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Original article

Acute Mesenteric Ischemia: Utility of Endovascular Techniques[☆]



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A B S T R A C T

Introduction: Acute mesenteric ischemia (AMI) has a high mortality. Early diagnosis and treatment are very important. In our institution there is a therapeutic protocol that includes endovascular techniques (ET) in patients with AMI without peritoneal irritation at diagnosis. The aim of this study was to evaluate the use of ET in conjunction with conventional surgery in the management of potentially reversible IMA diagnosed by computed tomography (CT-angiography).

Methods: Observational, descriptive and retrospective study that evaluated the use of ET in patients with AMI (arterial origin) in two periods (before and after the application of a protocol that includes ET), between 2009 and 2013. All patients were diagnosed by a CT-angiography, as the diagnostic technique of choice, because of the clinical and analytical suspicion.

Results: Our series included 73 patients with IMA diagnosed by CT-angiography (45: 2009–2011; 28: 2012–2013). Leukocytosis was common (82%), high lactate levels are less frequent (47% vs 53%). There were 49 patients with IMA without peritoneal irritation. In 51% bowel resection surgery was performed (44% survival); 18%: revascularization by ET (survival 67%); 31%: palliative treatment (0% survival). 33% of patients undergoing first-line RVI needed a surgical rescue (bowel resection). The overall mortality was 67% (2009–2011) vs 62% (2012–2013).

Conclusions: Since the protocol application, there is a higher indication of ET in patients with AMI without peritoneal irritation, showing a decreased mortality. With ET application, there is a higher survival in these patients. In our experience, the use of ET in cases of AMI without peritoneal irritation at diagnosis, may increase survival.

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Isquemia mesentérica aguda: utilidad de las técnicas de revascularización endovascular

RESUMEN

Palabras clave:

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Introducción: La isquemia mesentérica aguda (IMA) presenta una elevada mortalidad. El diagnóstico y el tratamiento precoces son claves. En nuestro centro aplicamos un protocolo terapéutico que incluye la radiología vascular intervencionista (RVI) en pacientes con IMA sin irritación peritoneal. El objetivo de este estudio fue evaluar el uso de la RVI conjuntamente con la cirugía convencional en el manejo de la IMA de intestino delgado potencialmente reversible diagnosticada mediante tomografía computarizada vascular (angio-TC). **Métodos:** Estudio observacional, retrospectivo y descriptivo, donde se valora el manejo diagnóstico y terapéutico de la IMA en 2 períodos (antes y después de la aplicación de un protocolo que incluye la RVI) entre 2009 y 2013. El diagnóstico de elección es mediante angio-TC, ante la sospecha clínico-analítica.

Resultados: Nuestra serie incluye a 73 pacientes diagnosticados de IMA mediante angio-TC (45: 2009-2011; 28: 2012-2013). La leucocitosis es frecuente (82%), siendo menos frecuente la lactacidemia (47% vs. 53%). Hay 49 pacientes con IMA y exploración abdominal normal. En el 51% se realizó cirugía de resección intestinal (supervivencia 44%); 18%: revascularización mediante RVI (supervivencia 67%); 31%: tratamiento paliativo (supervivencia 0%). El 33% de los pacientes sometidos a RVI como primera línea precisaron de cirugía de rescate (resección intestinal). La mortalidad global es del 67% (2009-2011) vs. 62% (2012-2013).

Conclusiones: Desde la aplicación del protocolo ha aumentado la indicación de RVI para tratar a pacientes sin irritación peritoneal, objetivando una disminución de la mortalidad global. En nuestra experiencia, la aplicación de RVI en casos de IMA sin irritación peritoneal al diagnóstico puede incrementar la supervivencia.

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Introduction

Acute mesenteric ischemia (AMI) is a rare entity, although it has a high mortality (above 50%).¹ It increases in frequency in an aging population, as the frequency of cardiovascular risk factors also increases.

Reducing the mortality of AMI patients is fundamentally based on two pillars: early diagnosis and treatment.² Vessel revascularisation is considered to be the treatment of choice when the ischemia is reversible, and it may be performed at an endovascular level by using vascular interventional radiology techniques (VIR) or conventional vascular surgery. For several years endovascular treatment has been described as the treatment of choice, if it is available, as it is less aggressive with similar morbidity and lower mortality than other treatments.³ The therapeutic arsenal which includes VIR is composed of mechanical or pharmacological fibrinolysis, balloon angioplasty (with or without a stent) and the intravenous perfusion of vasodilators.⁴⁻⁶

This study evaluates whether the use of VIR endovascular techniques improves the survival of patients with a potentially reversible mesenteric ischemia.

Methods

A diagnostic-therapeutic algorithm has been used in our hospital from January 2012, in which endovascular

revascularisation using VIR techniques is indicated for all patients diagnosed with AMI of the small intestine (SI), following angiography using computerized tomography (CT-angiography), without any signs of peritoneal irritation in physical examination (a finding that can be correlated with non-transmural ischemia) (Fig. 1). The protocol applied distributes AMI patients into two groups, depending on the result of physical examination. If they have peritoneal irritation at diagnosis, surgery is the treatment of choice; if they do not present this, VIR is the technique used. In this group "technical success" is defined as meaning that treatment with VIR is sufficient (no rescue surgical treatment is needed); "therapeutic success" means that treatment using VIR is not sufficient and rescue surgery is necessary (intestinal resection), while "therapeutic failure" means that even using both treatments there is no successful outcome.

The clinical suspicion of AMI is based on abdominal pain that is out of proportion with the physical examination, patient history (vascular risk factors, prothrombotic states, etc.) and laboratory findings. The definitive diagnosis is by CT-angiography, which is the technique of choice for the diagnosis of this pathology.

VIR procedures include: embolectomy, balloon angioplasty±insertion of a stent, mechanical fibrinolysis, pharmacological fibrinolysis (with recombinant tissue plasminogen or rtPA activators) and vasodilatation (using nimodipine). We use prophylactic antibiotic treatment. The majority of cases require anticoagulation following the initial procedure, and depending on the etiology it may be prolonged.

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