Comparison of APACHE II and Ranson Score as Prognostic Indicator in Acute Pancreatitis

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Abstract: Acute pancreatitis is defined as an acute condition presenting with abdominal pain and is usually associated with raised pancreatic enzyme levels in the blood or urine as a result of pancreatic inflammation. On account of the difference in outcome between patients with mild and severe disease, it is important to define that group of patients who will develop severe pancreatitis. Various scoring systems have been introduced, such as the Ranson’s and Glasgow scoring systems. The APACHE II scoring system, used in intensive care units, can also be applied. Here we discuss about a study that was conducted which showed APACHE II scoring system as a better prognostic marker in comparison to Ranson’s score in patients with acute pancreatitis.

Keywords: Acute Pancreatitis, APACHE II score, Ranson score

1. Aim of this Study

To study all the patients of Acute pancreatitis admitted in Bharati Hospital in a span of 2 years and to make a comparative study of Ranson’s and APACHE II scoring system within 48 hours of hospital admission. To relate diagnostic serum Amylase levels and severity of acute pancreatitis and correlate blood sugar level with severity of acute pancreatitis and eventually to set up a protocol for management of Acute pancreatitis.

2. Materials and Methods

30 patients diagnosed as acute pancreatitis on USG or CT scan were included in the study. On admission and at 48 hours relevant investigations were sent to calculate Ranson’s and Apache II score. Based on Ranson’s and Apache II scoring system patient was shifted to either ward or ICU for further management. Patients clinical condition was assessed every 6 hourly. At the time of discharge following data was noted:
1) Day of discharge
2) Clinical condition at discharge
3) Any complication during hospital stay.

3. Discussion

The study included 30 patients of acute pancreatitis admitted in medical and surgical wards and following parameters were considered:
1) Age Distribution– Patients included in our study were in range of 20-79 years of age with largest age group between 30-39 years with declining incidence in extremes of age. Mean age was 43.28. This is consistent with the fact that alcoholism which was the commonest etiological factor was alcoholism which is more common in males. (Kaushik S.P. 1983- mean age 43.28)
2) Sex Distribution- Study included 22 males and 8 females. The reason for this discrepancy was because

Symptomatology

1) Pain- Most cardinal symptom seen in 100% of our patients. 90% had typical pain. Mean duration of pain 48.42 hours (Gambill had shown duration of pain lasts for 2-6 days in most cases, painless pancreatitis usually occurs in chronic relapsing pancreatitis but was not seen in our study.
2) Nausea (86%) vomiting (56.2%) and retching (40%)
3) Obtundation (3%) fatal outcome (According to Bank’s clinical criteria obtudation has a grave prognosis. 

Signs -

1) Tachycardia > 120/min in 70% patients
2) Fever (>99 F) in 46.6% cases. (Kaushik S.P., Verma R. noted in 7.2%)

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3) Paralytic ileus and severe abdominal distension seen in 40%, all these patients had severe attack
4) (Gambill has noted that patients with these signs have severe necrotising pancreatitis with widespread necrosis. Kaushik S.P. Vohra noted abdominal distension in 8.3%)
5) Dyspnea was seen in 6% cases (3 patients), 2 patients had ARDS and had a fatal outcome. (Though transient hypoxemia has been noted by Ranson to occur in 50% patients 1/3rd of these progress to significant respiratory insufficiency. According to then dyspnea is an ominous sign.)

Laboratory Diagnosis-In our study laboratory diagnosis of acute pancreatitis was done by estimation of serum amylase. Levels of serum amylase > 400 were taken as significant (Greenberg Harrisons Principle of internal medicine 1994, 1520-1530)

20% of radiologically diagnosed acute pancreatitis cases had normal serum amylase levels and levels of serum amylase levels did not correlate with severity of attack.

Severity of attack-
- Mild attack (≤ 7 days of intensive care, complete recovery, no complications) was seen in 80% cases (Jaiswal M.S.D. Sahi found 76.6% mild cases in their study)
- Severe attack was seen in 20% (Jaiswal and Sahi showed 23.44% severe attacks)

4. Result

Radiological diagnosis—All patients underwent plain X ray abdomen and USG. Plain x-ray showed distended air filled bowel loops in 3 patients signifying paralytic ileus. USG detected gall stones in all 5 patients of gall stone induced pancreatitis. In our study retroperitoneum could not be visualized in 80% cases (all USG were done in emergency so bowel gas collection). Sensitivity 70.8% for those with 3 or more signs in our study of 30 patients, total number of patients scoring > 3 were 16 out of which 11 had complications (68.5%) and the rest 5 patients did not develop any complications (31.25%). For APACHE II, 15 patients had score > 8. Out of 15 patients 12 developed complications (80%) and 1 expired. Only 3 patients did not develop any complications even though the score was > 8. The total APACHE II scoring system was found to correlate well with the final outcome.

5. Conclusion

Apache II scoring system had a better predicting value in initial 48 hours of attack as compared to Ranson’s criteria. Apache II was more easy to perform, quick and accurate when compared to Ranson’s criteria for predicting complications. Serum Amylase was a good indicator for predicting complications and change in management. Blood sugar levels done on day of admission had no much role in predicting complication and change in management. A standard protocol was followed for all Patients from diagnosis to follow up.

References