

# AFRICAN AMERICANS WITH PANCREATIC ADENOCARCINOMA HAVE HIGHER INPATIENT MORTALITY AT A YOUNGER AGE - A NATIONWIDE INPATIENT SAMPLE STUDY

Yash Shah, MD<sup>1</sup>; Mina Aknouk, MD<sup>1</sup>; Pooja Shah, MBBS, MS<sup>2</sup>; Pranav D Patel, MD<sup>3</sup>; Pramil Cheriya, MD, MS, FACP, SQIL<sup>1</sup>; Milin Shah, MS<sup>1</sup>; Devina Adalja, MD<sup>4</sup>; Kirtenkumar Patel, MD<sup>5</sup>; Dhruvan Patel<sup>6</sup>, MD

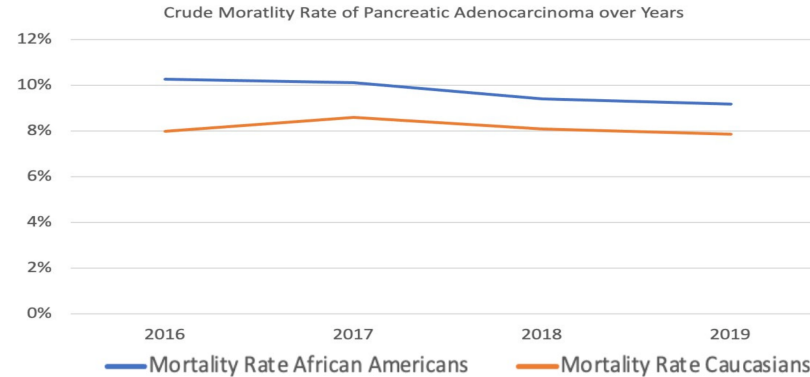
1. Hackensack Meridian Hospital, Brick, NJ 2. Baroda Medical College, Baroda, India 3. Geisinger Medical Center, Danville, PA; 4. St Joseph's University Hospital, Paterson, NJ 5. St. Mary Medical Center, PA 6. Mercy Catholic Medical Center, Philadelphia, PA

## Introduction

- Pancreatic Adenocarcinoma (PA) is currently the 4th leading cause of cancer related death worldwide and its prevalence has increased over the last decade.
- PA has a high mortality rate because symptoms of PA does not become apparent until later stages.
- Risk factors for PA include nicotine, alcohol abuse, obesity, genetic predispositions, and chronic pancreatitis.
- Until today, no specific screening test for PA has been identified for early diagnosis of PA.

## Methods and materials

- We utilized the Nationwide Inpatient Sample (NIS) database from 2016 to 2019.
- Adult hospitalizations due to PA were identified by previously validated ICD-10-CM codes.
- We subsequently divided admissions from PA into two groups based on race (Caucasians (CA) and African Americans (AA)).
- Univariate and multivariate logistic regression for categorical variables and linear regression for continuous variables were carried out to identify independent associations at  $p < 0.05$ .
- Statistical Analysis was performed using R studio.



	Caucasians, N = 429,630	African American, N = 83,655	p-value
Age (median, IQR)#	69 (61, 77)	65 (57, 73)	<0.001
Gender			
Male	224,055 (52%)	37,600 (45%)	<0.001
Female	205,365 (48%)	46,025 (55%)	
Bed size of hospital			<0.001
Small	71,650 (17%)	12,645 (15%)	
Medium	114,000 (27%)	22,825 (27%)	
Large	243,980 (57%)	48,185 (58%)	
Location/teaching status of hospital			<0.001
Rural	32,705 (7.6%)	3,130 (3.7%)	
Urban nonteaching	78,820 (18%)	11,105 (13%)	
Urban Teaching	318,105 (74%)	69,420 (83%)	
Region of hospital			<0.001
North East	99,065 (23%)	15,995 (19%)	
Mid West	106,150 (25%)	16,730 (20%)	
South	149,825 (35%)	43,785 (52%)	
West	74,590 (17%)	7,145 (8.5%)	
Primary expected payer			<0.001
Medicare	272,095 (63%)	44,435 (53%)	
Medicaid	28,140 (6.6%)	14,355 (17%)	
Private Insurance	111,945 (26%)	19,445 (23%)	
Self Pay	6,055 (1.4%)	2,475 (3.0%)	
No charge	460 (0.1%)	165 (0.2%)	
Other	10,440 (2.4%)	2,655 (3.2%)	
Year			0.1
2016	104,140 (24%)	19,640 (23%)	
2017	105,230 (24%)	21,055 (25%)	
2018	107,615 (25%)	21,115 (25%)	
2019	112,645 (26%)	21,845 (26%)	

