

CONTROVERSES ET ACTUALITÉS EN CHIRURGIE VASCULAIRE  
CONTROVERSIES & UPDATES  
IN VASCULAR SURGERY



JANUARY 23-25 2014

MARRIOTT RIVE GAUCHE & CONFERENCE CENTER PARIS, FRANCE

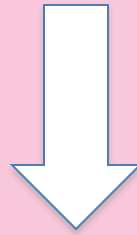
# Acute visceral ischemia : how to improve survival ?

**Y. Castier,**

A. Roussel, Q. Pellenc, P. Cerceau, P. Mordant, F. Francis,  
R Houballah, Ph. Tresson, G. Leseche, Y Bouhnik, O.  
Corcos.

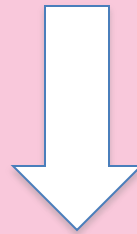


**Systematic review of 45 observational studies, including 3692 patients with acute mesenteric ischemia**



**In-hospital death rate : 70%**

**Marked morbidity for survivors**



**Short-bowel syndrome  
& permanent intestinal failure**



**Long-term parenteral nutrition  
And /or intestinal transplantation**

# FIRST STEP to IMPROVE OUTCOME

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# HOW TO IMPROVE OUTCOME ?

# FIRST STEP to IMPROVE OUTCOME

## MAKE THE DIAGNOSIS

- Only 50% of Acute Mesenteric Ischemia identified before surgical exploration or death.

## EARLY DIAGNOSIS makes difference

- Early Diagnosis : Major Prognostic factor

*Acosta S. D-dimer in patients with suspected acute occlusion of the SMA. Br J Surg 2004;91:991-4*

*Mamode N. Failure to improve outcome in acute mesenteric ischemia. Eur J Surg 1999;165:203-8*

◦ **Abdominal pain with a reassuring examination  
= Pain out of proportion of signs**

◦ **Athero-thrombo-embolic risk factors**

◦ **Others non-specific signs**

Nausea	44%
Vomiting	35%
Diarrhea	35%
Tachycardia	58%
Abdo distension	66%



# EARLY DIAGNOSIS

**CT Scan = Gold standard**

96% sensitivity  
94% specificity



- Intestinal wall thickening
- Delayed mucosal enhancement
- Bowel dilatation
- Mesenteric vessel occlusion
- Ascites
- Solid organ infarcts

