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BISAP Score as a Predictor of Mortality in Acute Pancreatitis

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ABSTRACT
Acute pancreatic pathogenesis can result in a self-modifiable disease without any sequelae or can progress to autophagy with generalized cell toxicity and conditions which are life- threatening. BISAP SCORE evaluation is found to be very simple and accurate method of predicting mortality in the acute pancreatitis. This Prospective Study done in institution KIMS, Karad. The study included 92 patients presented with acute pancreatitis and were given the score from 0 to 5 on the basis of five simple variables. These were BUN, Impaired mental status, SIRS, Age and Pleural Effusion. All these parameters were easy to evaluate and were routinely done in our hospital for patients admitted with Acute Pancreatitis.

Keywords: Pancreatitis, BISAP Score, Acute, Cell, APACHE II, Mortality

INTRODUCTION
Pancreatitis is a condition in which there is inflammation of gland resulting in damage or injury to the acinar cells. Acute pancreatic pathogenesis can result in a self-modifiable disease without any sequelae or can progress to autophagy with generalized cell toxicity and conditions which are life-threatening. Calcification and fibrosis are the main presentation of chronic pancreatitis. Acute pancreatitis is a condition with substantial burden in the community. Current survey suggests steep rise in the number of cases in the emergency department, hospital admissions and cost of healthcare because of Acute Pancreatitis. Due to an assessed death rate of around 2-5%, there is a need for the development of consistent system for risk quantification in Acute Pancreatitis[1,2]. Acute pancreatitis, which is the study topic, is the frequently occurring pancreatic condition and the one which often exhibits therapeutic and diagnostic dilemma. Present system for quantification of risk has restrictions. Data collection on admission is required in Ranson and modified Glasgow score which is not routinely done also both include 48 hours to complete for reassessment, neglecting a potentially valuable early therapeutic window[3,4]. Routinely preferred score for evaluation of Acute Pancreatitis is the Acute Physiology and Chronic Health Examination (APACHE) II score[5,6]. Though, it was initially devised for critical care but requires gathering of huge number of parameters, few of them not even linked to the prognosis of disease. The aim of our research was to device a simple and precise scoring system based upon clinical assessment categorizes cases according to the risk of in hospital mortality. To device a clinical tool suitable in primary stage of Acute Pancreatitis, which evaluates data collected at the time of admission.

AIM OF THE STUDY
To explore the accuracy of BISAP SCORE in predicting the risk of mortality in patients with Acute Pancreatitis.

OBJECTIVES OF THE STUDY
To evaluate BISAP score in identifying high risk patients. To assess the predictive value of the BISAP score. To assess the role of the BISAP score in preventing adverse outcome.

REVIEW OF LITERATURE
The clinical skills in classify cases in initial course of acute pancreatitis play a vital role in refining future management approaches.
Data collection on admission is required in Ranson and modified Glasgow score[7] which is not routinely done also both include 48 hours to complete, neglecting a potentially valuable early therapeutic window.[3,4]
B U Wu et al [8] using a classification and regression tree (CART) model, a therapeutic score method was developed to predict patient mortality in acute pancreatitis. Information obtained from 17,992 instances of acute pancreatitis in 212 hospitals in 2000-01 is retrieved from the rating system. Many related studies have concentrated on a limited number of cases, mainly in tertiary referral centres, with serious acute pancreatitis expected[9-13].
Vikesh K. Singh et al,[14] evaluated BISAP ranked for 397 consecutive cases of acute pancreatitis admitted to the institution between June 2005 and December 2007. BISAP scores were evaluated in all cases using data within 24 hours of submission. The capacity of this score method to forecast mortality has been tested through inequality and pattern research. Assessment of organ dysfunction and pancreatic necrosis by the receptor working curve. For the 398 incidents, 15 (3.5 per cent) were serious. As the BISAP score increases, it was noted that there was an increase in mortality ($p<0.0001$).

