



Shaping Tomorrow's Nephrology: Insight-Driven Kidney Care

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Correlation Between Creatinine-to-Albumin Ratio (CAR) and Lymphocyte-to-Monocyte Ratio (LMR) with Mortality in Hemodialysis Patients: An Unveiled Predictor

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Objectives : Patient mortality is increasing in hemodialysis patients. Persistent inflammation, malnutrition, and immune dysfunction contribute to this mortality. Creatinine-to-Albumin Ratio (CAR) and Lymphocyte-to-Monocyte Ratio (LMR) are associated with an increased risk of mortality. This study aimed to determine the correlation between CAR and LMR with mortality in hemodialysis patients.

Methods : An observational analytical study with a cross sectional approach was conducted from medical record data from January to December 2025 in Moewardi Hospital. All statistical analyses were performed by SPSS V.27 for Windows. The Spearman test was used to analyse the correlation between CAR and LMR with mortality in hemodialysis patients.

Results : A total of 840 hemodialysis patients from January to December 2025. The subjects of this study consisted of age range (age 20-40 years 14.6%; 41-60 years 47.5%; and >60 years 37.8%), gender (male 52% and female 48%), education (elementary school 33.6%; junior high school 21%; senior high school 34.2%; diploma 2.5%; bachelor (8.4%); occupation (self-employed 49%; farmer 22.97%; housewife 15.5%; laborer 9.2%; civil servant 2.5%, teacher 0.5%). A total of 202 hemodialysis patients died in this study (24%). The Spearman test results are very strong correlation between CAR and LMR with mortality in hemodialysis patients. There was a correlation between CAR and an increased risk of mortality in hemodialysis patients (p-value <0.001; r = 0.803) and LMR with an increased risk of mortality in hemodialysis patients (p-value <0.001; r = 0.907).

Conclusions : There is a very strong correlation between CAR and LMR with mortality in hemodialysis patients.

Table 1. Characteristic of the study population.png



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Characteristic		Total (n = 840)
Age		
	20-40 years	123 (14.6%)
	41-60 years	399 (47.5%)
	>60 years	318 (37.8%)
Gender		
	Male	437 (52%)
	Female	403 (48%)
Education		
	Elementary school	282 (33.6%)
	Junior high school	176 (21%)
	Senior high school	288 (34.2%)
	Diploma	22 (2.5%)
	Bachelor	72 (8.4%)
Occupation		
	Self-employed	412 (49%)
	Farmer	193 (22.97%)
	Housewife	131 (15.5%)
	Laborer	78 (9.2%)
	Civil servant	21 (2.5%)
	Teacher	5 (0.5%)

Table 1. Characteristic of the study population.png

Table 2. Correlation of CAR dan LMR with mortality

Total (n = 840)	p-value	r
CAR	<0.001	0.803
LMR	<0.001	0.907