# Prise en charge des pancréatites aigües sévères

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- Pas de lien d’intérêt en lien avec cette présentation

**PANCREATITE OEDEMATEUSE**
*Interstitial oedematous pancreatitis*

**PANCREATITE NECROSANTE**
*Necrotizing pancreatitis*

**Epanchement liquidien péripancréatique**

**Résolution spontanée fréquente en 1 semaine**

**Collections nécrotiques aigues**

**20 % des PA**
**Morbidité et mortalité ↑**

**4 semaines**

**Pseudokystes**

**. Résolution spontanée 50%**
**. Hémorragie 10%**
**. Infection 10%**
**. Autre complication**

**Nécrose pancréatite collectée**

# Apprécier la gravité

=> Prédire la sévérité

⇒Identifier les patients à risque de complications / d'évolution complexe

⇒Scores clinico-bio-radiologiques

# Apprécier la gravité

=> Prédire la sévérité
⇒Identifier les patients à risque de complications / d'évolution complexe
⇒Scores clinico-bio-radiologiques

- « La maladie des scores »
  - Ranson
  - Imrie
  - CTSI
  - Balthazare
  - SOFA
  - APACHE II
  - BISAP….

- …et des biomarqueurs (CRP, PCT…)

# Apprécier la gravité

## Hémodynamique

- PAS <90 mm Hg malgré expansion volémique adéquat ou utilisation de catécholamines

## Rénale

- Crétininémie >177 µmol/litre après réhydratation ou besoin d'épuration extrarénal

## Respiratoire

- PaO2 <60 mm Hg malgré $FIO_2$ of 0.30 Ou ventilation artificielle

*Bradley EL III. A clinically based classification system for acute pancreatitis: summary of the International Symposium on Acute Pancreatitis, Atlanta, GA, 1992. Arch Surg*

Classification of acute pancreatitis—2012: revision of the Atlanta classification and definitions by international consensus

Peter A Banks,[1] Thomas L Bollen,[2] Christos Dervenis,[3] Hein G Gooszen,[4] Colin D Johnson,[5] Michael G Sarr,[6] Gregory G Tsiotos,[7] Santhi Swaroop Vege,[8] Acute Pancreatitis Classification Working Group

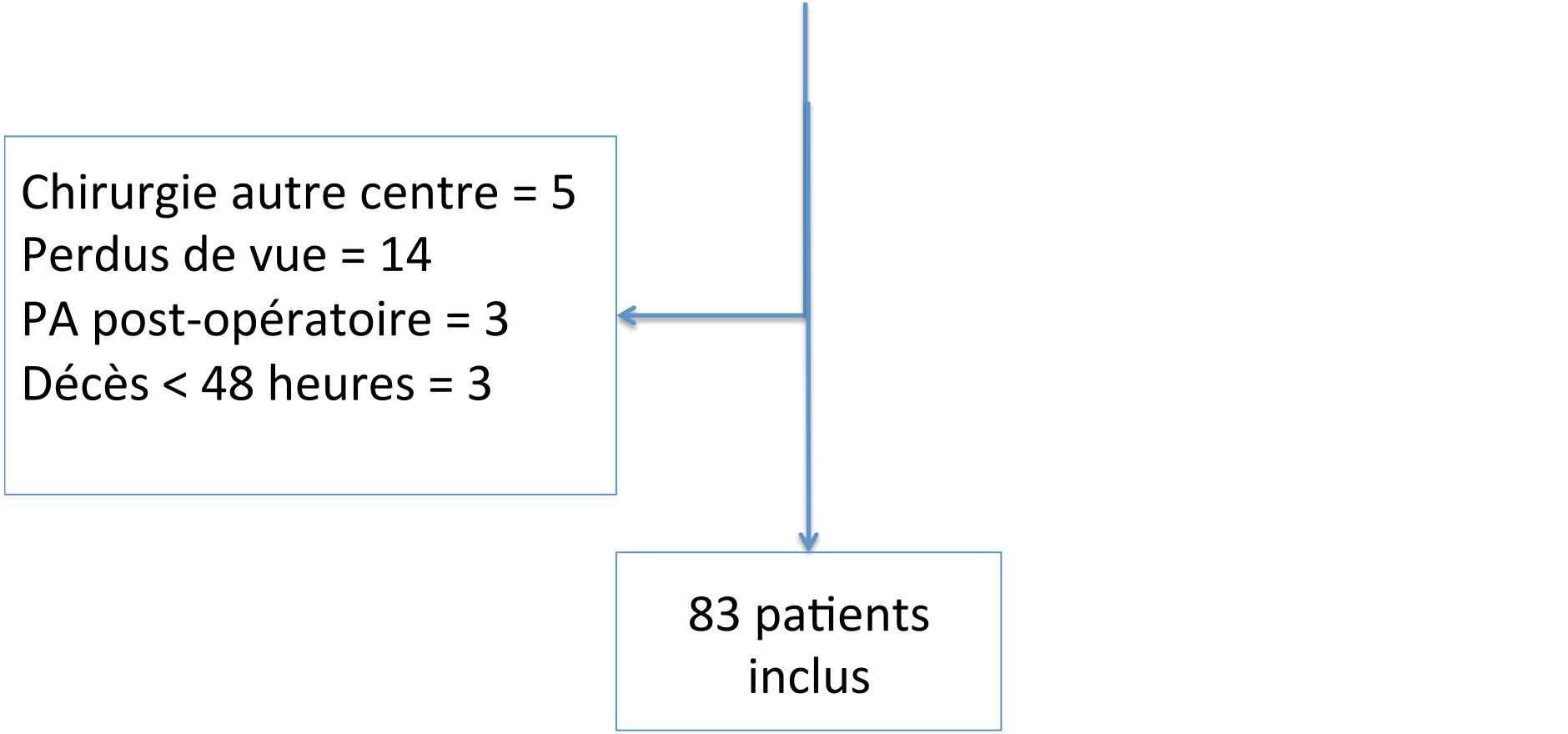
# 3 degrés de sévérité

- Mild acute pancreatitis
  - No organ failure
  - No local or systemic complications
- Moderately severe acute pancreatitis
  - Organ failure that resolves within 48 h (transient organ failure) and/or
  - Local or systemic complications without persistent organ failure
- Severe acute pancreatitis
  - Persistent organ failure (>48 h)
  - –Single organ failure
  - –Multiple organ failure