MATERIALS AND METHODS
Patients admitted in Krishna Institute of Medical Sciences & Deemed To Be University, Karad with Pancreatitis confirmed by clinical, biochemical and radiological parameters. Krishna Institute of Medical Sciences & Deemed University, Karad. Duration study period is 18 Months (Dec 2016-June 2018). All patients of acute

pancreatitis confirmed by radiological methods. Patients who didn't give consent. Patients with chronic pancreatitis or surgical causes of acute pancreatitis.

OBSERVATION & RESULTS

Patients diagnosed as a case of Acute Pancreatitis admitted in Surgical Ward of KIMS, Karad in between Dec 2016 to June 2018 are part of our study. Radiological (USG/CT Scan), and Biochemical (S. Amylase and S. Lipase) results are the parameters upon which diagnosis depends. 92 cases were included in study as they were fulfilling the criteria of disease. Evaluation of data done using SPSS 10. Six (6.5%) deaths occurred from total of ninety-two cases. As the BISAP score increase there is statically increase in death rate. AUR curve for death according to BISAP score was 0.937 (95 % confidence interval: 0.863, 1.00). Fischer's test value of 19.264 is also significant. The findings are in similarity with the different studies done previously thus favoring BISAP score as an easy, simple and precise predictor of mortality.

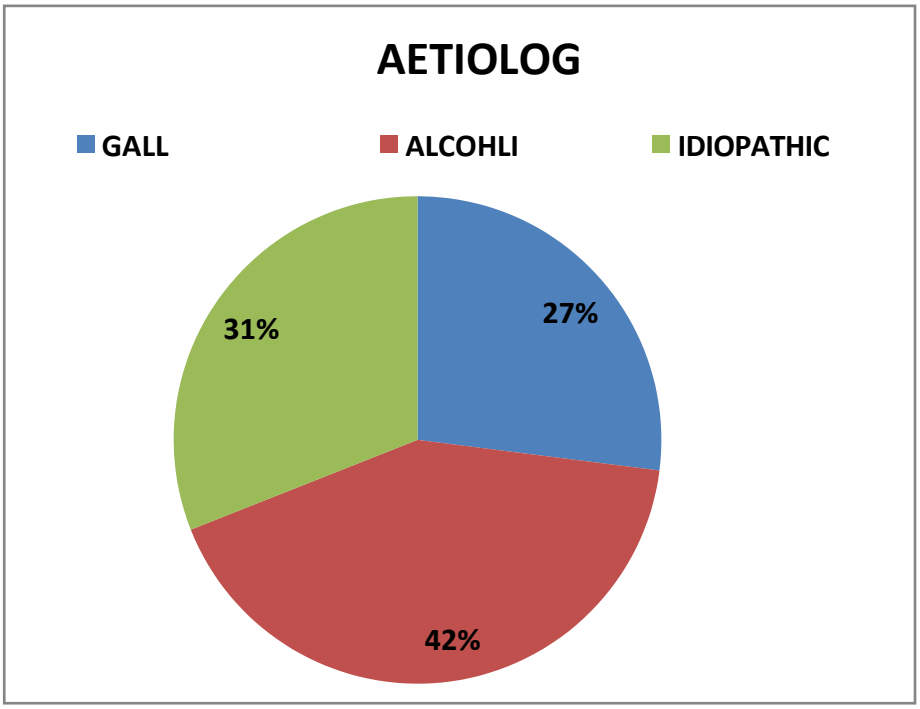

Figure 1: Pie diagram showing aetiologies of Acute Pancreatitis.

In figure 1 shows the most common cause in this study point towards alcohol as a cause of pancreatitis, as the percentage of male patients was significantly higher. Gall stone induced pancreatitis also came out to be an important cause for the disease.