Income			<0.001
\$1-24,999	89,490 (21%)	41,545 (50%)	
\$25,000-34,999	110,250 (26%)	17,365 (21%)	
\$35,000-44,999	113,410 (27%)	14,030 (17%)	
\$45,000 or more	110,175 (26%)	9,375 (11%)	
Smoking	3,350 (0.8%)	960 (1.1%)	<0.001
Alcohol	1,650 (0.4%)	355 (0.4%)	0.7
Age_Group			<0.001
Less than 50 Years	26,965 (6.3%)	8,710 (10%)	
Greater than 50 years	402,665 (94%)	74,945 (90%)	
Diabetes	87,750 (20%)	20,015 (24%)	<0.001
Hyperlipidemia	154,550 (36%)	25,120 (30%)	<0.001
Hypertension	69,070 (16%)	19,040 (23%)	<0.001
Acute pancreatitis	78,280 (18%)	14,620 (17%)	0.4
Chronic pancreatitis	12,085 (2.8%)	2,665 (3.2%)	0.008
Obesity	34,950 (8.1%)	7,375 (8.8%)	0.003
Outcomes (Univariate Analysis)			
Died during hospitalization	34,945 (8.1%)	8,135 (9.7%)	<0.001
Vasopressor_Use	4,915 (1.1%)	1,260 (1.5%)	<0.001
Mechanical_Ventilation	10,545 (2.5%)	2,945 (3.5%)	<0.001
Sepsis	5,460 (1.3%)	1,455 (1.7%)	<0.001
Shock	23,630 (5.5%)	5,525 (6.6%)	<0.001
AKI*	85,350 (20%)	22,750 (27%)	<0.001
Length of stay (Median, IQR)#	4.0 (3.0, 7.0)	5.0 (3.0, 9.0)	<0.001
Total Charges in Dollars	45,294 (24,252, 85,750)	48,805 (25,638, 91,719)	<0.001

	aOR	Range	p-value
Inpatient Mortality	1.21	1.14-1.28	<0.01
Sepsis	1.35	1.17-1.55	<0.01
Shock	1.2	1.12-1.29	<0.01
AKI*	1.49	1.43-1.56	<0.01
Mechanical Ventilation	1.35	1.23-1.49	<0.01
Vasopressor Use	1.33	1.15-1.55	<0.01

## Results

- 513,285 patients had admissions related to PA with 83,655 (16%) were AA.
- AA patients were younger as compared to CA (65 vs 69 years,  $p$  value  $< 0.01$ ).
- AA females had higher incidence of PA as compared to CA females (55% vs 48%,  $p$ -value  $< 0.01$ ).
- 50% of AA patients were from lower household income group of \$1-24,999.
- 17% of AA patients were on medicaid as compared to 6.6% amongst CA patients.
- AA patients had a higher prevalence of obesity, diabetes, smoking, and chronic pancreatitis.
- AA patients have statistically significantly higher rates of crude mortality rate, and increased complications as reported in Table 1.
- On multivariate analysis, AA patients had a higher risk of inpatient mortality compared to CA patients (OR 1.21, 95% CI: 1.14-1.28); greater risk of sepsis compared to CA (OR 1.35, 95% CI: 1.17-1.55); higher risk of requiring ICU level of care (Mechanical Ventilation and Vasopressor use) and increased length of stay (LOS) (Table 2).

## Discussion

- AA patients were younger, belonged to lower income group, were on medicaid, had higher prevalence of risk factors for PA, had higher inpatient mortality and complications during inpatient admissions eventually increasing LOS as compared to CA patients.
- Further studies are needed to evaluate if being AA is an inherent risk factor for PA given the higher incidence in this population.
- Furthermore, healthcare utilization should be more focused on AA patients given the higher mortality rate and complications during inpatient admissions.

