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Recurrent Ascites in Hemodialysis Patients: Clinical Features, Causes and Outcomes

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Objectives : The study aims to determine prevalence and describe the clinical characteristics, causes and outcomes of hemodialysis patients with recurrent ascites.
Methods : The study involved multiple hemodialysis centers both hospital-based and free-standing units, and the data was collected from January 2018 to June 2023. All patients on maintenance hemodialysis (at least 3 months) and age > 18 years with recurrent ascites (three or more epsidoes of ascites within a 12 month period) were included. Frequencies and percentages were computed for different categorical variables.
Results : There were 32 individuals with recurrent ascites out of the total 279 hemodialysis patients (11.4%). Based on their baseline characteristics (Table 1), there was a higher proportion of males and gloemrulonephritis as the cause of the end stage renal disease in the recurrent ascites group. Hemodialysis patients without recurrent ascites has a signficantly higher proportion of diabetes as the etiology of kidney disease. Based on their initial ascitic fluid analysis, the most common cause of the recurrent ascites was nephrogenic, followed by congestive heart failure. There were slightly more individuals with low serum ascitic albumin gradient. Only 4 patients (12.5%) had a positive bacterial culture while 2 patients were diagnosed with tuberculosis based on Gene Xpert testing. There is no difference as to the proportion of hospitalizations and mortality among those with and without recurrent ascites.
Conclusions : Recurrent ascites is a common finding among hemodialysis patients. The end stage kidney disease still accounts for most of the causes. While it did not cause additional harmful risk, it causes discomfort and difficulty among patients. The need for other management options beside repeated paracentesis is still wanting.

Table 1 Ascites Base.png

Table 1. Baseline Characteristics of Hemodialysis Patients with and without Recurrent Ascites

	With Ascites (N=32)	Without Ascites (N=247)	p-value
Age (years)	51 ± 21	47 ± 22	0.356
Gender			<0.001
Male	25	98	
Female	7	149	
Dialysis Duration (months)	18 ± 14	21 ± 16	0.201
Dialysis Frequency			0.076
2x/week	16	163	
3x/week	16	84	
ESRD Cause			
Diabetes	14	171	0.004
Hypertension	5	44	0.760
Glomerulonephritis	10	26	0.001
Obstructive Uropathy	2	3	0.893
Others	1	3	0.392
Co-Morbidities			
Arthritis	7	25	0.107
Cancer	2	4	0.089
COPD	8	46	0.393
Cerebrovascular Dse.	7	31	0.148
Diabetes	23	167	0.626
Dyslipidemia	18	101	0.098
Hypertension	24	151	0.127
Heart Disease	15	152	0.113
Liver Disease	9	35	0.042
Hemoglobin (g/dl)	9.5 ± 1.2	10.2 ± 2.3	0.675
HBsAg Positive	1	4	0.392
Average UF/session (L)	4.7 ± 1.1	3.8 ± 2.0	0.158
Serum Sodium (mmol/l)	131 ± 13	136 ± 11	0.313
Serum Calcium (mmol/l)	2.0 ± 0.32	2.1 ± 0.47	0.790

Table 1 Ascites Base.png

Table 2. Characteristics of Initial Ascitic Fluid Analysis of Hemodialysis Patients

	N = 32 (%) or ± SD
Etiology of Ascites	
Nephrogenic	14 (43.8)
Congestive Heart Failure	10 (31.2)
Liver Cirrhosis	5 (15.6)
Abdominal TB	2 (6.3)
Peritoneal Carincoma	1 (3.1)
Fluid Drained (L)	1.79 ± 0.52
Total Protein (g/dl)	2.37 ± 0.50
Serum Ascitic Albumin Gradient (g/dl)	
High	15 (46.9)
Low	17 (53.1
Lactate Dehydrogenase (U/L)	275 ± 168
Amylase (U/L)	128 ± 34
Glucose (mg/dl)	103 ± 47
WBC (cells/uL)	375 ± 312
Segmenters (%)	60.3 ± 18.8
Bacterial Culture Positive	4 (12.5)