

Mortality in acute pancreatitis

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Summary

The mortality from acute pancreatitis at a single centre between 1967 and 1980 is described. The overall mortality was 11% and remained at a similar level throughout the review period during which annual admission rates doubled. Two main groups of mortality were identified. In those with primary pancreatico-biliary or gastric pathology, there were less associated medical conditions and death was commonly due to abscess formation. In those without such primary pathology pre-existing poor medical condition was common and contributed to death from milder forms of pancreatitis. Our findings suggest that a decrease in the mortality of acute pancreatitis is more likely to be achieved through improved medical management than by operative intervention.

Introduction

The proportion of people dying from an attack of acute pancreatitis has not changed in the past decade. Numerous factors have been identified which help to indicate the likely severity of the attack (1), but early identification of those at particular risk has failed to improve patient survival. The widespread availability of intensive care facilities has similarly had little effect.

The link between biliary disease and pancreatitis is long established (2) and reports have related attacks of acute pancreatitis to the passage of biliary stones (3, 4). There is debate, however, as to the relative merits of early and delayed surgery to the biliary tree. Early surgery has been recommended (5) to try and avoid the progression of pancreatitis to its more severe forms. Others have demonstrated a higher mortality in groups of patients treated in this way (6, 7).

We have undertaken this study in order to attempt to identify the factors associated with death from acute pancreatitis, in a large series of patients over a 14-year period. The role of surgery in their management is examined.

Patients and methods

The details of 897 cases of acute and recurrent acute pancreatitis, admitted to the Dudley Road Hospital complex, Birmingham, between 1967 and 1980, were retrieved from the West Midlands Regional Health Authority computer. The data were based on the completed Hospital Activity Analysis sheets and coded in accordance with the International Classification of Disease (9th edition) (8) as follows—acute or infective, haemorrhagic, suppurative or non-specified pancreatitis.

There were 447 males (mean age 50.8 years) and 450 females (mean age 59 years). Ninety-eight (11%) patients died during the admission, death being slightly more common amongst males (57 deaths, mean age 62.5 years) than females (41 deaths, mean age 71 years). The full clinical, operative and post mortem details were available in 91 cases, the subject of this study.

Results

Acute pancreatitis was associated with biliary disease in 509 (57%) cases; in 187, biliary disease was known at the time of admission, the rest being discovered during subsequent investigation. The attacks were known to be related to alcohol ingestion in 192 (21%) and there were no recorded associations in 196 cases. During the period of review, the admission rate nearly doubled (Fig. 1), but the proportion of

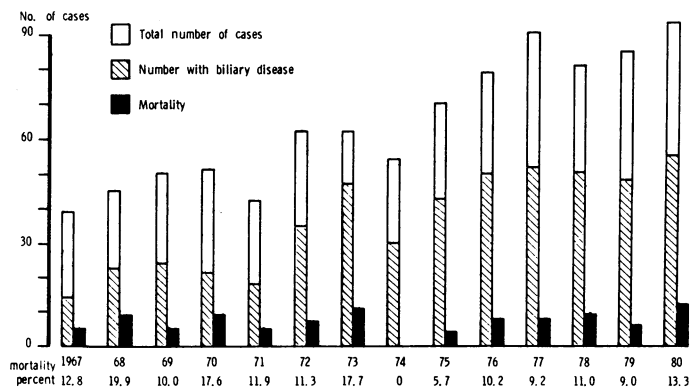


FIG. 1 Acute pancreatitis 1967–1980—mortality.

cases with biliary disease and the percentage mortality remained similar throughout the period of the survey. Of the survivors, 21 underwent various forms of pancreatic surgery. In the group who died 11 had pancreatico-biliary surgery. As shown in Table I, there were two main groups of mortality. The largest of these was those with primary pancreatico-biliary or gastric pathology, the nature of which is shown in Table II. In 6 cases pancreatitis was the presenting feature of gastric or duodenal pathology. There were few associated medical conditions in this group. The other large group of mortality had no primary pancreatico-biliary pathology, but had far more co-existent medical conditions (Table III). The modes of pancreatic destruction are shown in Table IV. There was a marked difference between the modes of destruction in the two main groups of mortality. Those with primary pancreatico-biliary path-

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ology had a high incidence of menacing abscess formation, this being three times as common as haemorrhagic pancreatitis. Only 4 patients in this group had oedematous pancreatitis and each of these had impacted stones in the lower bile duct. In the other group without primary pancreatico-biliary disease abscess formation was rare, oedematous and haemorrhagic pancreatitis occurring equally often.