GUT 2013

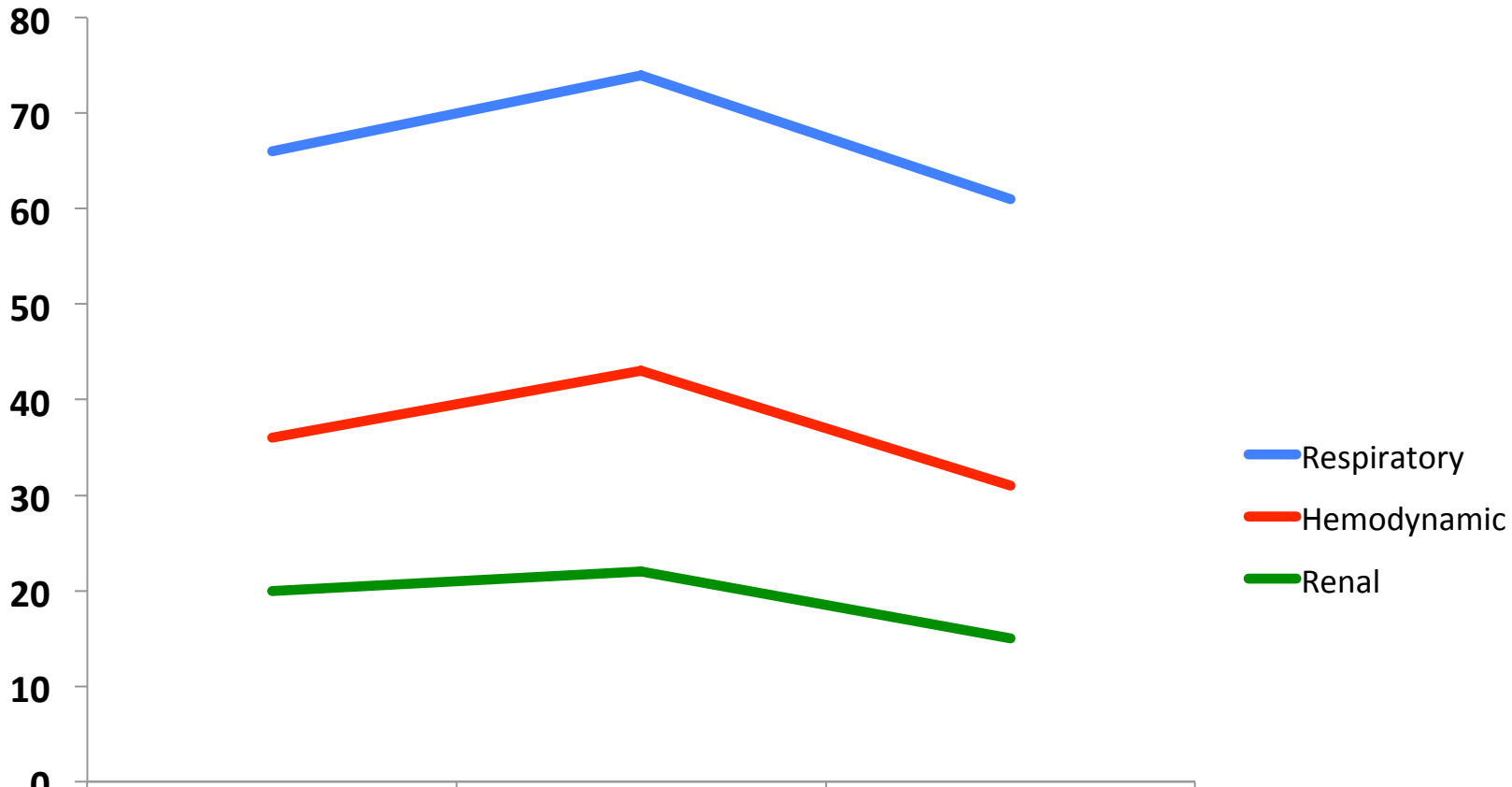
# Apprécier la gravité

2007-2012: 108 patients hospitalisés **en réanimation à St Antoine**



# Apprécier la gravité

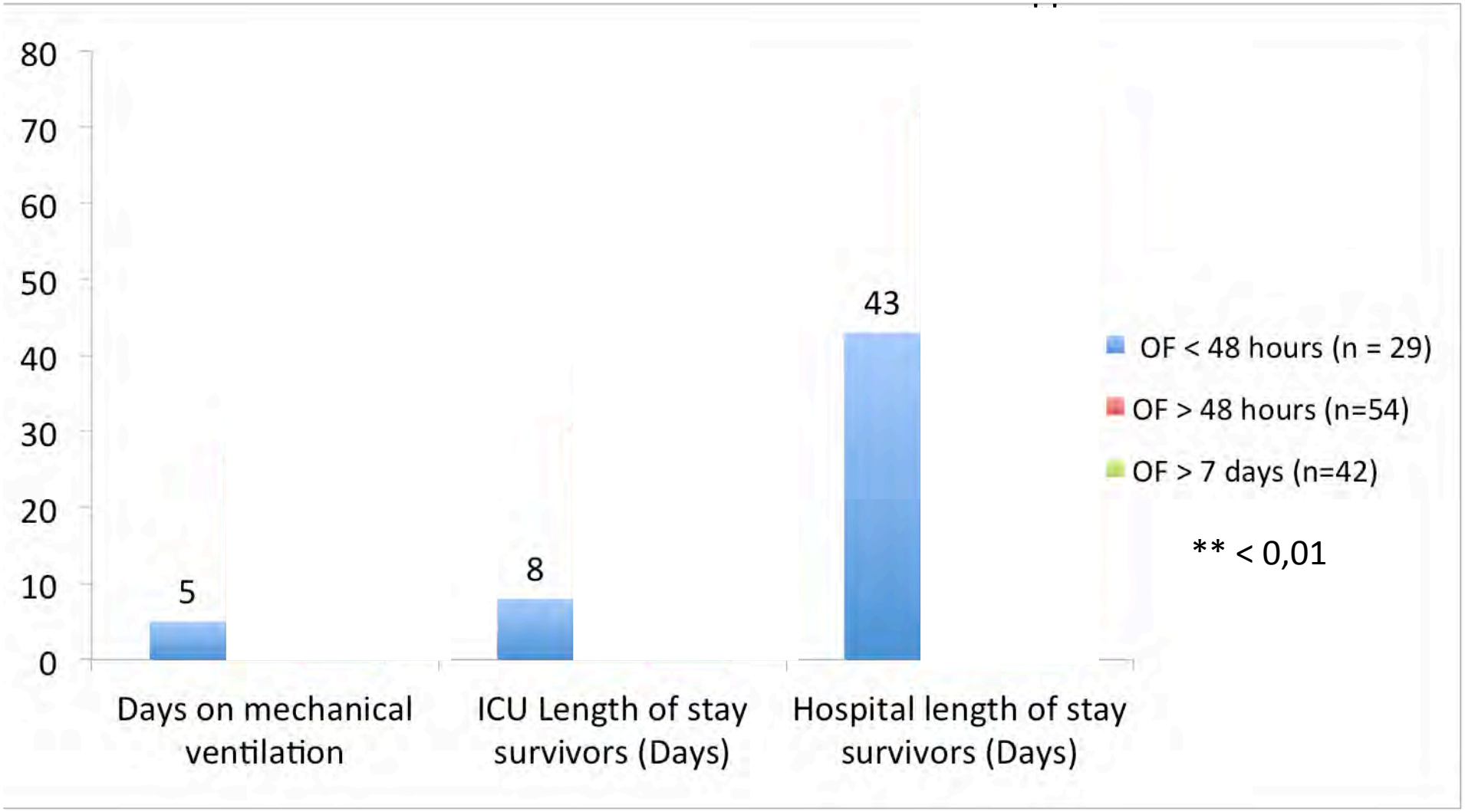
## Evolution selon le type de défaillances




| | Admission | J2 | J7 |
|---|---|---|---|
| Respiratory | 66 | 74 | 61 |
| Hemodynamic | 36 | 43 | 31 |
| Renal | 20 | 22 | 15 |

