Acute pancreatitis is associated with increased risk of in-hospital mortality and healthcare utilization among patients with hematopoietic stem cell transplantation

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Introduction

- Acute pancreatitis (AP) carries a significantly increased morbidity and mortality worldwide.
- AP is a potential complication of hematopoietic stem cell transplantation (HSCT) although its incidence remains unclear.
- HSCT recipients are at increased risk of AP due to various factors but the effect of AP on mortality and resource utilization in the adult population has not been studied.
- We investigated the impact of AP on hospitalization outcomes among patients following HSCT.

Methods

- The National Inpatient Sample (NIS) database was used to identify patients with a discharge diagnosis of AP from 2016 to 2019.
- All adult patients with a diagnosis or procedure code of HSCT were included in the study.
- Sensitivity analysis was performed for patients with length of stay greater than 28 days.
- Outcomes studied were mortality, length of stay, total hospitalization costs and charges using multivariate analysis..

	Without pancreatitis n (%)	With pancreatitis n (%)	p-value
Age category			<0.001
18-45	30,045 (21.57)	360 (42.11)	
45-65	63,845 (45.84)	330 (38.6)	
>65	45,385 (32.59)	165 (19.30)	
Sex			0.26
Male	79,465 (57.06)	450 (52.60)	
Female	59,810 (42.94)	405 (47.40)	
Race			0.38
White	97,105 (69.72)	540 (63.16)	
African American	17,020 (12.22)	140 (16.37)	
Hispanic	14,695 (10.55)	110 (12.87)	
Asian/Pacific islander	4,405 (3.16)	35 (4.09)	
Native American	475 (0.34)	0 (0)	
Other	5,575 (4.00)	30 (3.51)	
Conditions related to pancreatitis			
Cholangitis	660 (0.47)	55 (6.43)	<0.001
Choledocholithiasis	1,680 (1.21)	135 (15.79)	<0.001
Other biliary conditions	1,680 (1.21)	55 (6.43)	<0.001
Hypertriglyceridemia	1,025 (0.74)	90 (10.53)	<0.001
Diabetic ketoacidosis	255 (0.18)	25 (2.92)	<0.001
Alcohol-related pancreatitis	1,805 (1.30)	50 (5.85)	<0.001

Figure 1- Differences in the outcomes of HSCT patients stratified by the presence of pancreatitis

Results

- Of the 140,130 adult patients with HSCT, 855 (0.61%) patients developed acute pancreatitis.
- There was a 2.2 times higher risk of mortality in patients with AP as compared to controls (p-0.012).
- There was no statistically significant difference in the length of stay, hospitalization charge or cost before sensitivity analysis. After sensitivity analysis, 13,240 patients were included, from which 125 (0.94%) had AP.
- There was 4.25 times higher risk of mortality in patients who developed AP as compared to controls (p-0.002).
- There was an increase noted in the length of stay (adj coeff: 19.96 days, p-0.02), hospital charges (+$354,527.3, p-0.014) and cost (+$119,822, p-0.001) in patients with AP as compared to those who did not develop AP.

Conclusion

- Recipients of HSCT who develop AP have shown to have higher mortality in both initial analysis as well as sensitivity analysis.
- This study highlights that acute pancreatitis in HSCT patients is associated with worse outcomes and higher resource utilization.
- Physicians should be aware about this association as presence of pancreatitis portends poor prognosis.