TABLE I *Mortality (n=91)*

Postoperative pancreatitis	5 (2 Ca pancreas)
Death due to another catastrophe during the course of pancreatitis	11
Primary pancreatico-biliary or gastric pathology	32
Associated medical conditions but no primary pancreatico-biliary pathology	30
Previous upper abdominal surgery	5
Nil else	8

TABLE II *Primary pancreatico-biliary pathology (n=32)*

Stones CBD	7 (in 6 patients stones impacted lower end)
Stones gall bladder alone	16
Pancreatic carcinoma	1
Pancreatic calcification	1
Bile duct stricture	1
Carcinoma of stomach infiltrating pancreas causing acute pancreatitis	3
Perforated gastric or duodenal ulcer causing acute pancreatitis	3

TABLE III *Associated medical conditions in the absence of pancreatico-biliary pathology (30 patients)*

6 Ischaemic heart disease	2 Steroids
4 Hypertension	1 Hypothyroidism
4 OAD	2 Peptic ulceration
5 Diabetes	1 Ulcerative colitis
3 Asthma	1 Sideroblastic anaemia
4 Sarcoidosis	1 Pyelonephritis
1 Rheumatoid arthritis	2 Intrinsic renal failure
4 Osteo-arthritis	4 AF
1 CVA	<i>Other drugs:</i>
1 Pernicious anaemia	4 Butazolidine
1 Multiple sclerosis	3 β blocker
4 Alcoholism	1 Indocid
1 Cardiomyopathy	2 Iron
2 Cirrhosis	2 Oral hypoglycaemics
	5 Digoxin

TABLE IV *Mode of destruction*

		Haemorrhagic	Abscess	Oedematous
Post operative pancreatitis	5	4	1	—
Another catastrophe during the course of pancreatitis	11	6	3	2
Primary pancreatico-biliary pathology	32	7	21	4
Associated medical conditions but no primary pancreatico-biliary pathology	30	14	2	14
Previous upper abdominal surgery 6 months or over	5	4	1	—
Nil else	8	6	2	—
	91	41	30	20

Discussion

The clinical impression that the mortality associated with acute pancreatitis has not been altered over the past decade is confirmed by this study. It might have been thought that improved intensive care facilities and new techniques in the diagnosis of complications would have improved the outcome of the disease. Other studies of recent years (9, 10) have observed overall mortality rates very similar to the 11% seen in this series. An earlier large review by Trapnell (11) reported a 17% case mortality between 1950 and 1967. The annual number of admissions for acute pancreatitis has risen with time, biliary disease being the aetiological factor in just over half the cases. This is similar to that seen in the earlier survey. The incidence of alcohol associated pancreatitis (21%) is higher than in some British series (11, 12), and reflects a trend observed in chronic pancreatitis (13). This is presumably related to the increase in alcohol consumption in the community, and may be accentuated by local factors including the inner city location of Dudley Road Hospital.

The purpose of the study was to examine the causes of death in acute pancreatitis and to attempt to define groups in whom specific surgical or medical therapy might reduce the overall mortality. Our results show that in both males and females, the mean ages of those who died were some 12 years greater than in the survey as a whole. In the absence of biliary disease, death was usually associated with pre-existing poor medical condition. Nearly half of such patients perished despite having relatively mild forms of pancreatitis. Ischaemic heart disease, hypertension, diabetes and alcoholism were the commonest associated diseases. Abscess formation was rare in this group, but accounted for the majority of deaths in those patients with primary pancreatico-biliary and gastric pathology.