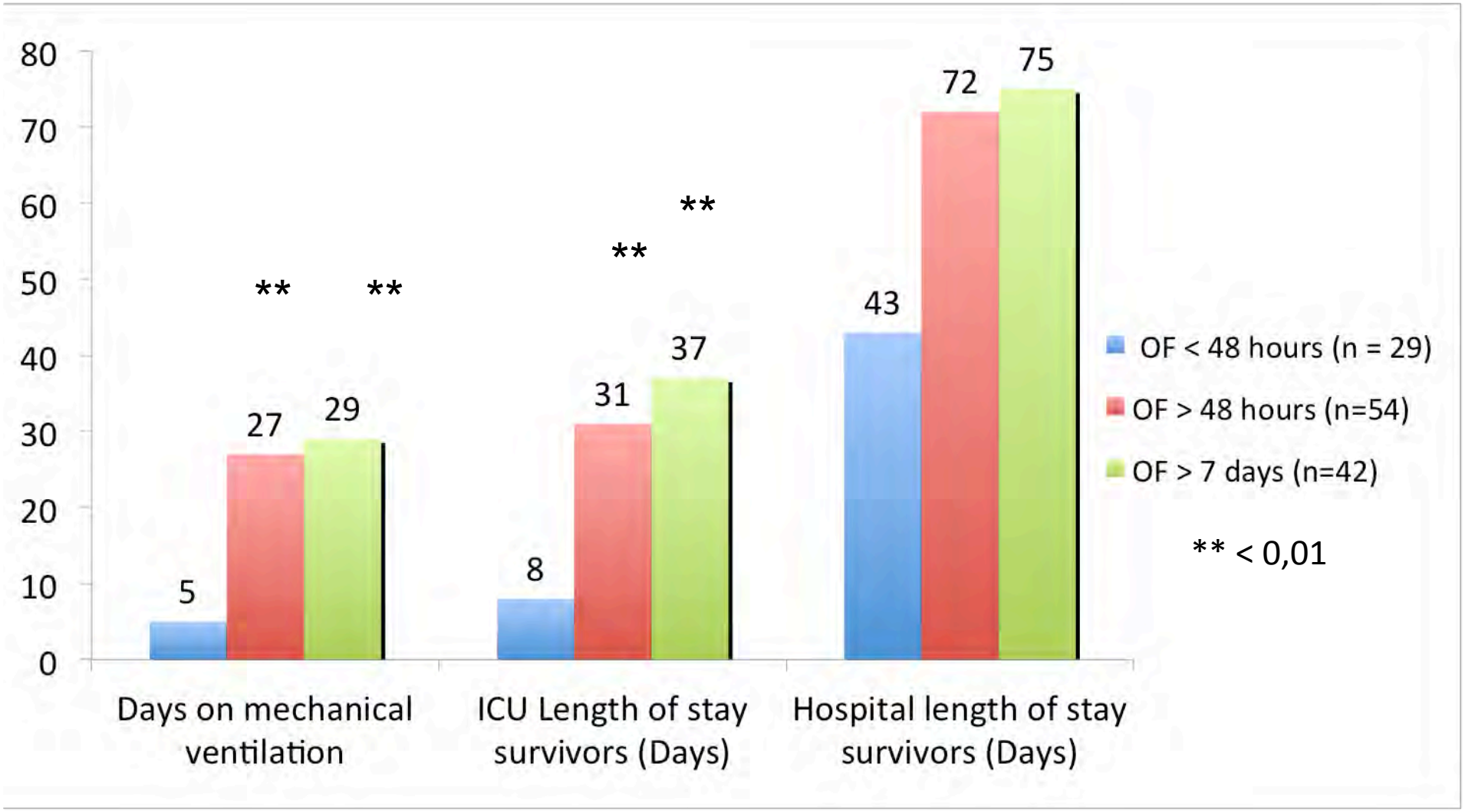
# Apprécier la gravité

## Devenir selon la durée de la dysfonction d'organe



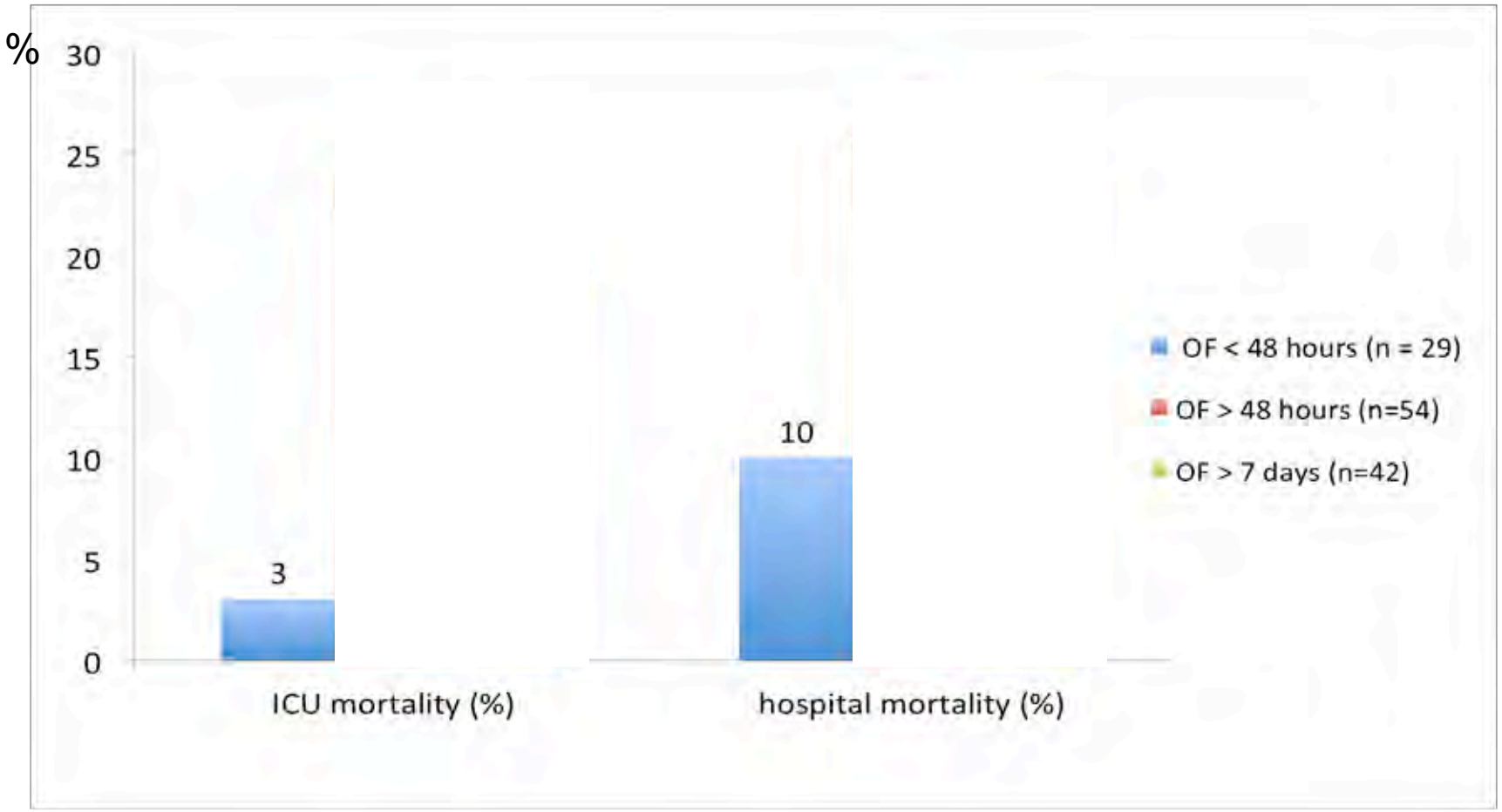
# Apprécier la gravité

## Devenir selon la durée de la dysfonction d'organe



# Apprécier la gravité

## Mortalité selon la durée des dysfonction d'organe



# Apprécier la gravité

## Mortalité selon la durée des dysfonction d'organe

# Apprécier la gravité

- Apprécier le nombre de défaillances à l'admission
- Admission « large » en « soins aigus »
- Si défaillances non résolues en 48 heures
  - forme sévère à haut risque d'évolution compliquée
  - Transfert en milieu spécialisé

# Prise en charge initiale

- Réanimation
- Analgésie
- Nutrition
- CPRE ?
- Prise en charge des complications: nécrose infectée

# Prise en charge initiale

- **Réanimation**
- Analgésie
- Nutrition
- CPRE ?
- Prise en charge des complications: nécrose infectée

# Défaillance hémodynamique

Vomissements

3ème secteur

↓ Resistances vasculaires

Atteinte myocardique

**→Expansion volémique importante ?**

# Défaillance hémodynamique

American College of Gastroenterology Guideline:
Management of Acute Pancreatitis

Scott Tenner, MD, MPH, FACG[1], John Baillie, MB, ChB, FRCP, FACG[2], John DeWitt, MD, FACG[3] and Santhi Swaroop Vege, MD, FACG[4]

Initial management

12. Aggressive hydration, defined as 250-500 ml per hour of isotonic crystalloid solution should be provided to all patients, unless cardiovascular and/or renal comorbidites exist. Early aggressive intravenous hydration is most beneficial the first 12–24 h, and may have little benefit beyond (strong recommendation, moderate quality of evidence).

| Auteur | Journal | Méthode | Patients | Resultats |
|---|---|---|---|---|
| Gardner et col. | Pancreatology 2009 | Retrospective | 35 | Mortalité diminuée si 1/3 des apports liquidiens des 72 premières heures reçu en 24h |
| Wandorf et col., | Clin Gastro Hep 2011 | Retrospective | 340 | DMS, OF diminuées si 1/3 des apports liquidiens des 72 premières heures reçus en 24 h |
| Wall et col., | Pancreas 2011 | Avt-Après 1998 - 2008 | 173 | Réduction de la mortalité attribuée à une stratégie d'expansion volémique moins agressive (188 Vs 221 ml/h) |
| De Madaria | Am J Gastro 2011 | Observ | 247 | Expansion volémique > 4 litres<br>=> OF plus fréquentes |
| Eckerwall | Clinical Nutrition 2006 | Retrospective | 99 | Expansion volémique > 4 litres<br>⇒Complications respiratoires<br>⇒ICU plus fréquente |

