RECENT TRENDS IN MANAGEMENT OF SEVERE ACUTE PANCREATITIS

Essay

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LIST OF ABBREVIATIONS

AaDO٢	: Alveolar–arterial oxygen difference
ACS	: Abdominal compartment syndrome
AIDS	: Acquired immunodeficiency disease
ALT	: Alanin transaminase
ANP	: Acute necrotizing pacncreatitis
AP	: Acute pancreatitis
APACHE	: Acute physiology and chronic health evaluation
APS	: Acute physiology score
ARF	: Acute renal failure
AST	: Asprate transminase
BISAP	: The bedside index for severity in AP
BMI	: Body mass index
BUN	: Blood urea nitrogen
CAPB	: Carboxy peptidase B
CBD	: Common bile duct
CCK	: Cholecysto kinine
CE	: Converting enzyme
CECT	: Contrast-enhanced Computed Tomography
CRAI	: Continuous regional arterial infusion
CRP	: C-reactive protein
CT	: Computed tomography
CTSI	: CT severity index
CVP	: Central venous pressure
DIC	: Disseminated intravascular coagulopathy
EN	: Enteral nutrition
ERCP	: Edoscopic retrograde cholangiopancreatography
EUS	: Endoscopic ultrasonography
EXPN	: Extrapancreatic necrosis
FiO٢	: Fraction of inspired oxygen
FNA	: Fine needle aspiration
GH	: Growth hormone

LIST OF ABBREVIATIONS (Cont.)

GI	: Gastrointestinal
GM	: Gabexate mesilate
H٢RAs	: Histamine type٢ receptor antagonists
HALS	: Hand assisted laparoscopic surgery
HBO	: Hyperbaric oxygen
HCT	: Hematocrit
HIV	: Human immuno deficiency virus
IAH	: Intraabdominal hypertension
ICU	: Intensive care unit
IDMN	: Inbraductal mucinous neoplasm
IL	: Intyerleukin
IM	: Intramuscular
IR	: Infrared
IV	: Intravenous
IVI	: Intravenous infusion
LDH	: Lactate dehydrogenease
LOT	: Ligament of treitz
LTPD	: Laparoscopic transperitoneal debridement
MAOIS	: Monamine oxidase inhibitor
MCP	: Monocyte chemotactic protein
MIF	: Macrophage migrating inhibitory factor
MODS	: Multisystem organ dysfunction
MOF	: Multiorgan failure
MRCP	: MR cholangio pancreatography
MRI	: Magnetic resonance imaging
NAC	: N- acetylcysteine
NAPD	: Negative abdominal pressure dressing
NF	: Nuclear factor
NM	: Nanometer
NOTES	: Natural orifice transluminal endoscopic surgery

LIST OF ABBREVIATIONS (Cont.)

NPO	: Nothing per os
NPV	: Negative predictive value
PAF	: Platelet activating factor
PaO٢	: Arterial partial pressure of oxygen
PEP	: Post-ERCP pancreatitis
PN	: Parenteral nutrition
PPs	: Pancreatic pseudocysts
PPV	: Positive predictive value
RA	: Receptor antagonist
RCTs	: Randomized clinical trials
SAP	: Severe acute pancreatitis
SC	: Subcutaneous
SIRS	: Systemic inflammatory response syndrome
SOD	: Sphrincter of oddi
SOFA	: Sepsis-related organ failure assessment
SPINK	: Serine protease inhibitor kazal
TAP	: Typsinogen activated peptide
TNF	: Tumnor necrosis factor
TPN	: Total parenteral nutrition
TSH	: Thyroid stimulating hormone
U/S	: Ultrasonography
UK	: United Kingdom
VARD	: Video-assisted retroperitoneal debridement
VS	: Versus

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Introduction

Pancreatitis is an inflammatory disorder of the pancreas which occurs with an estimated incidence of ١٠-٤٠ per ١٠٠ ٠٠٠ per year in the UK. Mild acute pancreatitis accounts for ٨٠٪ of cases, is self-limiting, and usually resolves with simple supportive management in ٣-٥ days. Severe acute pancreatitis accounts for the remainder of cases and was defined by the Atlanta Symposium as acute pancreatitis associated with organ dysfunction or local or regional complications .Most deaths from severe acute pancreatitis result from sepsis andmultiorganfailure. Mortality in patients with infected pancreatic necrosis is ٢٥-٣٠٪, compared with ١٠-١٢٪ in those with sterile necrosis ***(Simon et al., ٢٠٠٨).***

Severe acute pancreatitis is a very challenging disease with multiple complications and high mortality, early assessment of prognosis and severity is important ***(Mayumi et al., ٢٠٠٦)***.

