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ANALYSIS OF DIFFERENT OUTCOMES PATIENTS WITH ACUTE PANCREATITIS REQUIRING INTENSIVE CARE ADMISSION

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Abstract:
Patients with severe acute pancreatitis often require intensive care unit (ICU) admission, have multiple complications, spend weeks to months in the hospital, and consume a large amount of resources. The aim of this study is to analyse the outcome of patients with acute pancreatitis requiring intensive care admission. This descriptive study was conducted in Sargodha Medical College during June 2019 to January 2020. The Health information and management system was involved to retrieve medical record numbers of all adult patients (age 18-60 years) admitted in hospital with diagnosis of AP. Patients required ICU admission during the course of their disease were included, while patients having mild pancreatitis and managed else where were excluded from study. Mean age of patients was 49 years, out of which 55% were males and 45% females. Most of these patients were obese having mean BMI of 30.3 Kg/m2. Association of comorbid conditions showed predominance towards hypertension (44.7%) and diabetes mellitus (30.6%). Presence of gall stones (54%) was the main etiological factor which lead to AP. Other causes were alcohol consumption (13%) and idiopathic (15%). 56% of patients were admitted directly from ED, while rest of them were referred from special care unit (22%), general ward (6%) and operating room (15.3%). It is concluded that high morbidity and mortality of AP requiring ICU admission. We recommend the implementation of care bundles right from the start of hospital admission.

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INTRODUCTION:

Patients with severe acute pancreatitis often require intensive care unit (ICU) admission, have multiple complications, spend weeks to months in the hospital, and consume a large amount of resources. Acute pancreatitis (AP) is an inflammatory condition of pancreas, the worldwide incidence of which is 13 to 45/100,000. Ingestion of alcohol, gallstone and hypertriglyceridemia being the common etiological factors [1]. The presentation of disease may vary from mild self-limiting course to a severe form requiring intensive care (ICU) admission for monitoring and organ support [2]. ICU course may be complicated by factors like sepsis, multi-organ dysfunction syndrome (MODS), hospital acquired infections or acute kidney injury (AKI) [3]. The outcome really depends upon integrated health care services. As most of current literature is from advanced health care setup, where etiological factors and management protocols are much different. Hence, it's important to identify disease pattern, course and outcome in our population [4]. This would be helpful in standardizing care of these patients according to international guidelines.

Objectives

The aim of this study is to analyse the outcome of patients with acute pancreatitis requiring intensive care admission.

MATERIAL AND METHODS:

This descriptive study was conducted in Sargodha Medical College during June 2019 to January 2020. The Health information and management system was involved to retrieve medical record numbers of all adult patients (age 18-60 years) admitted in hospital with diagnosis of AP. Patients required ICU admission during the course of their disease were included, while patients having mild pancreatitis and managed else where were excluded from study. Total 186 patients were identified, out of which 104 were excluded and finally 85 patients were included in study protocol. Three primary investigators working as critical care physician collected the data on predesigned Performa. Each investigator was allocated with 63 number of patient's files. They were supposed to review the relevant data on a predesigned Performa, which had information regarding patient's demographic including the age, sex, BMI and associated comorbid conditions.

Statistical analysis was performed using Statistical packages of social sciences (SPSS ver-19, Inc., Chicago, IL, USA). The normality of numeric distribution was determined by Kolmogorov-Smirnov or Shapiro-Wilk test. Categorical point estimation was reported in term of frequency and percentage while numeric point estimation was reported in term of mean (standard deviation) or median.

RESULTS:

Mean age of patients was 49 years, out of which 55% were males and 45% females. Most of these patients were obese having mean BMI of 30.3 Kg/m_2. Association of comorbid conditions showed predominance towards hypertension (44.7%) and diabetes mellitus (30.6%). Presence of gall stones (54%) was the main etiological factor which lead to AP. Other causes were alcohol consumption (13%) and idiopathic (15%). 56% of patients were admitted directly from ED, while rest of them were referred from special care unit (22%), general ward (6%) and operating room (15.3%). The sepsis and respiratory failure were the commonest reason of referrals, which were present in 45% and 57% of patients respectively. Other causes were AKI, MODS and Post CPR.

Table 01: Comparison of various variables between Non survivors and survivors.

Variables	Non-Survived (n=44)	Survived (n=41)	P-Value
Reason Of ICU admission			
ARDS/Respiratory failure	32 (72.7%)	17 (41.5)	0.004
MODS	11(25%)	2 (5%)	0.01
Ranson Score			
At admission	3.03	2.06	0.0005
APACHE II	27.15	18.62	0.0005
ICU management			
Norepinephrine	28 (63.6%)	10 (24.4%)	0.0005
RRT	11(25%)	2 (2%)	0.014
ICU related complication			
Cardiac arrest	13(29.5%)	0(0%)	0.0005
ARDS	14(31.8%)	3(7.3%)	0.005
DNR	16(36.4%)	3(7.3%)	0.001
CT findings			
Necrosis	27(66%)	14(34%)	0.012
Feeding			

NPO status	29(66%)	13(31%)	0.002
Enteral	14(32%)	24(59%)	0.013
Complications related to AP			
Intra-abdominal hypertension	15(34%)	4 (10)	0.007
Laboratory parameters			
Serum BUN	39	24	0.003
SGOT	112	62	0.000
PH	7.30(7.36-7.21)	7.37(7.45-7.29)	0.009

Table 02: Management, ICU related complication, mortality and stay status of the acute pancreatitis patients.

Variables	**Point Estimate**	**Range / Percentage**
ICU Related Complications		
Sepsis	27	31.8%
Renal failure	25	29.4%
CLABSI	3	3.5%
Pneumonia	17	20%
Cardiac arrest	13	15.3%
ARDS	17	20%
DNR	19	22.4%
Length of Stay in Days		
ICU - Median [Q3-Q1]	6[11-3]	1-73
Hospital - Median [Q3-Q1]	12 (18-7)	1-78

DISCUSSION:

The management of AP should follow a stepwise approach. Evaluating severity of disease is important not for predicting mortality, but also helpful in utilization of resources. Even with advancement in health care facilities, disease still carries a huge burden in terms of cost, complications and outcome [5]. The lack of local data in the presence of inadequate health care facilities and management protocols make our patients vulnerable to have adverse outcome. Pal KM et al reported mortality of around 5-40% for NP, while Alvi AR and colleagues reported it to be somewhere between 17-39%. However, data for both of these studies was collected in patients having NP and were managed in surgical ward [6].

Studies have shown the impact of etiological variables on the outcome of AP but this was not observed in this study. The work done by Juneja D et al. showed that pancreatitis associated with alcohol consumption represents the severe form. According to their results, chances of conversion to NP were quiet high. However, this was not depicted in our results. Data emerging from our region shows gallstone bring the commonest cause of AP [7]. Gallstones were the cause in 46% of our patients. This might be related to cultural difference, limited availability and amount of alcohol consumption. The Cucher D *et al*. reported mortality of gallstone pancreatitis around 20% in advanced health care setup. But in our part of the world gallstone pancreatitis seems to be a severe form of disease and associated with higher mortality [8].

CONCLUSION:

It is concluded that high morbidity and mortality of AP requiring ICU admission. We recommend the implementation of care bundles right from the start of hospital admission. Amongst which fluid resuscitation and nutritional protocol should have prime importance.

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