# Early Aggressive Hydration Hastens Clinical Improvement in Mild Acute Pancreatitis

James L. Buxbaum, MD[1], Michael Quezada, MD[1], Ben Da, MD[1], Niraj Jani, MD[1], Christianne Lane, PhD[2], Didi Mwengela, MD[1], Thomas Kelly, MD[1], Paul Jhun, MD[3], Kiran Dhanireddy, MD[4] and Loren Laine, MD[5,6]

The American Journal of GASTROENTEROLOGY MAY 2017

Pancréatite aigüe
N=60

**Hydratation agressive**
20 ml/kg
3 ml/kg/h

**Hydratation standard**
10 ml/kg
1,5 ml/kg

**Amélioration « clinique » à H36**
1- Baisse des valeurs: hématocrite + urémie + créatininémie
2- Diminution de l'intensité de la douleur
3-Absence d'intolérance alimentaire

# Early Aggressive Hydration Hastens Clinical Improvement in Mild Acute Pancreatitis

James L. Buxbaum, MD[1], Michael Quezada, MD[1], Ben Da, MD[1], Niraj Jani, MD[1], Christianne Lane, PhD[2], Didi Mwengela, MD[1], Thomas Kelly, MD[1], Paul Jhun, MD[3], Kiran Dhanireddy, MD[4] and Loren Laine, MD[5,6]

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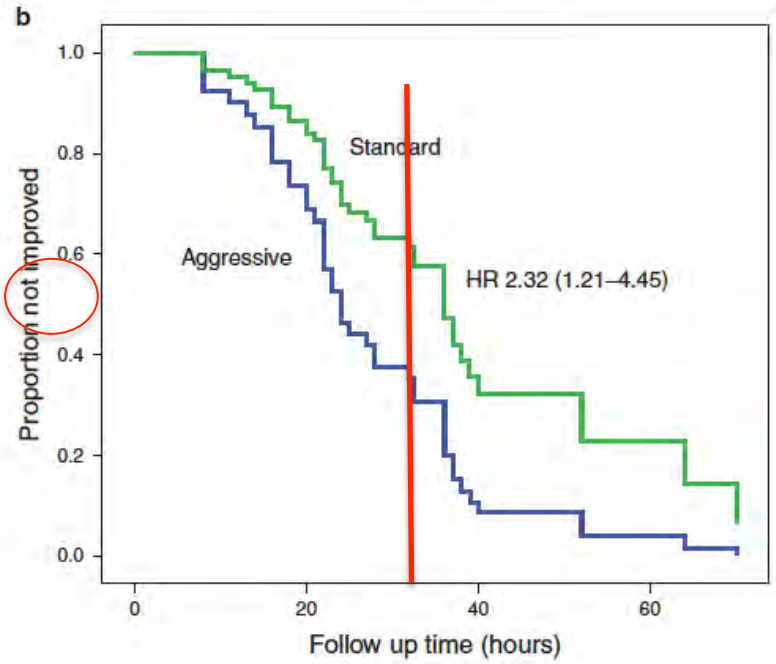


**Table 2. Secondary outcomes in randomized groups: crude proportions and adjusted odds ratio (logistic regression analysis with covariate of elevated white blood cell count)**

| | Aggressive hydration (*N*=27) | Standard hydration (*N*=33) | Adjusted odds ratio (95% CI) |
|---|---|---|---|
| Clinical Improvement within 36 h | 19 (70%) | 14 (42%) | 7.0 (1.8–27.8) |
| Development of SIRS | 4 (14.8%) | 9 (27.3%) | 0.14 (0.02–0.92) |
| Persistent SIRS | 2 (7.4%) | 7(21.2%) | 0.12 (0.02–0.94) |
| Development of hemoconcentration | 3 (11.1%) | 12 (36.4%) | 0.08 (0.01–0.49) |

CI, confidence interval; SIRS, systemic inflammatory response syndrome.

# Early Aggressive Hydration Hastens Clinical Improvement in Mild Acute Pancreatitis

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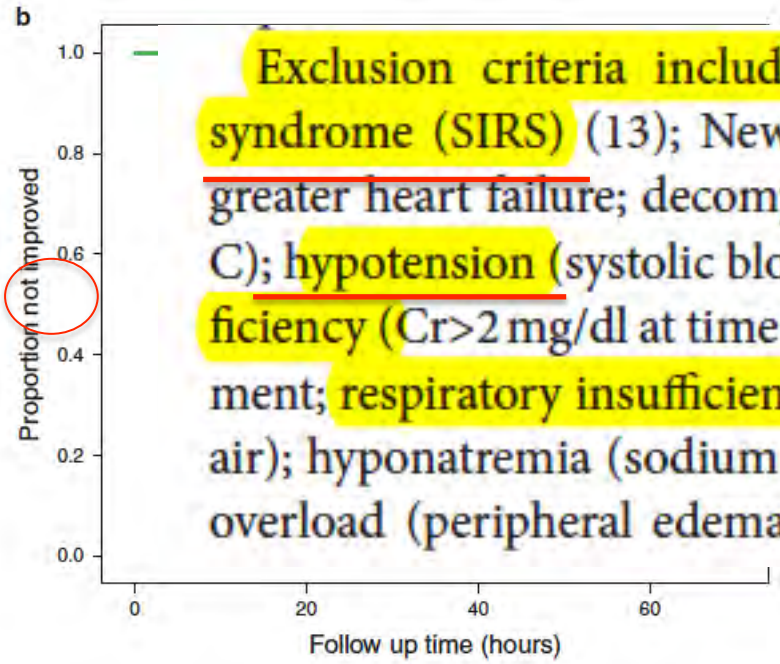
The American Journal of GASTROENTEROLOGY MAY 2017




Exclusion criteria included systemic inflammatory response syndrome (SIRS) (13); New York Heart Association Class II or greater heart failure; decompensated cirrhosis (Child's Class B or C); hypotension (systolic blood pressure <90 mm Hg); renal insufficiency (Cr>2 mg/dl at time of randomization) or dialysis requirement; respiratory insufficiency (oxygen saturation <90% on room air); hyponatremia (sodium <135 meq/l); clinical signs of volume overload (peripheral edema, pulmonary rales, and ascites); gas-

rude
analysis

Adjusted
odds ratio
(95% CI)

(1.8–27.8)
(0.02–0.92)
(0.02–0.94)
(0.01–0.49)

CI, confidence interval; SIRS, systemic inflammatory response syndrome.

# Prise en charge initiale

- Réanimation
- **Analgésie**
- Nutrition
- CPRE ?
- Prise en charge des complications: nécrose infectée

# Analgésie péridurale

**Effets anti-inflammatoires ?**
**Amélioration des débits sanguin splanchniques et pancréatiques ?**

D24 CRITICAL CARE: THE OTHER HALF OF THE ICU - UPDATE IN MANAGEMENT OF NON-PULMONARY CRITICAL CARE / Poster Discussion Session / Wednesday, May 24/9:15 AM-11:15 AM / Room 151 A (Middle Building, Street Level) Walter E. Washington Convention Center

**Thoracic Epidural Analgesia And Survival In Acute Pancreatitis: A Multicenter Propensity Analysis**

M. Jabaudon[1], N. Belhadj-Tahar[2], T. Rimmele[3], O. Joannes-Boyau[4], S. Bulyez[5], C. Roger[6], Y. Malledant[7], M. Leone[8], P. Abback[9], F. Tamion[10], H. Dupont[11], B. Lortat-Jacob[12], P. Guerci[13], T. Kerfone[14], R. Cinotti[15], L. Jacob[16], P. Verdier[17], T. Dugernier[18], B.

Acute pancreatitis (AP) is a major gastrointestinal disease that is associated with high mortality rates in its most severe forms. Recent preclinical and clinical data suggest that epidural analgesia (EA), a technique primarily aimed at decreasing pain, might improve clinical outcome through anti-inflammatory effects or enhanced splanchnic and pancreatic blood flow.