Acute Pancreatitis is potentially lethal disease especially in its severe form, which accounts for approximately ٢٠٪ of cases in patients hospitalized with Acute Pancreatitis. Mortality in severe diseases varies from ١٠٪ to ٢٠٪***(Kumar et al., ٢٠٠٦)***

The two major etiological factors responsible for acute pancreatitis are alcohol and cholelithiasis, the incidence of alcoholic pancreatitis is much higher in men than in women . The risk factors include endoscopic retrograde cholangiopancreatography, surgery, therapeutic drugs, human immunodeficiency virus infection, hyperlipidemia, and biliary tract anomalies .The recurrence rate of acute pancreatitis is relatively high, the incidence of chronic pancreatitis after acute attack ranges from ٣٪ to ١٣٪ ***(Sekimoto et al., ٢٠٠٦)***.

Acute pancreatitis remains the most common complication of endoscopic retrogradecholangiopancreatography(ERCP). The incidence of post-ERCP pancreatitis varies from ١٪ to ٤٠٪.***(Li-Minget al., ٢٠٠٩).***

The greatest change in the treatment of acute pancreatitis is that surgery has been transformed from an immediate measure in necrotizing disease to a late intervention. Although large prospective, multicenter studies are still lacking, the pendulum has swung towards conservative treatment across the world, conservative measures are tried first even in the presence of infected necroses. Surgical intervention is reserved for complications in the later stages of the disease ***(Paul, ٢٠١٠).***

Pancreatic debridement or drainage in patients with infected pancreatic necrosis and/or abscess confirmed by radiologic evidence of gas or results of fine needle aspirate, the gold standard for achieving this goal is open operative debridement. Minimally invasive technique including laparoscopic and/or percutaneous interventions might be effective in selected patients. Wherever possible, operative necrosectomy and/or drainage may be delayed at least ٢ to ٣ weeks to allow for demarcation of the necrotic pancreas ***(Thunher et al., ٢٠٠١).***

AIM OF THE WORK

The aim of this study is to discuss causes, diagnosis and recent lines of management of severe acute pancreatitis.

Chapter (١): Anatomy and Embryology of the Pancreas

ANATOMY OF THE PANCREAS

The pancreas is divided into four parts-head, neck, body and tail - and it possesses one accessory lobe (the uncinate process). The division into the parts is purely on the basis of anatomical relations and there are only very minor functional or anatomical differences between them ***(Jeremiah and Neil, ٢٠٠٨)***.

In an adult, the pancreas weighs ٧٥ to ١٠٠ g and is about ١٥ to ٢٠ cm long ***(William et al., ٢٠١٠)***.With age, the amount of exocrine tissue tends to decline, as does the amount of fatty connective tissue within the substance of the gland, and this leads to a progressive thinning atrophy which is particularly noticeable on CT ***(Neil et al., ٢٠٠٥)***.

The pancreas lies within the curve of the first, second and third parts of the duodenum, and extends transversely and slightly upwards across the posterior abdominal wall to the hilum of the spleen, behind the stomach. It does not lie in one plane but is effectively ‘draped' over the other structures in the retroperitoneum and the vertebral column and so forms a distinct shallow curve, of which the neck and medial body are the most anterior parts. Because of its flattened shape, the parts of the pancreas, particularly the body, are often referred to as having surfaces and borders ***(Susan et al., ٢٠٠٨).***

Regions Of The Pancreas:

a) Head of the pancreas :

The head of the pancreas lies to the right of the midline, anterior and to the right side of the vertebral column. It is the thickest and broadest part of the pancreas. It lies within the curve of the duodenum.Superiorly it lies adjacent to the first part of the duodenum but close to the pylorus.The duodenal border of the head is flattened and slightly concave. Occasionally a small part of the head is actually embedded in the wall of the second part of the duodenum. The superior and inferior pancreaticoduodenal arteries lie between the head and the duodenum in this area. The inferior border lies superior to the third part of the duodenum and is continuous with the uncinate process. Close to the midline; the head is continuous with the neck. The boundary between head and neck is often marked anteriorly by a groove for the gastroduodenal artery and posteriorly by a similar but deeper deep groove containing the union of the superior mesenteric and splenic veins to form the portal vein ***(Susan, ٢٠٠٨)***.

The anterior surface of the head is covered with peritoneum and is related to the origin of the transverse mesocolon ***(Jeremiah and Neil, ٢٠٠٨)***.

The posterior surface of the head is related to the inferior vena cava, which ascends behind it and covers almost all of this aspect. It is also related to the right renal