Acute pancreatitis – Epidemiological aspects, prognosis and quality of life

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Introduction

A significant increase in the incidence of acute pancreatitis (AP) has been reported internationally. Certain medications may cause AP and in a recent study, about 40% of patients with AP of various aetiologies were taking at least one AP-associated drug. Although the majority had biliary or alcoholic AP, a contributory impact of AP-associated drugs on AP was suggested. This has not been investigated in a population-based cohort and it is unknown whether there is a relation between sales of AP-associated drugs and AP incidence.

Following AP, overall progression to chronic pancreatitis is low (4%). However, within 10 years after alcoholic AP progression to chronic pancreatitis it is about 13%. Other factors such as AP severity may also affect the natural history of AP, including the occurrence of recurrent AP (RAP) but published data are somewhat contradicting. Certain interventions, such as cholecystectomy in biliary AP, and abstinence from alcohol in alcoholic AP, are known to reduce the risk of RAP, but real-life evidence on their potential impact on the natural course of the disease are limited.

Aims

In a population-based cohort of patients with first-time AP we aimed to study:

- The use of AP–associated drugs and the potential relation between the incidence of AP and sales of these drugs.
- The potential impact of the use of AP-associated drugs on AP severity and recurrence.
- The natural history of AP.
Methods

All adult patients (≥18yr) with first-time AP admitted to our institution between 2003 and 2012 were identified and all medical records were scrutinized to confirm the diagnosis of AP. In addition, autopsy and forensic diagnosis records were searched and relevant reports were examined to identify patients with evidence of AP at autopsy who had not received a clinical diagnosis prior to death in the same time period. Relevant data regarding demographics, AP aetiology, AP severity (according to the revised Atlanta criteria), use of AP-associated drugs (according to an evidence-based classification system), recurrent AP episodes, development of chronic pancreatitis, smoking habits, comorbid illness and mortality were extracted. Annual drug sales data were obtained from the Swedish drug administration service. Patients were followed until death or end of 2013.

Results

In all, 1457 patients with incident AP during the study period were identified. In both men and women, gallstone disease was the most common aetiology, followed by alcohol. The annual age-standardized incidence of AP increased during the study period in both women and men (p<0.05). This was mainly due to a significant increase in biliary pancreatitis in both genders (p<0.05).

AP-associated drug users increased from 32% in 2003 to 51% in 2012, reflecting increasing user rates in the general population. Even though the incidence of AP increased during the study period, this was not related to AP-associated drug user rates (p>0.05). In logistic regression analysis after adjustment for comorbidity, AP-associated drug use was not related
to AP severity (p>0.05). After adjustment for AP aetiology (alcoholic vs. other), age, and smoking status by means of Cox regression analysis, the use of AP-associated drugs (of any class and total) was not statistically related to recurrent AP (p>0.05).

Overall, 23% of the patients had ≥1 RAP episodes. RAP risk was significantly higher among smokers (Hazard ratio (HR) 1.42), in alcoholic AP (HR 1.58), and after organ failure (HR 1.46), and systemic (HR 1.88) or local complications (HR 1.66) at first-time AP. Progression to chronic pancreatitis occurred in all aetiology groups, but it was most common following alcoholic AP (2.8/100 patient-years). RAP was the strongest predictor of subsequent chronic pancreatitis (HR 6.74), along with alcoholic aetiology (HR 3.10), smoking (HR 2.26), systemic complications (HR 1.37) and peripancreatic necrosis (HR 2.74) at first-time AP. In-hospital mortality was 2.8% with organ failure being its only independent predictor (odds ratio (OR) 71.17). Fifty-three percent of patients dying upon RAP had biliary AP. Mortality upon first RAP was higher than at first-time AP in biliary patients (5.9% vs. 2%, p=0.01).

**Conclusion**

Use of AP-associated drugs is increasingly frequent in patients with AP. However, it does not have any major impact on the observed epidemiological changes in occurrence, severity or recurrence of AP. Severity of first-time AP is related to both RAP and subsequent chronic pancreatitis, along with smoking and alcoholic aetiology. RAP is also a predictor of progression to chronic pancreatitis. Mortality following RAP occurs mainly in biliary AP.