**METHODS**

We conducted a retrospective, observational cohort study from June 2009 to March 2014 at 17 French and Belgian intensive care units (ICU) to study the impact of EA on survival in adult patients admitted to the ICU with AP. Data were recorded from medical files for each patient. Propensity analyses were used to control for bias in treatment assignment and prognostic imbalances. Main outcome was all-cause mortality at 30 days after ICU admission.

**RESULTS**

1003 patients (64.2% men, mean age 57.6 years) were admitted to the ICU with the diagnosis of AP and enrolled in the study. 190 patients (19%) died within 30 days from admission. 46 patients (from 6 ICUs) received thoracic EA during the management of AP. EA was associated with reduced mortality in unadjusted analyses (4% vs 20%, P=.003). After adjustment for baseline variables associated with mortality (including older age, preexisting chronic cardiovascular or respiratory diseases, sepsis, pneumonia, need for oxygen therapy, invasive or noninvasive mechanical ventilation, acute respiratory distress syndrome, acute kidney injury, need for vasopressor support at baseline), EA was still an independent predictor of 30-day mortality (adjusted Odds Ratio (OR) 0.10; (95% CI, 0.02-0.49); P=.004). Using propensity score analysis, the risk of all-cause 30-day mortality in patients with AP receiving EA was significantly lower than that in matched patients who did not receive EA (2% vs 19%, P=.01).

**CONCLUSION**

Among critically ill patients with AP, survival at 30 days was better in patients who received EA than in comparable patients who did not. These findings support ongoing research on the use of EA as a therapeutic intervention in AP.

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did not receive EA (2% vs 19%, P=.01).

Open Access Protocol

BMJ Open

**Epidural analgesia in critically ill patients with acute pancreatitis: the multicentre randomised controlled EPIPAN study protocol**

Stéphanie Bulyez,[1] Bruno Pereira,[2] Elodie Caumon,[2] Etienne Imhoff,[1] Laurence Roszyk,[3,4] Lisa Bernard,[1,5] Leo Bühler,[7] Claudia Heidegger,[8] Samir Jaber,[9] Jean-Yves Lafrant,[10] Russell Chabanne,[1] Pierre-Marie Bertrand,[11] Pierre-François Laterre,[12] Philippe Guerci,[13] Pierre-Eric Danin,[14] Etienne Escudier,[15] Achille Sossou,[16] Dominique Morand,[2] Vincent Sapin,[3,4] Jean-Michel Constantin,[1,4] Matthieu Jabaudon,[1,4] on behalf of the EPIPAN study group and the AzuRea network

**ABSTRACT**

**Background** Acute pancreatitis (AP) is associated with high morbidity and mortality in its most severe forms. Most patients with severe AP require intubation and invasive mechanical ventilation, frequently for more than 7 days, which is associated with the worst outcome. Recent increasing evidence from preclinical and clinical studies support the beneficial effects of epidural analgesia (EA) in AP, such as increased gut barrier function and splanchnic, pancreatic and renal perfusion, decreased liver damage and inflammatory response, and reduced mortality. Because recent studies suggest that EA might be a safe procedure in the critically ill, we sought to determine whether EA reduced AP-associated respiratory failure and other major clinical outcomes in patients with AP.

**Methods and analysis** The Epidural Analgesia for Pancreatitis (EPIPAN) trial is an investigator-initiated, prospective, multicentre, randomised controlled two-arm trial with assessor-blinded outcome assessment. The EPIPAN trial will randomise 148 patients with AP requiring admission to an intensive care unit (ICU) to receive EA (with patient-controlled epidural administration of ropivacaine and sufentanil) combined with standard care (based on current recommendations on the treatment of AP (interventional group), or standard care alone (preventive group). The primary outcome is the number of ventilator-free days at day 30. Secondary outcomes include main complications of AP (eg, organ failure and mortality, among others), levels of biological markers of systemic inflammation, epithelial lung injury, renal failure and healthcare-associated costs.

**Ethics and dissemination** The study was approved by the appropriate ethics committee (*CPP Sud-Est VI*). Informed consent is required. If the combined application of EA and standard care proves superior to standard care alone in patients with AP in the ICU, the use of EA may become standard practice in experienced centres, thereby decreasing potential complications related to AP and its burden in critically ill patients. The results will be disseminated in a peer-reviewed journal.

**Strengths and limitations of this study**

- This is the first randomised controlled trial to investigate the effects of epidural analgesia (EA) on organ failure, mortality and clinical outcomes in critically ill patients with acute pancreatitis (AP), enrolled in a total of 11 French, Belgian and Swiss intensive care units.
- Other strengths are the homogenous performed protocol per clock, including night and weekend, as routine clinical practice.
- In addition, our study includes the combination of a biobank of plasma and urine samples over the first week after inclusion, in order to assess the effects of EA via biological markers of inflammation, lung injury and renal failure.
- One limitation of the study is that the physicians are aware of the group of inclusion. However, assessors of study outcomes and biological measures are independent observers who do not know the group of inclusion.
- Another limitation may include poor generalisability of results from this study to inexperienced centres, because EA is a technique that is restricted to experienced anesthetists and intensivists.
- Finally, some could highlight the potential risks associated with EA in critically ill patients with hyperinflammatory conditions such as AP although previous studies have reported good feasibility and safety of EA in this setting. This trial will provide additional data on the safety of EA in ICU patients.

**Trial registration number** NCT02126332.

**INTRODUCTION**

**Background and rationale**

Acute pancreatitis (AP) is one of the most frequent gastrointestinal diseases, whose

# Prise en charge initiale

- Réanimation
- Analgésie
- **Nutrition**
- CPRE ?
- Prise en charge des complications: nécrose infectée

aspen
Clinical Guidelines

Journal of Parenteral and Enteral Nutrition
Volume 33 Number 3
May/June 2009 277-316

10.1177/0148607109335234
http://jpen.sagepub.com
hosted at
http://online.sagepub.com

# Guidelines for the Provision and Assessment of Nutrition Support Therapy in the Adult Critically Ill Patient:

## Society of Critical Care Medicine (SCCM) and American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.)

- *Patients with severe acute pancreatitis should have a **nasoenteric tube placed** and **EN** initiated as soon as fluid volume resuscitation is complete. (Grade: C)*

- *Patients with **mild to moderate acute pancreatitis do not require nutrition support therapy** (unless an unexpected complication develops or there is failure to advance to oral diet within 7 days). (Grade: C)*

- *Patients **with severe acute pancreatitis may be fed enterally by the gastric or jejunal route**. (Grade: C)*

# Early versus On-Demand Nasoenteric Tube Feeding in Acute Pancreatitis

O.J. Bakker, S. van Brunschot, H.C. van Santvoort, M.G. Besselink, T.L. Bollen, M.A. Boermeester, C.H. Dejong, H. van Goor, K. Bosscha, U. Ahmed Ali, S. Bouwense, W.M. van Grevenstein, J. Heisterkamp, A.P. Houdijk, J.M. Jansen, T.M. Karsten, E.R. Manusama, V.B. Nieuwenhuijs, A.F. Schaapherder, G.P. van der Schelling, M.P. Schwartz, B.W.M. Spanier, A. Tan, J. Vecht, B.L. Weusten, B.J. Witteman, L.M. Akkermans, M.J. Bruno, M.G. Dijkgraaf, B. van Ramshorst, and H.G. Gooszen, for the Dutch Pancreatitis Study Group

