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Analysis of Chronic Kidney Failure Patient Characteristics: The Impact of Hemodialysis on Clinical Parameters

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Objectives : Chronic kidney failure (CKF) is a global health issue with increasing prevalence. In Indonesia, CKF ranks as the 10th leading cause of death, with approximately 42,000 deaths annually. Hemodialysis remains the primary treatment for end-stage CKF, aiming to manage symptoms and improve patient outcomes. The aims To analyze the characteristics of CKF patients undergoing hemodialysis and evaluate its impact on key clinical parameters.
Methods : This cross-sectional study utilized secondary data from medical records of 93 patients who underwent hemodialysis at Wahidin Sudirohusodo Hospital in 2022. The Wilcoxon test was used to assess differences in hemoglobin levels, blood urea nitrogen, creatinine, and glomerular filtration rate (GFR) before and after hemodialysis.
Results : Most patients were aged 45-59 years (46%) and male (62%). Hypertension was the most common comorbidity (69%). Hemodialysis significantly improved clinical parameters, with an increase in hemoglobin levels (8.32 g/dL to 9.95 g/dL, $p < 0.001$), a decrease in blood urea nitrogen (257.68 mg/dL to 177.18 mg/dL, $p < 0.001$), a reduction in creatinine levels (14.80 mg/dL to 9.60 mg/dL, $p < 0.001$), and an increase in GFR (6.02 ml/min/1.73 m^2 to 10.54 ml/min/1.73 m^2, $p < 0.001$).
Conclusions : Hemodialysis significantly improves key clinical parameters in CKF patients, including hemoglobin levels, blood urea nitrogen, creatinine, and GFR. These findings highlight the importance of hemodialysis in managing CKF and emphasize the need for early intervention and comprehensive patient monitoring.

Table 1 Frequency Distribution of Chronic Renal Failure Patients Based on Age (1)_page-0001 (1).jpg

Table 1 Frequency Distribution of Chronic Renal Failure Patients Based on Age, Gender, and Comorbidities

CHARACTERISTICS	FREQUENCY (n=93)	PERCENTAGE (%)
AGE		
Adults (19-44 years)	31	33
Pre-elderly (45-59 years)	43	46
Elderly (≥60 years)	19	20
GENDER		
Male	58	62
Female	35	38
COMORBIDITIES		
Hypertension	64	69
Diabetes Mellitus	17	18
Others	12	13

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Table 5.2 Differences in Hemoglobin Levels Before and After Hemodialysis

Hemoglobin Level (g/dL)	n	Mean (g/dL)	SD	P*
Before Hemodialysis	93	8.32	1.96	<0.001
After Hemodialysis	93	9.95	1.66	

Table 5.3 Differences in Urea Levels Before and After Hemodialysis

Urea Levels (mg/dL)	n	Mean (g/dL)	SD	P*
Before Hemodialysis	93	257.68	109.68	<0.001
After Hemodialysis	93	177.18	90.93	

Table 5.4 Differences in Creatinine Levels Before and After Hemodialysis

Creatinine Levels (mg/dL)	n	Mean (g/dL)	SD	P*
Before Hemodialysis	93	14.80	9.19	<0.001
After Hemodialysis	93	9.60	6.58	

Table 5.5 Differences in Glomerular Filtration Rate Before and After Hemodialysis

GFR Value (ml/min/1.73 m²)	n	Mean (ml/min/1.73 m²)	SD	P*
Before Hemodialysis	93	6.02	7.41	<0.001
After Hemodialysis	93	10.54	11.86	