ORIGINAL ARTICLE

Assessment of cases of Glasgow score and CT severity score in patients with acute pancreatitis

Amrendra Kumar Singh[1], Vinay Shukla[2]

[1]Assistant Professor, Department of General Surgery, Saraswathi Institute of Medical Sciences, Hapur Rd, Anwarpur, Uttar Pradesh;
[2]Assistant Professor, Department of Anaesthesia, Saraswathi Institute of Medical Sciences, Hapur Rd, Anwarpur, Uttar Pradesh, India

ABSTRACT:
Background: Acute pancreatitis (AP) is defined as an inflammatory process of the pancreas. The present study was conducted to assess utility of modified Glasgow score and CT severity score, Balthazar score in acute pancreatitis. **Materials & Methods:** The present study was conducted on 40 patients of acute pancreatitis. Patient outcome was assessed in terms of mortality and morbidity. Morbidity including: ICU requirement, prolonged hospital stay (more than 30 days.) and patients need for surgical intervention. **Results:** Out of 40 patients, males were 25 and females were 15. There was non- significant difference in serum albumin, PO_2, Serum calcium, RBS, LDH and BUN in males and females (P> 0.05). Significant correlation between the mortality rate and patients who had mean CT grading of more than 3.60. Significant correlation was observed between the presence of necrosis (3.60) and mortality. There was no correlation of Glasgow total score with mortality rate (P> 0.05). **Conclusion:** Authors concluded that CECT is an excellent imaging modality in diagnosing acute pancreatitis and predicting outcomes such as mortality, ICU stay and prolonged stay of >30 days.
Key words: Acute pancreatitis, Balthazar score, Glasgow score

Corresponding author: Dr. Vinay Shukla, Assistant Professor, Department of Anaesthesia, Saraswathi Institute of Medical Sciences, Hapur Rd, Anwarpur, Uttar Pradesh, India

INTRODUCTION

Acute pancreatitis (AP) is defined as an inflammatory process of the pancreas with possible peripancreatic tissue and multiple organ involvement inducing multiple organ dysfunction syndrome (MODS) with an increased mortality rate. The incidence of acute pancreatitis per 100,000 population ranges from 5 to 80 cases per year, with the highest incidence rates being seen in Finland and the USA.[2] Acute pancreatitis is a common condition presenting as acute abdomen. This condition is broadly classified into two subtypes edematous or mild acute pancreatitis and a necrotizing or severe acute pancreatitis. The majority of patients have mild interstitial edematous pancreatitis (IOP) which is self-limiting.[1]

CT severity index (CTSI) that was developed by Balthazar and coworkers and then simplified and extended to monitor organ failure by Silverman, Banks, and colleagues in 2004. Comparison of the original CTSI with mortality showed a good correlation between higher CTSI values and mortality and morbidity, and this holds true for the modified CTSI. Furthermore, the modified CTSI correlates well with the length of hospital stay and the development of organ failure. Balthazar score is used in CT severity index (CTSI) for grading of acute pancreatitis.[2]

The patient needs adequate iv fluids and adequate pain control. NPO is usually done until nausea and vomiting have stopped.[3] Abdominal pain is managed through analgesics. Morphine may be used. Although morphine can increase SOD tone and to increase serum amylase values, it is used in the management of acute pancreatitis. Nasogastric aspiration is not useful in pancreatitis. This modality is used to reduce ileus and intractable nausea and vomiting. PPI s and H_2 receptor blocking agents are not useful.[4] The present study was conducted to assess utility of modified Glasgow score and CT severity score, Balthazar score in acute pancreatitis.

MATERIALS & METHODS

The present study was conducted in the department of General surgery. It comprised of 40 patients of acute pancreatitis. All were informed regarding the study and written consent was obtained. Ethical clearance was obtained prior to the study.

General information such as name, age, gender etc. was recorded. A through clinical examination was performed. Patient outcome was assessed in terms of mortality and

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morbidity. Morbidity including: ICU requirement, prolonged hospital stay (more than 30 days.) and patients need for surgical intervention. Patients were subjected to CECT. Results were tabulated and subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 40		
Gender	**Males**	**Females**
Number	25	15

Table I, graph I shows that out of 40 patients, males were 25 and females were 15.