NEJM 2014

**Pancréatite aigüe**
(à risque de complications)
N=206

**Nutrition Entérale précoce**
**< 24 heures**
**(n=101)**

**Alimentation orale**
**72 heures**
**(n=104)**

**Infection ou décès au cours des 6 mois**

# Early versus On-Demand Nasoenteric Tube Feeding in Acute Pancreatitis

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NEJM 2014

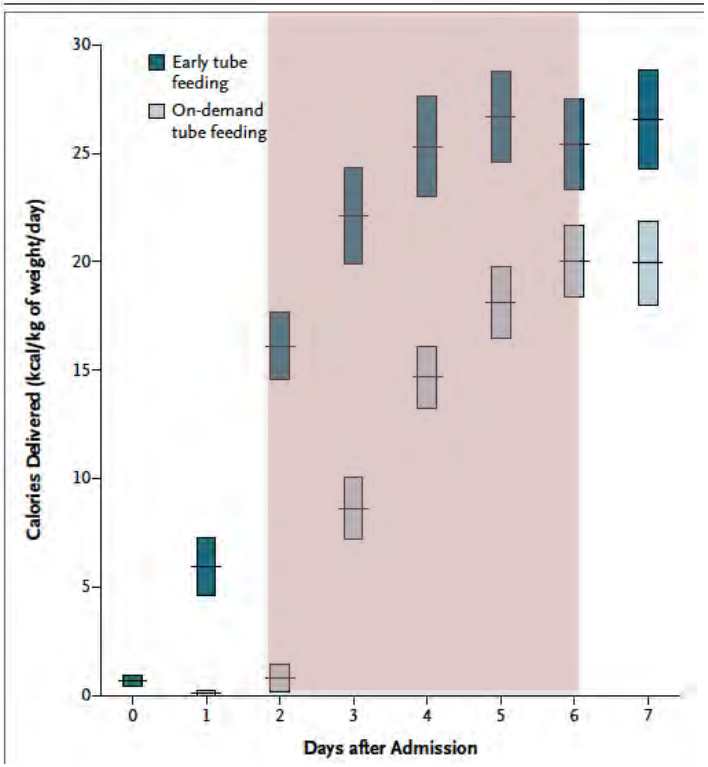



**Table 2. Primary and Secondary End Points, According to the Intention-to-Treat Analysis.***

| Outcome | Early Tube Feeding (N=101) | On-Demand Tube Feeding (N=104) | Risk Ratio (95% CI) | P Value |
|---|---|---|---|---|
| Primary composite end point: infection or death — no. (%) | 30 (30) | 28 (27) | 1.07 (0.79–1.44) | 0.76 |
| Secondary end points | | | | |
| Infection — no. (%)† | 25 (25) | 27 (26) | 0.97 (0.70–1.34) | 0.87 |
| Infected pancreatic necrosis | 9 (9) | 15 (14) | 0.74 (0.43–1.26) | 0.28 |
| Bacteremia | 17 (17) | 18 (17) | 0.98 (0.68–1.43) | 1.00 |
| Pneumonia | 12 (12) | 13 (12) | 0.97 (0.63–1.50) | 1.00 |
| Death — no. (%) | 11 (11) | 7 (7) | 1.27 (0.85–1.89) | 0.33 |
| Necrotizing pancreatitis — no. (%)‡ | 64 (63) | 65 (62) | 1.06 (0.77–1.47) | 0.76 |
| CT severity index§ | 4±2 | 4±3 | — | 0.29 |
| ICU admission after randomization — no. (%) | 18 (18) | 20 (19) | 0.95 (0.66–1.38) | 0.86 |
| Mechanical ventilation — no. (%) | 12 (12) | 14 (13) | 0.93 (0.60–1.44) | 0.84 |
| New-onset organ failure — no./total no. at risk (%)¶ | | | | |
| Single organ failure | 26/67 (39) | 31/73 (42) | 0.92 (0.65–1.32) | 0.73 |
| Persistent single organ failure | 10/67 (15) | 10/73 (14) | 1.05 (0.65–1.70) | 1.00 |
| Multiple organ failure | 7/67 (10) | 6/73 (8) | 1.14 (0.67–1.95) | 0.77 |
| Persistent multiple organ failure | 4/67 (6) | 4/73 (5) | 1.05 (0.51–2.14) | 1.00 |

Contents lists available at ScienceDirect

Pancreatology

journal homepage: www.elsevier.com/locate/pan

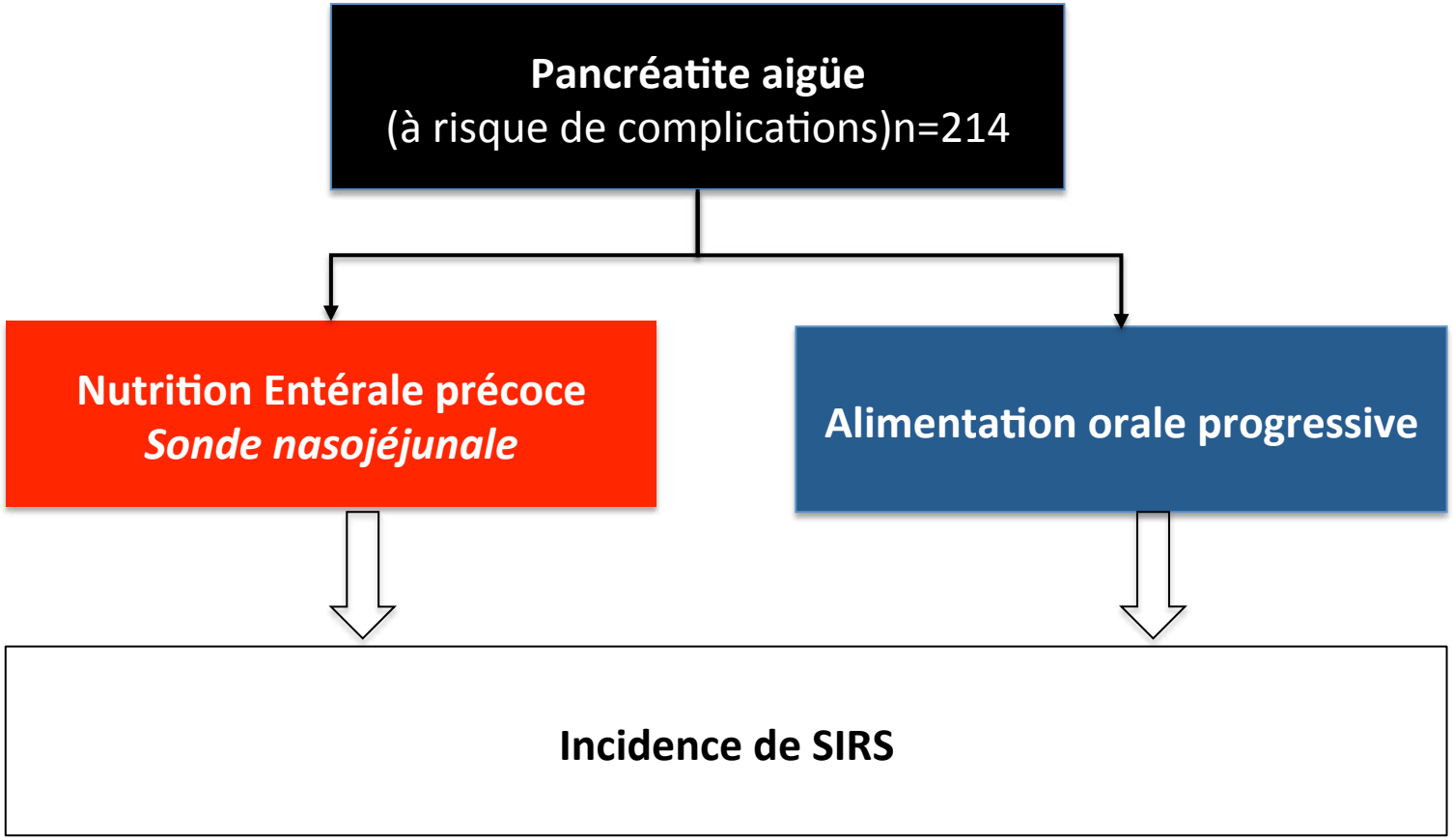
*Pancreatology 2016*

Original article

# Early nasojejunal tube feeding versus nil-by-mouth in acute pancreatitis: A randomized clinical trial

D. Stimac [a], G. Poropat [a,*], G. Hauser [a], V. Licul [a], N. Franjic [a], P. Valkovic Zujic [b], S. Milic [a]

[a] Department of Gastroenterology, Faculty of Medicine Rijeka, University Hospital Rijeka, Rijeka, Croatia
[b] Department of Radiology, Faculty of Medicine Rijeka, University Hospital Rijeka, Rijeka, Croatia



