



Evaluation of Glasgow Multifactor Prognostic Scoring System in Acute Pancreatitis - A Study of 25 Cases

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Abstract

Objective: *Evaluation of Glasgow Multifactor Prognostic Scoring System in Acute Pancreatitis.*

Setting & Duration: *This study was carried out in Govt. Medical College, Amritsar from November 2013 to May 2015.*

Methodology: *This study includes 25 patients with 13 male and 12 female. It was done after obtaining a detailed history, complete general examination with systemic examination. Patients were subjected to relevant investigations like Ultrasound abdomen, CT abdomen, Routine Investigations like Hb, TLC, DLC, Urea, Creatinine, RBS, Serum Transaminase, Amylase, Lipase, LDH etc.*

Results: *Sensitivity and specificity of S. Urea in our study is 75% & 92.3% respectively, S.LDH is 75% and 92% respectively, WBC is 83% and 76% respectively. The patients with positive values of S.Urea, S.LDH and WBC had high mortality.*

Conclusion: *Glasgow scale of Imrie has high sensitivity and specificity in predicting the prognosis of patients with acute pancreatitis. As it is simpler and have got only 9 factors.*

Key: *acute pancreatitis, Glasgow multifactor scoring system*

INTRODUCTION

Acute pancreatitis is a complex disorder of the exocrine pancreas characterized by acute acinar cell injury and both regional and systemic inflammatory responses.

Patients with acute pancreatitis may present with mild or severe disease, the latter comprising a minority of cases but accounting for most of the morbidity and mortality associated with this disease.¹ Approximately 80% of cases are associated with cholelithiasis or sustained alcohol abuse.² Acute pancreatitis develops in about 1% of patients after endoscopic retrograde cholangiopancreatography (ERCP).³

The Glasgow multifactor scoring system of Imrie is prognostic scoring system for patients with acute pancreatitis. The advantage of this scoring system is that nine factors are evaluable on admission and thus it may be simpler to apply than the Ranson's criteria.⁴

MATERIAL AND METHODS

This study was conducted in Surgical Unit-2, Department of Surgery, Guru Nanak Dev Hospital, Amritsar for a period of 18 months starting from November 2013 to May 2015

We undertook a study on 25 patients of acute pancreatitis, presenting in our hospital in order to

evaluate the Glasgow multifactor prognostic scoring system so that we could assess the sensitivity & specificity in predicting the outcome of these patients.

Study was done after obtaining a detailed history, complete general examination with systemic examination. Patients were subjected to relevant investigations like Ultrasound abdomen, CT abdomen, Routine Investigations like Hb, TLC, DLC, Urea, Creatinine, RBS, Serum Transaminase, Amylase, Lipase, LDH etc.

Inclusion criteria:

All patients with acute pancreatitis are included in this study irrespective of age, sex and cause. In this glasglow prognostic factors will be measured within 48 hours of admission, Age, Serum transaminase, White cell count, Blood glucose, Serum urea, Arterial oxygen saturation, Serum calcium, Serum albumin and Serum lactate dehydrogenase.

Exclusion Criteria:

Chronic pancreatitis, Pancreatic malignancy, Pseudocyst.

Glasgow prognostic factors were measured within 48 hrs. of the admission. The various investigations required for this multifactor prognostic scoring system were done which include serum transaminase, WBC, Blood glucose, Serum urea. Serum calcium. Serum albumin. Serum lactate dehydrogenase. Arterial oxygen saturation was not done.

The Glasgow Multifactor Prognostic Scoring System:

Prognostic Factors	Values
Age	> 55 years
Serum transaminase	> 100 unit
White cell count	> 15000mm ³
Blood glucose	> 180mg/dL
Serum urea	> 45 mg/dL
Arterial oxygen saturation	< 60 mmHg
Serum calcium	< 8mg/dL
Serum albumin	< 3.2 gm/dL
Serum lactate dehydrogenase	> 600 units/L

0-2 adverse factor predicts mild disease and 3 or more adverse factor predicts severe disease and poor prognosis.