Table II Mean value of glassgow variables

Variables	Males	Females	P value
Serum albumin	3.11	3.02	0.91
PO_2	84.00	82.14	
Serum calcium	8.12	8.98	
RBS	166.25	162.17	
LDH	501.26	486.2	
BUN	36.32	36.99	

Table II shows that there was non- significant difference in serum albumin, PO_2, Serum calcium, RBS, LDH and BUN in males and females (P> 0.05).

Table III Comparison of mortality status with respect to Glasgow, CT grading, necrosis and Balthazar total scores

Variable	Mortality	Mean± S.D	P- value
Glasgow total score (70)	Yes	2.61± 1.94	
	No	2.15± 1.54	0.51
CT grading (72)	Yes	3.54± 0.55	
	No	2.27± 1.40	0.01
Necrosis score (38)	Yes	3.68± 1.67	
	No	0.71± 1.40	0.002
Balthazar total score (104)	Yes	7.20± 2.17	
			0.001

Table III shows significant correlation between the mortality rate and patients who had mean CT grading of more than 3.60. Significant correlation was observed between the presence of necrosis (3.60) and mortality. There was no correlation of Glasgow total score with mortality rate (P> 0.05).

DISCUSSION

Acute pancreatitis is a disease triggered by the abnormal activation of pancreatic enzymes and the release of a number of inflammatory mediators, whose etiology corresponds in about 80% of the cases to lithiasic biliary disease or excessive alcohol intake. Most of the time, it is self-limited to the pancreas and with minimal systemic effects.[5] This mild form is characterized by presenting good clinical outcome and lower mortality rates. However, approximately 10-20% of the cases, the clinical course is more intense and with extensive systemic effects leading up to 40% mortality. The correct diagnosis established early and determining its severity factors are of fundamental importance to the proper therapeutic management.[6] The present study was conducted to assess utility of modified Glasgow score and CT severity score, Balthazar score in acute pancreatitis.

In present study, out of 40 patients, males were 25 and females were 15. Zuleta MG et al[7] in their study of AP on 114 patients found that the average age was 53 years. 50 (44%) of the patients were males and 56% were females. 58 (51%) featured Atlanta criteria compatible with severe acute pancreatitis.

We found that there was non- significant difference in serum albumin, PO2, Serum calcium, RBS, LDH and BUN in males and females (P> 0.05). Singh[8] found that there was significant correlation between mean LDH value and blood urea levels with severity of pancreatitis. The observed mean calcium level was 7.9mg/dl in cases of acute severe pancreatitis. In the same study mean observed RBS levels was 138.5mg/dl in patients with acute severe pancreatitis.

We found significant correlation between the mortality rate and patients who had mean CT grading of more than 3.60. Significant correlation was observed between the presence of necrosis (3.60) and mortality. There was no correlation of Glasgow total score with mortality rate (P> 0.05). Kong et al[9] found that there was significant correlation between mortality and Glasgow score of >3. In the same study there was significant correlation between Glasgow score and CT Balthazar score in predicting the mortality in patients with acute severe pancreatitis.

Tao K et al[10] found that APACHE II had a high sensitivity for predicting pancreatic necrosis (93.33%), organ failure (92.86%) and ICU admission (92.31%) and also had a high negative predictive value for predicting pancreatic necrosis (96.15%), organ failure (96.15%) and ICU admission (95.83%). Glasgow and Balthazar score are at present useful in clinical practice for their simplicity and low costs. Glasgow score and Balthazar score gives useful information in patients with a more severe form of acute pancreatitis. The sensitivity and specificity of these scoring systems for predicting severe acute pancreatitis range between 55% and 90%, depending on the cut-off number and the timing of scoring. Balthazar score is used in CT severity index (CTSI) for grading of acute pancreatitis. CTSI includes grading of pancreatitis (A-E) and the extent of pancreatic necrosis.

CONCLUSION

Authors concluded that CECT is an excellent imaging modality in diagnosing acute pancreatitis and predicting outcomes such as mortality, ICU stay and prolonged stay of >30 days.

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