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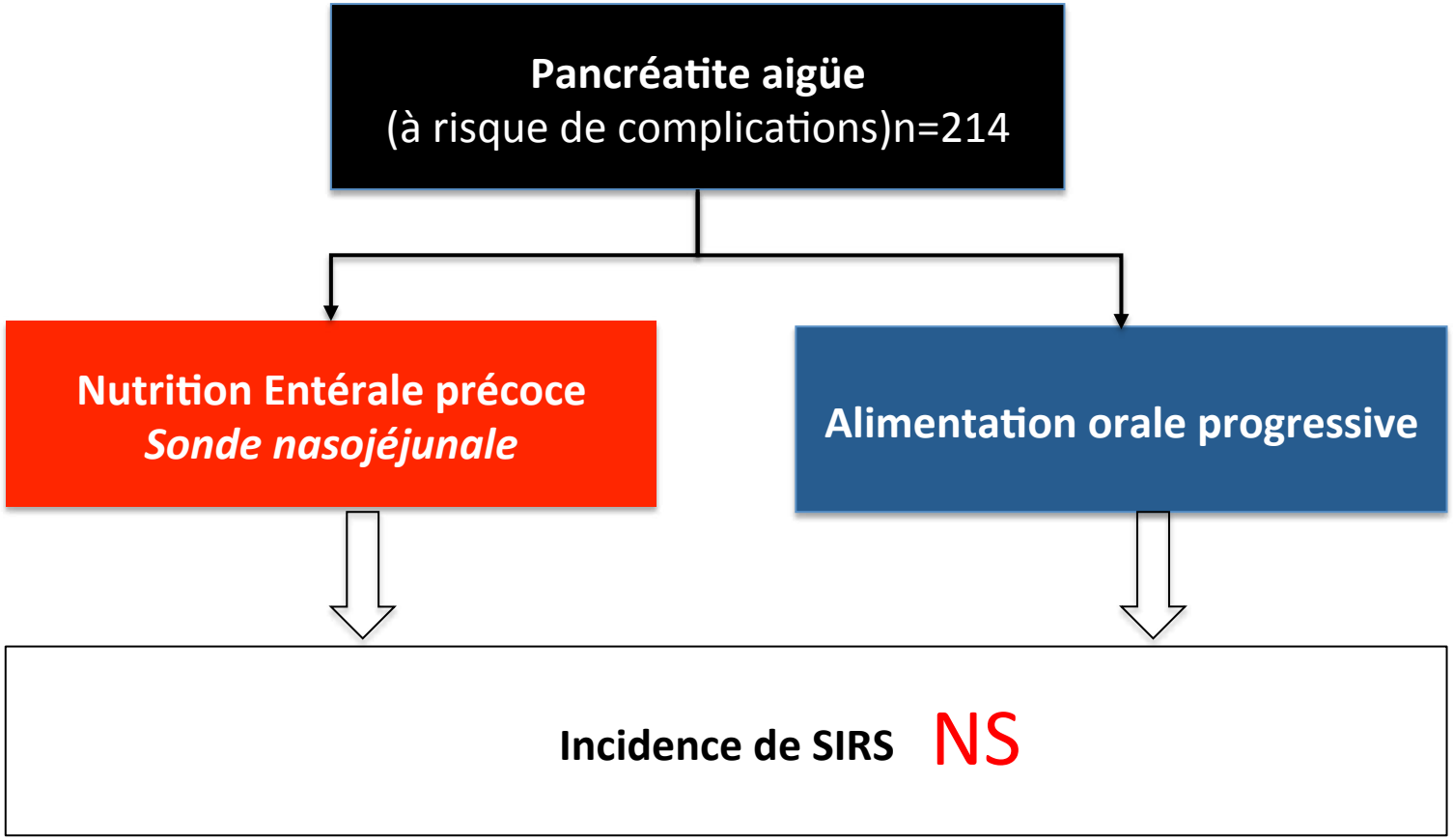


# Probiotic prophylaxis in predicted severe acute pancreatitis: a randomised, double-blind, placebo-controlled trial

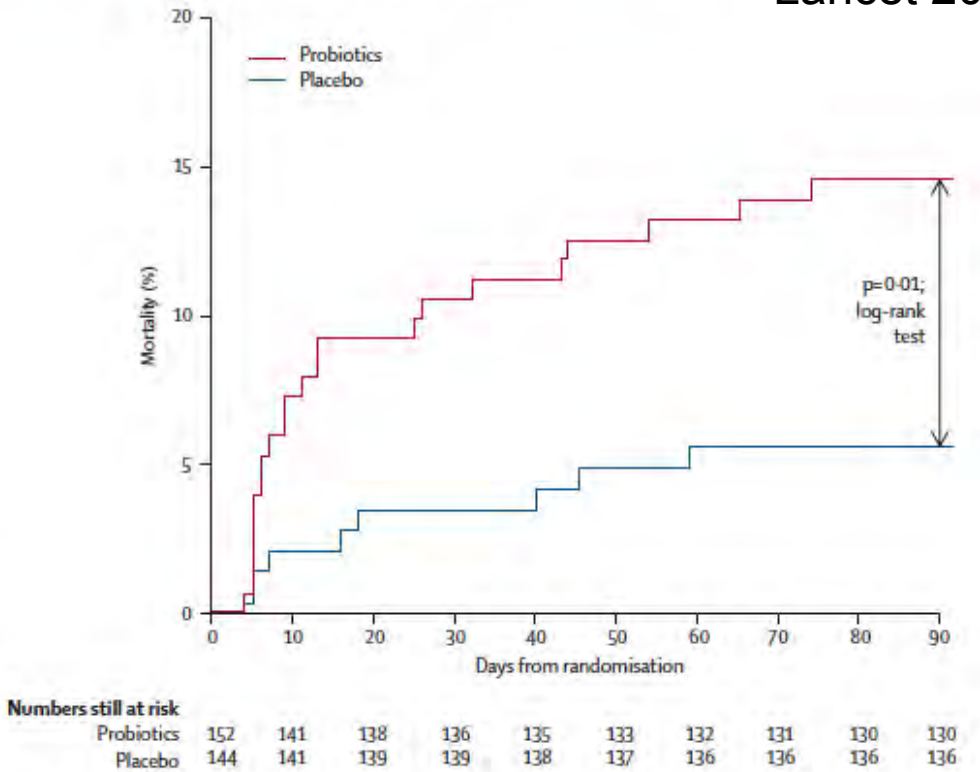
*Marc G H Besselink, Hjalmar C van Santvoort, Erik Buskens, Marja A Boermeester, Harry van Goor, Harro M Timmerman, Vincent B Nieuwenhuijs, Thomas L Bollen, Bert van Ramshorst, Ben J M Witteman, Camiel Rosman, Rutger J Ploeg, Menno A Brink, Alexander F M Schaapherder, Cornelis H C Dejong, Peter J Wahab, Cees J H M van Laarhoven, Erwin van der Harst, Casper H J van Eijck, Miguel A Cuesta, Louis M A Akkermans, Hein G Gooszen, for the Dutch Acute Pancreatitis Study Group*

Lancet 2008

Probiotique X2/ jours pendant 28j

<u>Objectifs</u>

- Limiter la prolifration bactérienne
- Limiter la translocation bactérienne
- Améliorer les fonctions immunitaire digestives




**MORTALITE AUGMENTEE**
**16 vs 9 %, p=0,01**
**(Ischémie digestive= 9% Vs 0%)**

# Prise en charge initiale

- Réanimation
- Analgésie
- Nutrition
- **CPRE ?**
- Prise en charge des complications: nécrose infectée

# CPRE

## Pancréatite aigüe biliaire

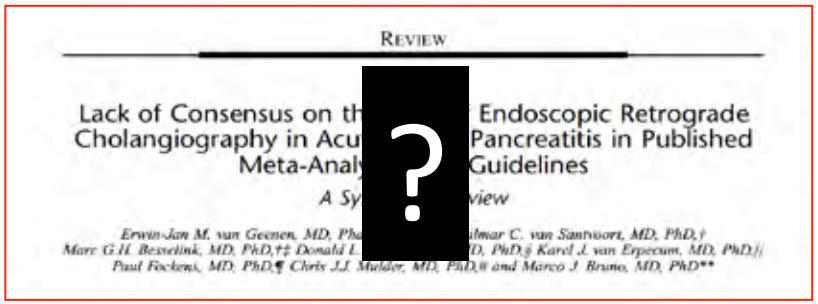
**Angiocholite/obstacle**

↓

**CPRE + sphinctérotomie**

**Pas d'angiocholite**

↓


REVIEW

Lack of Consensus on th… Endoscopic Retrograde Cholangiography in Acu… Pancreatitis in Published Meta-Anal… Guidelines

A Sy… view

Erwin-Jan M. van Geenen, MD, Pha… almar C. van Santvoort, MD, PhD,† Marc G.H. Besselink, MD, PhD,†‡ Donald L… D, PhD,§ Karel J. van Erpecum, MD, PhD,|| Paul Fockens, MD, PhD,¶ Chris J.J. Mulder, MD, PhD,# and Marco J. Bruno, MD, PhD**

?