RESULTS

In our study, 25 patients with 13 male and 12 female were selected for the evaluation of Glasgow multifactor scoring system in acute pancreatitis. The overall error in Glasgow multifactor prognostic scoring system for age is 52.00%, LDH 16%, SGOT 64%, WBC 20%, S.Calcium 40%, S.Urea 16%, S.Albumin 56% and RBS 48%.

Sensitivity and specificity of S. Urea in our study is 75% & 92.3% respectively, S.LDH is 75% and 92% respectively, WBC is 83% and 76% respectively. The patients with positive values of S.Urea, S.LDH and WBC had high mortality.

Table 1 Comparison Of Sensitivity And Specificity Of All The Factors Of Glasgow Scale

Factors	Sensitivity (in%)	Specificity (in %)
Age	33.33	61.53
LDH	75.00	92.00
SGOT	41.00	30.00
WBC	83.00	76.00
Serum calcium	58.33	61.55
Serum Urea	75.00	92.30
Serum Albumin	8.33	76.92
Sugar	33.33	69.23

DISCUSSION

Fan ST et al⁵ studied the influence of age on mortality patients with acute pancreatitis, this was 5.9% in patients aged below 50 y & 21.3% in patient in over 75 y.

Leese & Shaw et al⁶ had described that S. transaminase was least useful in predicting the outcome.

Imrie et al⁷ narrated that there is a tendency for the ionized fragment of circulating serum calcium to fall & this in associated with elevated parathyroid hormone levels which indicate a satisfactorily functioning calcium homeostatic mechanism.

Gambill et al⁸ quoted that serum calcium level give some idea of presence and severity of fat necrosis in acute pancreatitis and more useful in alcoholic pancreatitis.

Allam et al⁹ narrated that albumin loss in an important biochemical phenomenon and requires correction. However, the restoration of normal serum albumin level is often impossible in the severely ill patient because of porosity of the endothelial layer lining capillaries.

Gambill¹⁰ wrote that a moderately elevated fasting blood sugar in a patient who has acute pancreatitis and who, on recent examination, was found to have a normal blood level may support the diagnosis of pancreatitis, persistent hyperglycemia after recovery is even stronger supportive evidence. Leese et al⁶ categorized serum glucose to be least important factor after SGOT & albumin.

Imrie et al⁷ described vascular collapse, hypovolemia & renal failure as the main causative factor of death in patient with acute pancreatitis. In order to assess the level of hypovolemia, duration of vascular collapse, serum urea act as a indicator for renal insult. High levels of serum urea suggests nephrotoxicity, severe hypovolemia and predicts accurately the severity in acute pancreatitis.

Munoz et al¹¹ had described the sensitivity & specificity of amylase as 75-92% & 20-60% respectively while that of lipase as 86-100% and 50-99% respectively and both are widely used to diagnose pancreatitis.

Quinlan et al¹² had described that there is no correlation between the magnitude of the increase of amylase activity & severity of prognosis of the disease.

Haffter & Gyr et al¹³ described S. lipase elevation in acute pancreatitis appears to be more specific but not more specific but not more sensitive diagnostic criterion.

Buchler et al¹⁴ wrote that LDH & CRP may be the best evaluated indicator and has been found by several investigators to distinguish in many patients between acute necrotizing and acute edematous pancreatitis. Discrimination between mild and severe forms was possible in 84% of the patients, when CRP was greater than 120 mg/L and LDH was greater than 270 mg/L.

The diagnosis of pancreatic infection is made most reliably by CT guided or ultrasound-guided FNA with Gram staining and culture of the aspirate. But high fever, elevated WBC levels in acute pancreatic makes clinician suspicious about pancreatic infection.

CONCLUSION

Glasgow scale of Imrie has high sensitivity and specificity in predicting the prognosis of patients with acute pancreatitis. As it is simpler and have got only 9 factors.

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