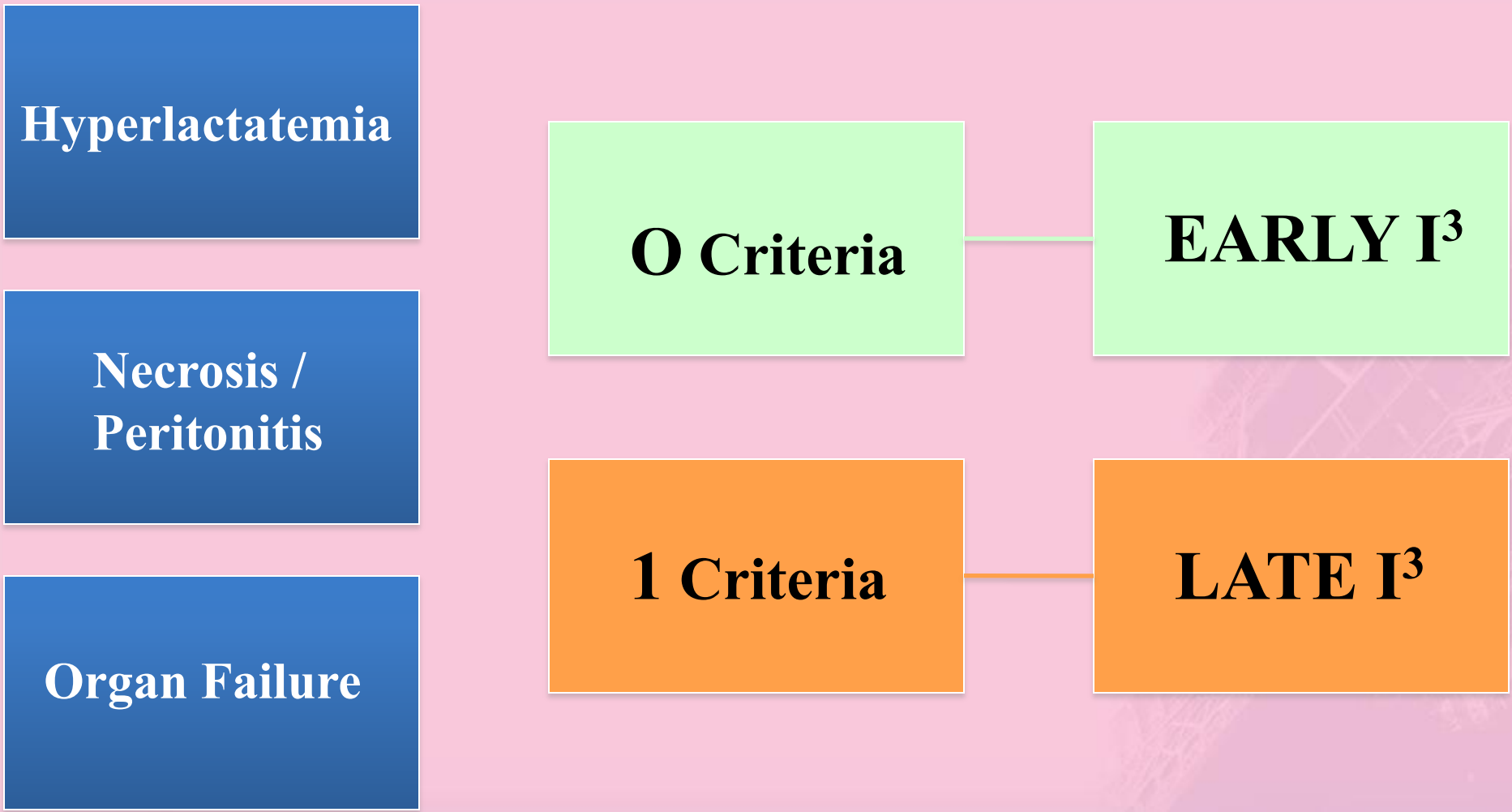


**NO early and/or specific BIOMARKER**

**Hyperlactatemia is NOT an early biomarker**



# I3 = Intestinal Ischemic Injury



# SECOND STEP to IMPROVE OUTCOME

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## MULTIMODAL and MULTIDISCIPLINARY MANAGEMENT

M<sup>3</sup>

° Corcos O, Castier Y et al. Effects of multimodal management for AMI on survival and intestinal failure. Clin Gastroenterol Hepatol 2013;11:158-65.

[www.cacvs.org](http://www.cacvs.org)

