

Three Stages to Understand Acute Pancreatitis

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Abstract: Objective To investigate the causes of mortality of acute pancreatitis. **Methods** In this study, random digits table was employed to selected 400 cases of acute pancreatitis, including 229 cases of male and 171 cases of female, the average age is 49.5 years (range from 13 years to 82 years), 283 cases in mild acute pancreatitis, 62 cases in severe acute pancreatitis I and 55 in cases severe acute pancreatitis II. **Results** Of 276 cases with only local manifestation, none died. Of 69 cases with SIRS, but without organ dysfunction, also none died. Of 55 cases with organ dysfunction, 19 case died. **Conclusion** Organ dysfunction associated with acute pancreatitis is the leading cause of mortality of acute pancreatitis.

Key words: acute pancreatitis; three steps; understand

INTRODUCTION

The incidence of acute pancreatitis (AP) is growing and the worldwide population-based studies report have a doubling or tripling increased since 1970s. About 25% of acute pancreatitis were severe and had histopathological changes of pancreatic necrosis. There has no specific treatment as yet for acute pancreatitis. The average mortality resides around 10%^[1]. To understand the cause of death from AP we reviewed 400 cases of AP and drawn some conclusions as following.

PATIENTS AND METHODS

1. Patients

In this study, random digits table was employed to selected 400 cases of AP since 1978 from the Second Affiliated Hospital of Medical College of Xi'an Jiaotong University. We reviewed the clinical data of these patients, including 229 cases of male and 171 cases of female, the average age is 49.5 years (range from 13 years to 82 years), 283 cases in mild acute pancreatitis, 62 cases in severe acute pancreatitis I and 55 cases in severe acute pancreatitis II.

2. Methods

Inclusion criteria: The diagnosis of AP was determined with specific clinical manifestation combined with increased serum amylase and urine diastase which more than three times of the normal value. Evidence from laparotomy also contributed to the diagnosis. Ultrasonography was routinely performed for all patients suspected of AP and contrasted dynamic computerized tomography scan was performed to confirm and definite the severity of AP^[2].

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Exclusion criteria: Those patients have suffered organ dysfunction when diagnosed as AP.

Systemic inflammatory response syndrome (SIRS) and multiple organ dysfunction syndrome (MODS) were defined in accordance with definitions given by the American College of Chest Physicians and the Society of Critical Care Medicine^[3].

RESULTS

Of 400 cases AP, 276 cases had only local manifestation, none died. 69 cases had SIRS, but without organ dysfunction, also none died. 55 cases had organ dysfunction, 19 cases died.

DISCUSSION

The injury of pancreatic acinar cell early in AP will lead to a local inflammatory reaction. If this inflammatory reaction is severe, it will lead to SIRS. Excessive SIRS in AP will further lead to distant organ damages and MODS^[4]. MODS^[5-7] and infection^[8] are considered to be the most common factors leading to the death of AP patients. So local manifestation, SIRS and MODS are the three stages leading to the mortality of AP.

In severe AP, endotoxin/bacterial translocation from the gut is the main cause of infection, which is the universal stimulator of inflammatory process^[9]. Currently infected pancreatic necrosis is still the leading cause of death^[10].

Our studies show that local manifestation and SIRS would not cause death of AP patients. Organ dysfunction may be the APs leading cause of mortality. So the preventive and therapeutic targets should focus on the organ dysfunction. The suffered organ should be protected and supported in the event of organ dysfunction occurs in AP patient. MODS is the most common factor leading to the death of AP patient. SIRS is the early stage of MODS. MODS could be avoided if SIRS is deterred, thus, the mortality of AP mainly caused by MODS will drastically decreased.

The development of AP can be described as the following three stages: local pancreatic pathology, SIRS of general body, remote organ dysfunction or MODS. Accordingly, we grade the AP in terms of its pathology, severity of its clinical manifestation and consequence as following: If AP only has local manifestation the patients are relatively safe, so we define it as grade A; If AP has the manifestation of SIRS, it may develop to remote organ dysfunction or MODS, thus, we define it as grade B; If AP was poorly controlled in the stage of SIRS and has remote organ dysfunction or MODS, it may be life-threatening, now, we define it as grade C.

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