

# Octogenarians Admitted with Acute Diverticulitis Do Not Have Increased Mortality or Worse Outcomes: A Nationwide Analysis

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## BACKGROUND

Diverticulosis is present in around 65% of people at the age of 80. 10-25% of patients with diverticulosis will develop acute diverticulitis (AD). There is lack of data regarding outcomes in patients above the age of 80.

## METHODS

Retrospective cohort study of the 2018 National Inpatient Sample (NIS) using ICD10-CM/PCS codes to identify patients discharged after being admitted for AD. Patients were divided in those 80 years of age or older and those 79 years of age and younger. Primary outcomes were mortality, need for colonoscopy, total colectomy (TC), partial colectomy (PC), percutaneous drainage (PD). Secondary outcomes were length of stay (LOS), costs and charges. Multivariate regression analysis adjusted for patient and hospital characteristics was performed for the primary and secondary outcomes.

Table 1. Patient characteristics and hospital characteristics

	Below 80 years old	80 years and above	P value
<b>Patient characteristics (%)</b>			
No. (%) of patients	190,425 (88.7)	24,169 (11.3)	
Female (%)	55.6	74.3	<0.01
Mean age, years	57.7	85.7	<0.01
Died during hospitalization	0.2	1.3	<0.01
<b>Weekend Admission</b>			
Complicated diverticulitis	45.5	26.8	<0.01
Uncomplicated diverticulitis	54.4	73.2	<0.01
Obesity	21.6	7.0	<0.01
Malnutrition	3.5	8.7	<0.01
Alcohol abuse disorder	2.5	0.4	<0.01
Cannabis abuse disorder	1.7	0.1	<0.01
Tobacco abuse disorder	20.1	3.2	<0.01
Opioid abuse disorder	0.5	0.2	.02
<b>Race (%)</b>			
White	74.3	83.2	<0.01
African American	9.6	6.0	<0.01
Hispanic	11.9	7.8	<0.01
Asian	0.1	0.1	.91
Other	3.0	1.6	<0.01
<b>Charlson Comorbidity index score (%)</b>			
0	56.7	26.2	<0.01
1	23.2	24.4	0.05
2	9.8	18.3	<0.01
≥ 3	10.1	30.9	<0.01
<b>Median annual income in patient's zip code, US\$ (%)</b>			
1-42,999	24.9	24.2	.39
43,000-53,999	26.9	26.9	.98
54,000-70,999	25.4	25.5	.81
>71,000	22.7	23.3	.30
<b>Insurance type, (%)</b>			
Medicare	37.5	95.9	<0.01
Medicaid	11.0	0.4	<0.01
Private	45.8	3.3	<0.01
Self-pay	5.5	0.2	<0.01
<b>Hospital Region (%)</b>			
Northeast	20.2	21.0	.26
Midwest	23.1	24.3	.07
South	40.0	38.7	.12
West	16.5	15.8	.25
<b>Hospital bed size (%)</b>			
Small	25.1	26.7	.02
Medium	31.2	33.0	.02
Large	43.6	40.3	<0.01
<b>Hospital Location (%)</b>			
Urban	89.1	86.6	<0.01
<b>Teaching status (%)</b>			
Non-teaching	35.0	37.9	<0.01
Teaching	64.9	62.1	

Table 2. Univariate and multivariate analysis for primary and secondary outcomes

	Colonoscopy / flexible sigmoidoscopy	Total Colectomy	Partial colectomy	Percutaneous drainage of abscess
Crude Odds Ratio (95% Confidence interval)				
Age ≥ 80	0.92 (0.82-1.05)	0.74 (0.70-0.78)	0.40 (0.35-0.46)	0.77 (0.40-1.48)
Adjusted Odds Ratio; (95% Confidence interval)				
Age ≥ 80	0.72 (0.62-0.83)	0.38 (0.33-0.43)	0.48 (0.41-0.56)	0.90 (0.39- 2.09)
Mortality				
Length of stay (Days)				
Total Costs (US\$)				
Total Charges (US\$)				
Crude Odds Ratio (95% Confidence interval)				
Age ≥ 80	5.36 (3.89-7.38)	0.69 (0.56-0.82)	-153 (-653-347)	626 (-1,703-2,956)
Adjusted Odds Ratio; (95% Confidence interval)				
Age ≥ 80	0.80 (0.45-1.39)	0.12 (-0.02-0.26)	-191 (-690-307)	-1,156 (-3,402-1,089)

## RESULTS

A total of 214,594 discharges for AD were identified. 11.3% (n=24,169) were 80 years of age or older. Octogenarian patients were more likely to be female (74.3% vs. 55.6%, P< 0.01), Caucasian (83.2 vs. 74.3%, P< 0.01), to have uncomplicated AD (73.2% vs. 54.4%, P< 0.01), to have a Charlson Comorbidity Index score ≥3 (CCI) (30.9% vs. 10.1%, P< 0.01), to have Medicare as primary payer (95.9% vs. 37.5%, P< 0.01), to have malnutrition (8.7% vs. 3.5%, P< 0.01) and require parenteral nutrition (1.7% vs. 1.3%, P=.02). They are less likely to have obesity (7.0% vs. 21.6%, P< 0.01), alcohol use disorder (0.4% vs. 2.5%, P< 0.01), cannabis use disorder (0.1% vs. 1.7%, P< 0.01), Elderly patients had lower rates of TC (6.8% vs. 17.2%, P< 0.01), PC (4.3% vs. 10.1%, P< 0.01). They had higher mean LOS (5.1 vs. 4.4 days p< 0.01). On multivariate analysis octogenarians did not have increased odds of mortality (aOR 0.80, 95% CI [0.45-1.39]) or PD (aOR 0.90, 95% CI [0.39-2.09]). Octogenarians had lower significant odds of colonoscopy (aOR 0.72, 95% CI [0.62-0.83]), TC (aOR 0.38, 95% CI [0.33-0.43]), PC (aOR 0.48, 95% CI [0.41-0.56]). There was no difference in total costs (\$-191, 95% CI [-690-307]) and charges (\$-1,156, 95% CI [-3,402-1,089]).

## CONCLUSIONS

In this study 11.3% of patients admitted with AD were 80 years of age or older. Octogenarians do not have higher risk of mortality, surgical intervention or healthcare expenditure, likely related to a less complicated disease presentation in this set of patients.