# MULTIMODAL management

Early I<sup>3</sup>

Late I<sup>3</sup>

Arterial  
Occlusion

Low flow  
Angiotensin  
Activation

Intestinal  
Hypoxia

Intestinal  
Barrier Injury  
Translocation  
Local  
Inflammatory  
Pathway

Systemic  
inflammatory  
Pathways

Necrosis  
Organ  
Failures

Heparin  
Aspirin  
/IPP  
REVASC ++

Blood Volume Ressucitation  
Transfusion  
O<sub>2</sub>

Oral  
Antibiotics

IV  
Antibiotics

Intestinal  
Resection

Multimodal Management

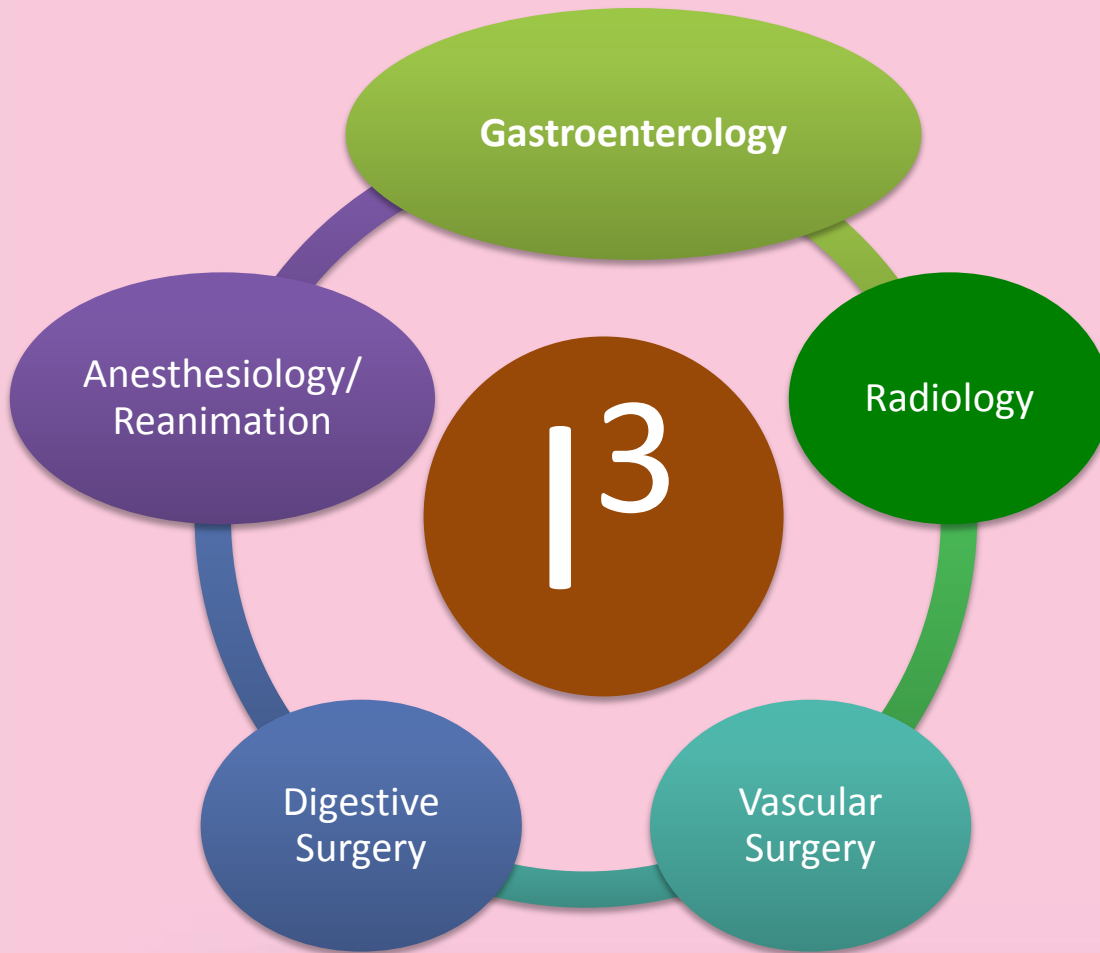
## Mandatory medical protocol

1. Complete oral/enteral resting
2. Blood volume resuscitation even in conserved hemodynamic conditions
3. Heparin therapy for anti-Xa activity maintained in 0.5–0.8 range, even in case of moderate digestive bleeding
4. Oral Digestive Decontamination:
  - Oral gentamycine 80 mg/d
  - Oral Metronidazole 1.5 g/d
5. Oxygen therapy
6. IV Proton pump inhibitors

## Conditional medical protocol

7. IV aspirin 100 mg/d if arterial occlusion (compression, thrombosis, emboli) and if a revascularization is considered
8. IV antibiotics Piperacilline-tazobactam IV 3 × 4 grams/d if SIRS or organ failure or surgery
9. Gastric aspiration if vomiting or ileus
10. Blood transfusion if Hb <9 g/dl