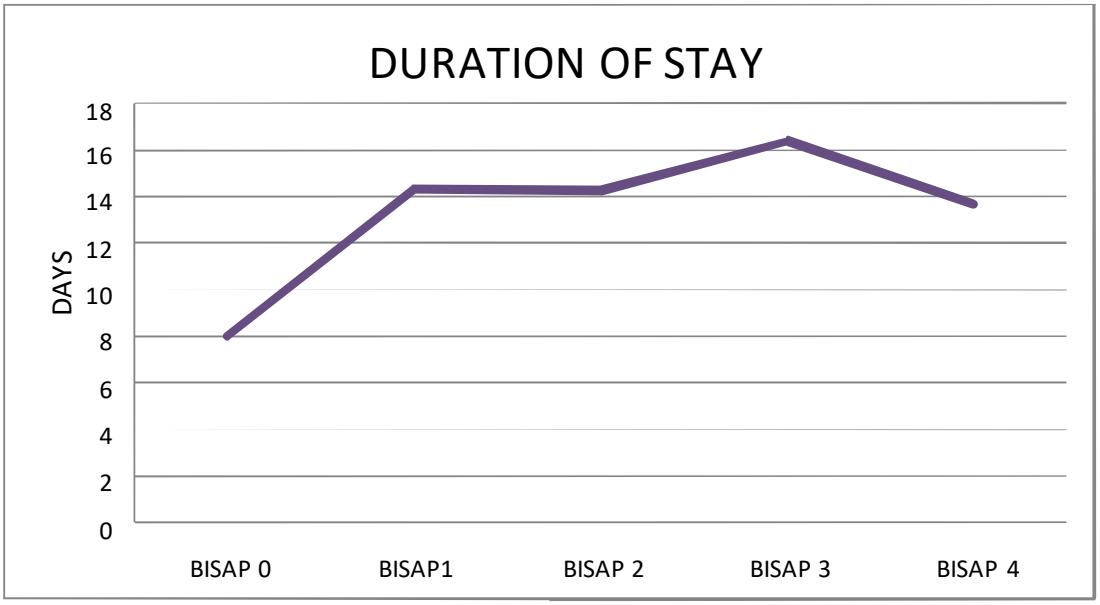

Figure 2: Line Diagram showing average stay of patients in each group.

Mean length of stay varied significantly according to BISAP score. By application Post-hoc Tukey test (not shown in table), it was seen that the mean length of stay varied significantly between BISAP score 0 and 1 ($p = 0.000$), 0 and 2 ($p = 0.001$) and between 0 and 3 ($p = 0.006$). However, it did not differentiate significantly between scores 0 and 4 ($p = 0.325$), which may be due to huge numbers of mortality among those with BISAP score 4 which thereby had reduced the length of stay. No significant change in the average length of stay was found on comparing scores 1, 2, 3, and 4 with each other.

