RECENT MODALITIES IN MANAGEMENT OF ACUTE PANCREATITIS

Essay

Submitted for Partial Fulfillment of Master Degree in General Surgery

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LIST OF ABBREVIATIONS

AaDO2	: 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
FiO2	: Fraction of inspired oxygen
FNA	: Fine needle aspiration
GH	: Growth hormone

LIST OF ABBREVIATIONS (Cont.)

GI	: Gastrointestinal
GM	: Gabexate mesilate
H2RAs	: Histamine type2 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
PaO2	: 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

Pancreas is a gland with both exocrine and endocrine function, it lying retroperitonially at the level of second lumbar vertebra, its parts are head, neck, body and tail ***(Sanjay, 2006)***.

Incidence of acute pancreatitis is about 4.8-24.4 per 100.000. Mortality in hospitalized patients is 10% in mild cases and 30% in severe cases, mortality in first two weeks is due to organ failure and after two weeks due to sepsis ***(Murray Orbuch, 2004)***.

The two major etiological factors responsible for acute pancreatitis are alcohol and cholelithiasis (gallstones) , 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 3% to 13% ***(Sekimoto et al., 2006)***.

Diagnosis of acute pancreatitis is based on the following findings: (1) acute attacks of abdominal pain and tenderness in the epigastric region; (2) elevated blood levels of pancreatic enzymes and (3) abnormal diagnostic imaging findings. ***(Mayumi et al., 2006)***.

Treatment of patients with acute pancreatitis is based on the initial assessment of severity. Early staging is based on the presence and degree of systemic failure and on the presence and extent of pancreatic necrosis ***(Ignjatouic et al., 2004)***.

Endoscopic retrograde cholangiopancreatography is an important tool for diagnosis and therapy in acute and recurrent pancreatitis ***(Kinney and Freeman, 2005)***.

Severe acute pancreatitis remains a very challenging disease with multiple complications and high mortality, early assessment of prognosis and severity is important ***(Mayumi et al., 2006)***.

AIM OF THE WORK

The aim of this essay is to review the literature pertaining to acute pancreatitis with emphasis on the recent modalities in its management.

ANATOMY OF THE PANCREAS

The name of pancreas is derived from the Greek 'pan' (all) and 'Kreas' (flesh). It was originally thought to act as a cushion for the stomach ***(Satyajit, 2008)***.

The pancreas is a retroperitoneal organ that lies in an oblique position, sloping upward from the C-loop of the duodenum to the splenic hilum .In an adult, the pancreas weighs 75 to 100 g and is about 15 to 20 cm long ***(William et al., 2010)***.

The pancreas is salmon pink in colour with a firm, lobulated smooth surface. The main portion of the pancreas is divided into four parts-head, neck, body and tail - and it possesses one accessory lobe (the uncinate process) (Fig.1). 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, 2008)***.

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., 2005)***.

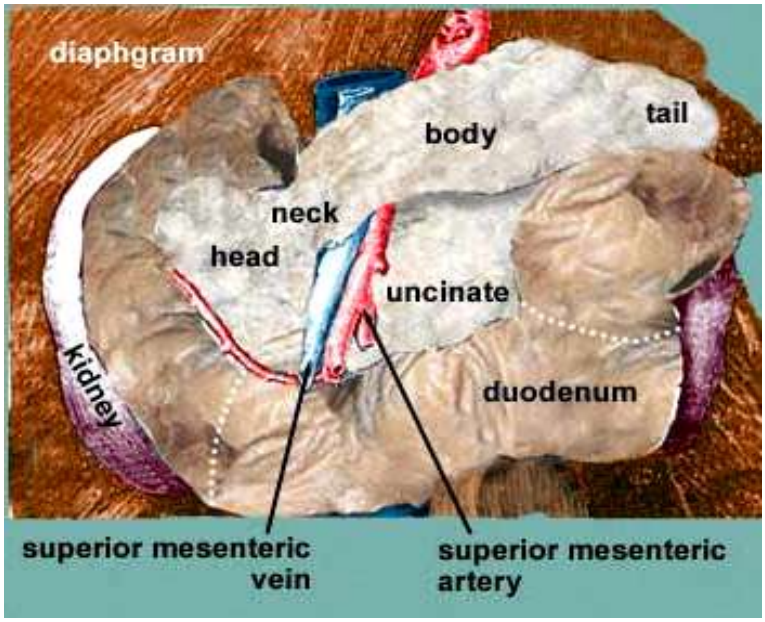

Figure 1: Anatomy of the Pancreas ***(Jeremiah and Neil,2008)*.**

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, 2008)***.

- ***Anterior surface of the head of pancreas:***

The anterior surface of the head is covered with peritoneum and is related to the origin of the transverse mesocolon ***(Jeremiah and Neil, 2008)***.

- ***Posterior surface of the head of pancreas:***

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 vein and the right crus of the diaphrag ***(Jeremiah and Neil, 2008)***.

b) Neck of the pancreas

The neck of the pancreas links the head and body. It is often the most anterior portion of the gland. It is defined as that portion of the pancreas which lies anterior to the portal vein. The lower part of the neck lies anterior to the superior mesenteric vein just before the formation of the portal vein. This is important during surgery for pancreatic cancer since malignant involvement of these vessels may make resection impossible ***(Neil et al., 2005)***.

c) Body of the pancreas:

The body of the pancreas runs from the left side of the neck to the tail. It is the longest portion of the gland and