RECENT APPROACHES IN MANAGEMENT OF ACUTE MESENTERIC VASCULAR OCCLUSION

Essay Submitted for partial fulfillment of master degree in general surgery

 $\mathbf{B}\mathbf{v}$

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ABBREVIATIONS

APTT	Activated partial thromboplastine time
APC	Activated protein C
AMI	Acute mesenteric ischemia
ATP	Adenosine triphosphate
ARDS	Adult respiratory distress syndrome
BER	Basic electrical rhythm
СР	Cancer procoagulant
СРВ	Cardiopulmonary Bypass
CA	Celiac artery
CA	Celiac artery
CCL17	Chemokine
CMI	Chronic mesenteric ischemia
CI	Colonic ischemia
CT	Computed tomography
CTA	Computed tomography angiogram
CK	Creatinine kinase
COX	cycloxygenase
CMV	Cytomegalovirus
DVT	Deep venous thrombosis
DSA	Digital subtraction angiography
DIC	Disseminated intravascular coagulation
EGF	Epidermal growth factor
ePTFE	Expanded polytetrafluoroethylene
L1	First lumbar vertebra
IMA	Inferior mesenteric artery
INF-	Interferon-alpha
IL-10	Interleukin-10
INR	International normalization ratio
I-FABP	Intestinal fatty acid-binding protein
LT	Leukotrienes
LOX	Lipoxygenase
MRA	Magnetic resonance arteriography
MRI	Magnetic resonance imaging

MVO Mesenteric vascular occlution MVT Mesenteric venous thrombosis MMP-9 Metalloproteinase-9 MSOD Multisystemic organ dysfunction NADPH Nicotinamide adenine dinucleotide phosphate NOMI Nonocclusive mesenteric ischemia OFR Oxygen-derived free radicals PTA Percutaneous transluminal angioplasty PAF Platelet-activating factor PMNs Polymorphonuclear neutrophils PG Prostaglandins PT Prothrombin time ROS Reactive oxygen species SQUID Superconducting quantum interference devices SMA Superior mesenteric artery SOD Superoxide dismutase SIRS Systemic inflammatory response syndrome I/R The ischemia and reperfusion syndrome L3 Third lumbar vertebra TX Thromboxane TGF-B Tissue growth factor-B t-PA Tissue plsminogen-activator TNF Tumor necrosis factor VCAM-1 Vascular cell adhesion molecule-1 vWF Von Willebrand factor XDH Xanthine dehydrogenase XO Xanthine oxide -subunit of glutathione S-tranferase		
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vWFVon Willebrand factorXDHXanthine dehydrogenaseXOXanthine oxide	TNF	Tumor necrosis factor
XDH Xanthine dehydrogenase XO Xanthine oxide	VCAM-1	Vascular cell adhesion molecule-1
XO Xanthine oxide	vWF	Von Willebrand factor
	XDH	Xanthine dehydrogenase
-GST -subunit of glutathione S-tranferase		
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INTRODUCTION

INTODUCION

Mesenteric ischemia is caused by decreased intestinal blood flow that can be caused by a number of mechanisms. Decreased intestinal blood flow results in ischemia and subsequent reperfusion damage at the cellular level that may progress to the development of mucosal injury, tissue necrosis, and metabolic acidosis (*Dang et al.*, 2008).

Antonio Beniviene first described mesenteric ischemia in the 15th century. It became more intensely studied in the mid 19th century after case reports by Virchow and others. The first successful surgery to repair a case of acute mesenteric ischemia was performed by Elliot, who, in 1895, resected a gangrenous portion of bowel and reanastomosed the viable bowel (*Tessier and Williams*, 2006).

In the early 20th century, advances were made in diagnostic modalities, heparin was introduced for use in mesenteric venous thrombosis, and residual arterial spasm was recognized. In the 1950s, vascular surgical repair to restore blood flow to ischemic bowel before gangrene occurred was introduced. The first successful embolectomy without bowel resection was performed in 1957(*Herbe and Steele*, 2007).

Mesenteric vascular occlusion represents one of the most dramatic intra-abdominal catastrophes encountered by physicians. It is a relatively rare disorder seen in the emergency department (ED); however, it is an important diagnosis to make because of its high mortality rate. Vague and nonspecific clinical findings and limitations

INTODUCION

of diagnostic studies make the diagnosis a significant challenge. Moreover, delays in diagnosis lead to increased mortality rates. Despite recent advances in diagnosis and treatment, mortality rates continue to remain high (*Nishijima and Su.*, 2008).

The patho-physiology of intestinal ischemia can be divided into arterial and venous etiologies and acute and chronic ischemia. The vast majority of cases are secondary to arterial causes. All diseases and conditions that affect arteries, including atherosclerosis, arteritis, aneurysms, arterial infections, dissections, arterial emboli, and thrombosis, are reported to occur in the intestinal arteries (*Agaoglu et al.*, 2005).

Acute mesenteric ischemia can be further divided into embolic, thrombotic, or non-occlusive causes. Chronic mesenteric ischemia usually results from long-standing atherosclerotic disease of 2 or more mesenteric vessels (*Huang et al.*, 2005).

This essay is intended to review methods for diagnosis and management of the acute type of mesenteric vascular occlusion..

AIM OF WORK

AIM OF WORK

The aim of work is to review the recently adopted methods for early diagnosis and treatment of patients presenting with manifestations of acute mesenteric vascular occlusion.

CHAPTER (1) ANATOMY OF THE MESENTERIC CIRCULATION