

# OUTCOMES OF ACUTE MESENTERIC ISCHEMIA IN PATIENTS WITH END-STAGE RENAL DISEASE: A NATIONWIDE DATABASE STUDY



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## Introduction

- Acute mesenteric ischemia is an uncommon disorder occurring secondary to an abrupt obstruction in blood flow to the intestines resulting in bowel infarction. It is associated with an extremely high mortality rate.
- Only limited studies have evaluated this lethal disease among patients with end-stage renal disease (ESRD). We aim to determine outcomes in patients diagnosed with acute mesenteric ischemia with and without ESRD.

## Methods and Materials

- A retrospective analysis was performed by utilizing the National Inpatient Sample database (2016, 2017, and 2018) and the International Classification of Diseases, Tenth Revision codes to identify the patients > 18 years old with the principal diagnosis of acute mesenteric ischemia.
- We compared the all-cause in-hospital mortality, length of hospital stay (LOS), and total costs between the ESRD cohort vs. non- ESRD cohort. Categorical variables were compared using the chi-square test, and continuous variables were compared using the t-test.

Frequency in %	With ESRD (N=10,493)	Non-ESRD (158,752)	OR and CI	p-value
In-hospital mortality	8.5	4.5	1.96 [1.66 - 2.32]	0.00
Peritonitis	3.1	1.9	2.97 [2.26 - 3.91]	0.00*
Sepsis	7.1	3.8	15.7 [13.5-18.26]	0.00*
Ileus	3.1	1.7	1.46 [1.10-1.95]	0.008
<b>Patient Characteristics</b>				
Age (mean)	68	70		
Female	52	66		0.00*
<b>Race</b>				
Caucasian	45.8	79.9		0.00*
African American	32.1	9.2		
Hispanic	14.4	6.6		
Asian	4.0	2.0		
Native American	1.0	0.3		
Others	2.7	1.8		
<b>Insurance</b>				
Medicare	84.6	72.9		0.00*
Medicaid	7.4	6.8		
Private	7.4	1.8		
Others/Uninsured	2.7	1.8		
<b>Bed size</b>				
Small	14.8	19.3		0.00*
Medium	28.5	30.1		
Large	56.5	50.4		
<b>Hospital Region</b>				
Northeast	20.9	21.0		0.1
Midwest	24.6	22.2		
South	30.0	39.2		
West	17.5	17.2		
Teaching hospital	74.3	66.6		0.00
<b>Chronic comorbidity</b>				
Chronic heart Failure	45.1	18.9		0.00
Diabetes mellitus	62.0	28.8		0.00
Coronary artery disease	51.2	31.8		0.00
Obesity	14.3	12.3		0.06
Dyslipidemia	46.2	46.8		0.6

## Results

- We Identified 169,245 patients with acute mesenteric ischemia, of whom 10,493 (6.2%) patients had ESRD, and 158,752 (93.8%) patients did not have ESRD. In-hospital mortality was significantly higher in patients with ESRD (OR 1.96, 95% CI: 1.66–2.32; P = 0.00).
- Hyperlipidemia (P < 0.01), cardiovascular comorbidity (P = 0.01), and older age (P = 0.02) were identified as predictors of higher mortality. Patients with acute mesenteric ischemia and ESRD have high odds of peritonitis (OR 2.97, 95% CI: 2.26–3.91; P = 0.00), sepsis (OR 15.7, 95% CI: 13.5–18.26; P = 0.00), and ileus (OR 1.46 95% CI: 1.10–1.95; P = 0.008) compared to patients without ESRD.
- Additionally, patients with ESRD had a longer LOS (7.4 days vs 5.3 days; P < 0.00), and higher total hospital cost (\$91,520 vs \$58,175; P < 0.00) compared to patients without ESRD.

## Discussion

- In patients admitted for acute mesenteric ischemia, ESRD is an independent risk factor for increased inpatient mortality.
- Compared to patients without ESRD, patients with ESRD have a higher risk of peritonitis, sepsis, and ileus and contribute to longer LOS and increased healthcare costs.