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Clinical Profile and Causes of Mortality of Hospitalized Maintenance Hemodialysis Patients in the University of Santo Tomas Hospital: A Retrospective Study

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Objectives : Despite advances in dialysis therapy, the all-cause mortality rate for patients receiving maintenance hemodialysis still remains high. Even if the survival time of these patients has increased, identifying possible causes and risk factors appears to be a priority in lowering mortality in maintenance hemodialysis patients. The objective of this study is to determine the causes of mortality among patients on maintenance hemodialysis.
Methods : Retrospective descriptive study of all patients diagnosed with ESRD undergoing maintenance hemodialysis and expired due to any cause while admitted at the University of Santo Tomas Hospital from January 2016 to December 2022. Records review was performed to gather information on patient demographics and clinical profile, serum potassium and hemoglobin levels, and causes of mortality.
Results : A total of 137 ESRD patients on maintenance hemodialysis were included. The most common etiology of kidney failure was diabetic kidney disease (48.9%) and followed by hypertensive nephrosclerosis (31.4%). The mean number of years of HD was 4.2, with 35.8% expiring within a year after hemodialysis initation. The most common comorbidities were hypertension (96.3%) followed by diabetes mellitus (60.7%). The leading cause of mortality was infection (41.6%), followed by cardiovascular diseases (32.8%). Majority had hypokalemia (59.1%) and anemia (53.8%).
Conclusions : Infection and cardiovascular diseases remains the leading causes of death among ESRD patients on maintenance hemodialysis in our institution. More than half of patients had hypokalemia and anemia, which warrants further investigation on the impact on their survival. Further multicenter studies are recommended to improve the generalizability of our findings.

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Table 1. Profile of ESRD patients maintained on hemodialysis

	N=137
Age	Mean= 66.5±15.0 Range= 20 to 91
Gender Male Female	 73 (53.3) 64 (46.7)
Native Kidney Disease Chronic Glomerulonephritis Chronic Tubulointerstitial Nephritis Diabetic Kidney Disease Focal Segmental Glomerulosclerosis HTN Nephrosclerosis IgA Nephropathy Lupus Nephritis Polycystic Kidney Disease	 7 (5.1) 6 (4.4) 67 (48.9) 3 (2.2) 43 (31.4) 3 (2.2) 4 (3.0) 4 (2.9)
Number of years on Hemodialysis	Less than 1 year= 49 (35.8%) Mean= 4.2±3.6 Range= 1 to 23
Comorbidities Hypertension Diabetes Mellitus Chronic Obstructive Pulmonary Disease Stroke Coronary Artery Disease Cancer Others	 130 (96.3) 82 (60.7) 12 (8.7) 24 (17.8) 68 (50.4) 11 (8.0) 13 (9.5)
Frequency of Hemodialysis sessions Three times a week Twice times a week Once a week	 102 (74.5%) 18 (13.1%) 2 (1.5%)
Serum potassium levels, in mmol/L (n=115) Normal (4.6 – 5.3 mmol/L) Elevated (>5.3 mmol/L) Decreased (<4.6 mmol/L)	4.5±0.9 27 (23.5) 20 (17.4) 68 (59.1)
Hemoglobin levels, in g/L (n=119) Normal (100 – 115 g/L) Elevated (>115 g/L) Decreased (<100 g/L)	100.2±21.4 27 (22.7) 28 (23.5) 64 (53.8)

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Table 2. Leading cause of mortality in ESRD patients maintained on hemodialysis

	N=%
Cardiac	45 (32.8)
Sudden	5 (3.6)
Withdrawal	1 (0.7)
Vascular accident	22 (16.0)
Infection	57 (41.6)
Others	7 (5.1)