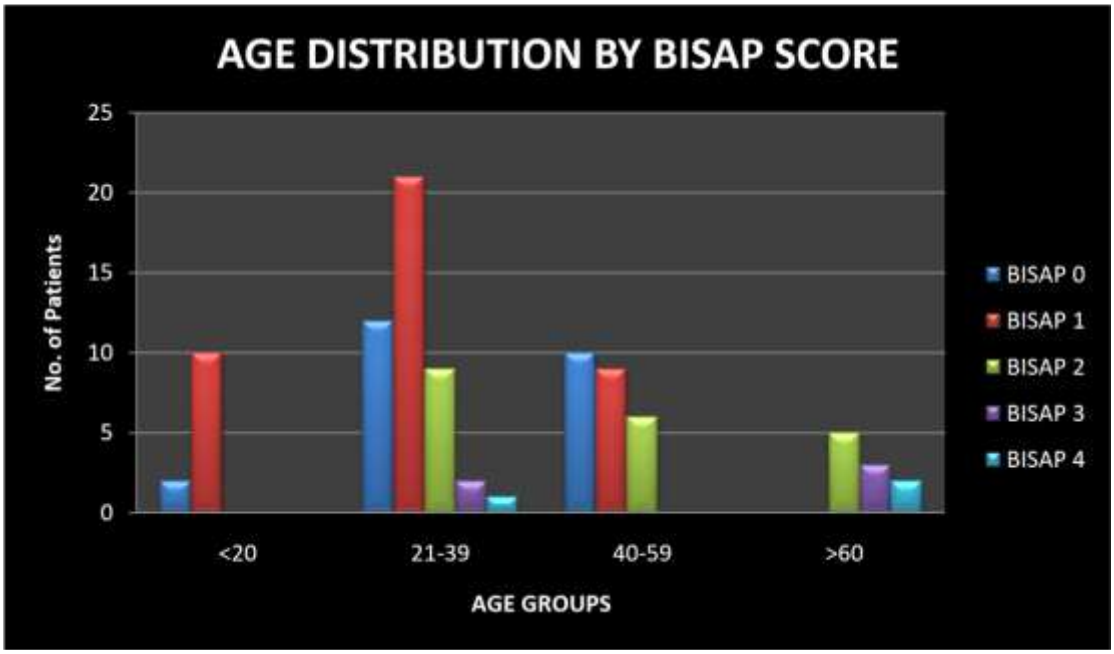

Figure 3: Bar diagram showing the division of patients in different age groups.

In the present figure no. 3 indicated the distribution of patients with different scores in each group shown above. Younger age group has cases with score of only 0 and 1, thus having better prognosis. Age group more than 60 has patients with score of only 3 and 4, thus having poor prognosis.

DISCUSSION

Acute pancreatitis is a condition which leads to significant impression on our healthcare. Now a day there is sudden increase in cases, hospital admissions and increased healthcare expenditure for Acute Pancreatitis. Considering 2- 6% of mortality, there is a need for a simple, reliable and easy system for risk quantification in Acute Pancreatitis. Acute pancreatitis, which is the subject in this study, is the most frequent pancreatic disease and is also one that often presents diagnostic dilemma and especially therapeutic ones. Scoring systems which are currently used for calculating risk have their own restrictions. Scoring systems like Ranson and modified Glasgow score requires large data collection at the time of admission among which few of them mostly missed during assessment also data collected 48 hours later which can result in missing vital initial therapeutic window. Moreover, calculation of APACHE II score is a cumbersome procedure requiring large no. of variables, several investigations, some of which are not routinely done in many hospital, with knowledge of chronic health status which may be difficult to find out in many cases. To initially access and identify cases with poor prognosis is the area of interest and research in Acute Pancreatitis[15-27]. Research which has been carried out previously mainly focused to create a scoring system for prognosis or to identify risk factors to access severity of disease. Few of these studies consider death as an end point. The skill to classify patients based upon the risk factors in the initial stage of disease course has proven to have many vital implications and outcome. Primarily, initial identification of patients with high risk will make treating doctors vigilant to provide an active treatment to the patients and if required consideration for higher centre referral. Secondly, a scoring system gives an idea about criteria for enrolment of subjects into future clinical research. Also, this scoring system of risk factors if applied on large population will be helpful in providing additional outcome in research. For example, factors associated with mortality in cases with less BISAP scores may be helpful in planning management strategies in AP. Simplicity and accuracy is the main advantage of BISAP score. Each factor carries one score to a total five-point score. Amongst five factors each one can be simply accessed during the initial course of admission. Assessment of mental status is the only factor which is subjective. Systemic Inflammatory Response Syndrome[28,29] is a composite factor involving 4 criteria, assessment of SIRS is routinely done and has shown to have a prognostic value in AP. The early identification of patients at risk for adverse outcome from AP has been an area of active investigation for many years. BISAP scoring fulfills that requirement.

CONCLUSION

Identifying patients at risk of death early in the process of acute pancreatitis is an significant move in enhancing the result. The BISAP score is a easy yet reliable bedside device that can be utilized during the first 24 hours of admission that can assess patients at risk of mortality that need further supervision and more intensive care.

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