It has been claimed that there is correlation between the continuing presence of stones in the ducts and the severity of pancreatic damage (5), therefore, justifying early surgery. However, this may necessitate quite extensive operations on sick patients and an increased mortality associated with such practice is reported (6, 7). Attempts have been made to free stones endoscopically during attacks of pancreatitis (14) achieving the desired result in a less invasive manner. Our findings do not support a correlation between the presence of bile duct stones and the severity of pancreatic damage. Only 7 patients who died had ductal stones and in only 6 cases were these impacted in the lower common bile duct. Four of these patients died despite relatively mild pancreatitis. We, therefore, agree with those authors who feel that early surgery should be avoided.

When abscess formation occurs drainage may be necessary. However, study of the operation notes and post mortem reports detailing the extent of the destruction in those who died with menacing abscess convince us that no form of surgery would have been likely to save them. It would seem that the mortality of acute pancreatitis is unlikely to be reduced by specific surgical procedures. If such a reduction is

to be achieved it is more likely to come from improved medical management of those very sick and often old patients with associated medical conditions.

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Notes on Books

Intensive Care by A K Yates, P J Moorhead and A P Adams. 248 pages, illustrated. Paperback. Hodder and Stoughton, London £5.50.

This has evolved from 'Principles of Intensive Care'. The success of these units is based on an understanding of body functions and on devoted nursing and medical care. This cheap, clear, concise book takes the body systems in turn, and describes the detection and management of disorders. Problems of poisoning, bleeding and nutrition, are awarded separate chapters.

Surgery of the Knee Joint edited by J P Jackson and W Waugh. 473 pages, illustrated. Chapman and Hall, London. £29.50.

The first part of this book deals with the anatomy, diagnosis of diseases and biomechanics of the knee. In the second part, the surgery of various diseases is considered. There is then a section devoted to chronic arthritis and the book ends with a chapter on tumours.

Extrahepatic Biliary Atresia edited by Frederic Daum. 251 pages, illustrated. Marcel Dekker, New York SFr 122.

Interest is stimulated in this condition as a result of advances in understanding and a group of experts met in New York in 1981 to discuss it. The book covers aetiology evaluation, surgery including liver transplant, nutritional aspects and a research update.

Surgical Physiology by J F Burke. 550 pages, illustrated. Saunders, London £54.00.

The intention of this book is to provide an explanation of the physiological principles governing surgical practice, recognising that the surgeon must be an applied physiologist. In recognition of this, it starts with chapters on wound healing, effects of infection, fluid and electrolyte balance followed by a systematic review of body functions, ending with a chapter on the immunology of transplantation.

A Thumbnail Sketch of Theatre Nursing by Jennifer A Morris. 75 pages, illustrated. Macmillan, London. £10.00. Paperback £2.95.

This amusingly illustrated book introduces young nurses to the theatre including the various policies and duties. It would be welcomed by a daughter or niece taking up nursing.

Exotica by W St Clair Symmers. 226 pages, illustrated. Oxford University Press. £8.95.

Those who read Professor Symmers' book 'Curiosa' will look avidly for this new production. He has a nose for interesting and anecdotal clinical and pathological items. The text is fascinating, the illustrations clear and the price is remarkably reasonable.

Notable Names in Medicine and Surgery revised by Harold Ellis. 272 pages, illustrated. 4th Edition H K Lewis, London, £15.00.

This book was originally written by Hamilton Bailey and W J Bishop. Professor Ellis has lovingly revised it. I am sure he has enjoyed it, and it shows. There are about 80 entries and portraits. It is an excellent gift for a nephew or niece about to enter Medical School.

Handbook of Neuroanesthesia: Clinical and Physiologic Essentials edited by Philippa Newfield and J E Cottrell. 437 pages, illustrated. Paperback. Little Brown/Quest, London, \$22.

Initial chapters deal with brain and spinal cord metabolism, physiology electrophysiology and the effects of anaesthesia and barbiturates followed by intensive care. Anaesthetic management covers the various procedures within the skull and spinal cord. Final chapters deal with injuries, paediatric neurosurgery and neuro-radiological procedures.