# MULTIDISCIPLINARY management

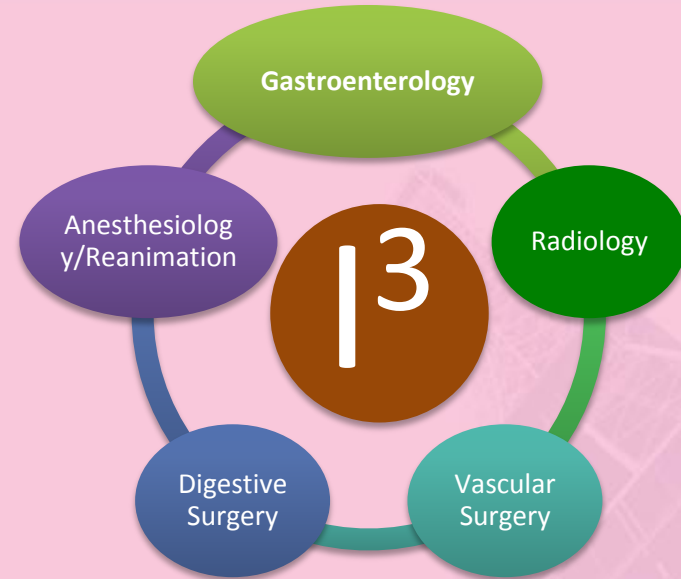


## I<sup>3</sup> Intestinal Ischemic Injury Center

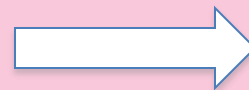
- 7/7
- **Written Protocol**
- **Meeting Group**

# MULTIDISCIPLINARY management

VASCULAR and  
ENDOVASCULAR  
SUGERY



**Revascularization**



**Best survival rates**

° Arthurs ZM et al. *J Vasc Surg* 2011;53(3):698–704

° Corcos O. , Nuzzo A. *Gastro-Intestinal Vascular Emergencies.*

*Best Practice & Research Clinical Gastroenterology* 27 (2013) pp. 709-72

# THIRD STEP to IMPROVE OUTCOME

**Emergency Department**

*Intestinal Ischemic Care Pathway*

**Intestinal Ischemic Injury (I<sup>3</sup>) Center  
Multimodal and Multidisciplinary Management (M<sup>3</sup>)**



# SURVI Pilot Study

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## Structure d'URgences Vasculaires Intestinales SURVI

### Effects of a Multimodal Management Strategy for Acute Mesenteric Ischemia on Survival and Intestinal Failure

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\*Department of Gastroenterology, Inflammatory Bowel Diseases, Nutritional Support and Intestinal Transplantation, §Department of Radiology, ||Department of Hepato-Bilio-Pancreatic Surgery and Liver Transplantation, ¶Department of Anesthesiology-Reanimation, #Department of Colorectal Surgery and Intestinal Transplantation, and ‡‡Department of Digestive Diseases, Beaujon Hospital Clichy, Paris VII University, Clichy; and ‡Department of Vascular Surgery and \*\*Department of Digestive Surgery, Bichat Hospital Paris, Paris VII University, Paris, France



# SUR VI Pilot Study

## Effects of a Multimodal Management Strategy for Acute Mesenteric Ischemia on Survival and Intestinal Failure

**SUR VI**

**24 consecutive patients < 65 years**  
**Occlusive AMI**

**16 revascularisations (66%)**

**87 % survival @ 30 days**

**83 % survival @ 1 year**

**Intestinal resection in 12 patients (50%)**

**Short Bowel syndrome in 3 patients (12,5%)**

# SURVI Pilot Study

## Effects of a Multimodal Management Strategy for Acute Mesenteric Ischemia on Survival and Intestinal Failure

**SURVI**

- Pilot study
- Small series of patients
- Selected population < 65 y

**OUR RESULTS ENCOURAGE THE « SURVI » TEAM TO  
CARRY ON WITH THIS MANGEMENT**

# S UR VI Pilot Study

## Effects of a Multimodal Management Strategy for Acute Mesenteric Ischemia on Survival and Intestinal Failure

S UR VI



Pr Yoram Bouhnik



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**Department of Gastroenterology,  
Nutritional Support  
and Intestinal Transplantation  
Beaujon Hospital**

**The CORNERSTONE of the S UR VI project**



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