ratio	95% Confidence Interval (Lower-Upper)	p-value
Age	1.06	1.03-1.11	<0.001
Pump Time	1.05	1.04-1.07	<0.001
Cross-clamp Time	1.13	1.09-1.17	<0.001

Table 2. Evaluation of differences in measurements according to pump time based on mortality status (Student's t-test)			
Measurements	Ex (Mean±SD)	Non-Ex (Mean±SD)	p-value
Ig% (DNI)-ind	1.17±0.99	0.44±0.34	<0.001
Ig% (DNI)-5 min	1.91±1.01	0.99±0.61	<0.001
Ig% (DNI)-45 min	1.47±1.04	1.23±0.94	0.26
Ig% (DNI)-90 min	1.81±0.86	1.01±0.77	0.001
Ig% (DNI)-post-op	2.01±1.43	0.51±0.28	<0.001