*Pancreas 2013*

Schepers et al. Trials (2016) 17:5
DOI 10.1186/s13063-015-1132-0

Trials

STUDY PROTOCOL Open Access

# Early biliary decompression versus conservative treatment in acute biliary pancreatitis (APEC trial): study protocol for a randomized controlled trial


Nicolien J. Schepers[1,2*], Olaf J. Bakker[3], Marc G. H. Besselink[4], Thomas L. Bollen[5], Marcel G. W. Dijkgraaf[6], Casper H. J. van Eijck[7], Paul Fockens[8], Erwin J. M. van Geenen[9], Janneke van Grinsven[4,8], Nora D. L. Hallensleben[1,10], Bettina E. Hansen[1], Hjalmar C. van Santvoort[10], Robin Timmer[1], Marie-Paule G. F. Anten[11], Clemens J. M. Bolwerk[12], Foke van Delft[13], Hendrik M. van Dullemen[14], G. Willemien Erkelens[15], Jeanin E. van Hooft[8], Robert Laheij[16], René W. M. van der Hulst[17], Jeroen M. Jansen[18], Frank J. G. M. Kubben[19], Sjoerd D. Kuiken[20], Lars E. Perk[21], Rogier J. J. de Ridder[22], Marno C. M. Rijk[23], Tessa E. H. Römkens[24], Erik J. Schoon[25], Matthijs P. Schwartz[26], B. W. Marcel Spanier[27], Adriaan C. I. T. L. Tan[28], Willem J. Thijs[29], Niels G. Venneman[30], Frank P. Vleggaar[31], Wim van de Vrie[32], Ben J. Witteman[33], Hein G. Gooszen[34], Marco J. Bruno[1] and for the Dutch Pancreatitis Study Group

**Methods/Design:** The APEC trial is a randomized controlled, parallel group, superiority multicenter trial. Within 24 hours after presentation to the emergency department, patients with biliary pancreatitis without cholangitis and at high risk for complications, based on an Acute Physiology and Chronic Health Evaluation (APACHE-II) score of 8 or greater, Modified Glasgow score of 3 or greater, or serum C-reactive protein above 150 mg/L, will be randomized. In 27 hospitals of the Dutch Pancreatitis Study Group, 232 patients will be allocated to early ERC with sphincterotomy or to conservative treatment. The primary endpoint is a composite of major complications (that is, organ failure, pancreatic necrosis, pneumonia, bacteremia, cholangitis, pancreatic endocrine, or exocrine insufficiency) or death within 180 days after randomization. Secondary endpoints include ERC-related complications,

# Prise en charge initiale

- Réanimation
- Analgésie
- Nutrition
- CPRE ?
- **Prise en charge des complications: nécrose infectée**

# Infection de nécrose

- Infection de la nécrose pancréatique
- Infections des coulées de nécrose
- Infection du liquide d'ascite

- 30 à 50% des PAN

- 3ème semaine

⇒ **Conditionne le devenir**

⇒ **Modifie la prise en charge**

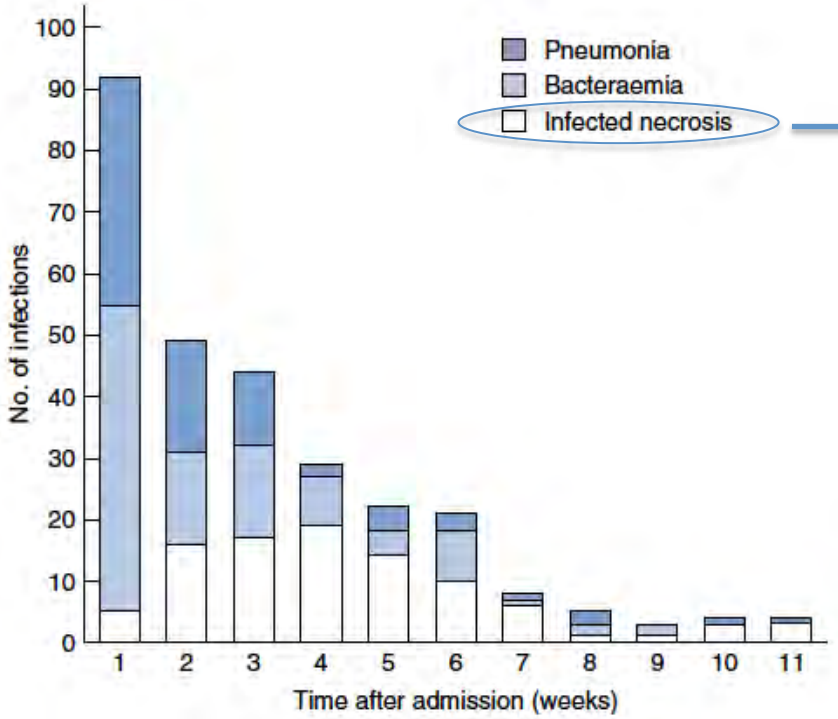
# Timing and impact of infections in acute pancreatitis

M. G. Besselink[1], H. C. van Santvoort[1], M. A. Boermeester[2], V. B. Nieuwenhuijs[3], H. van Goor[4], C. H. C. Dejong[6], A. F. Schaapherder[5] and H. G. Gooszen[1] for the Dutch Acute Pancreatitis Study Group

*British Journal of Surgery* 2009; **96**: 267–273

731 Patients
154 PAN
72 infections de nécrose pancréatique

- 26 (IQR 17-37) jours après l'admission
- ↑ avec le % de nécrose




→ Mortalité = 30% (vs 5,1%)

# Antibioprophylaxie ?

Commentary

**A role for prophylactic antibiotics in necrotizing pancreatitis? Why we may never know the answer ...**

Jan J De Waele

*Critical Care* 2008, **12**:195 (doi:10.1186/cc7122)

# Systematic review and meta-analysis of antibiotic prophylaxis in severe acute pancreatitis

Mathias Wittau, Benjamin Mayer, Jan Scheele, Doris Henne-Bruns, E. Patchen Dellinger & Rainer Isenmann

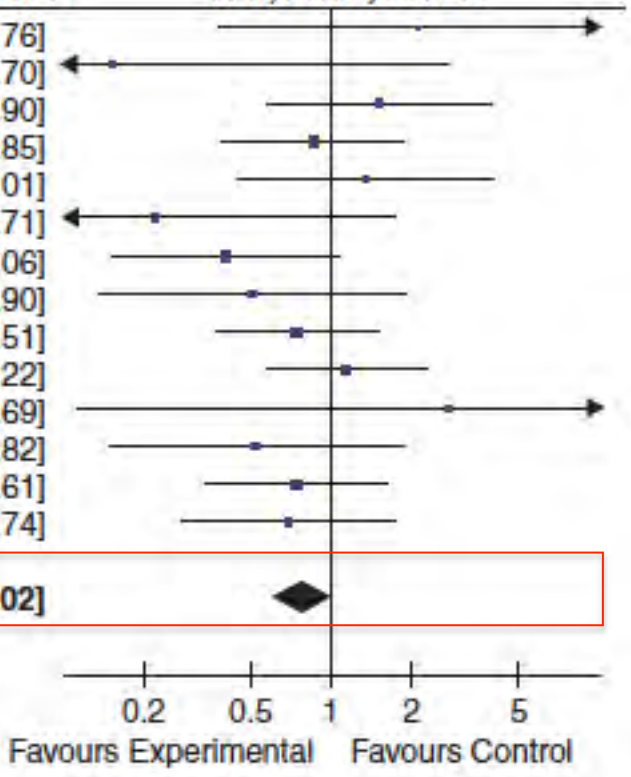
*Scandinavian Journal of Gastroenterology*, 2011; 46: 261–270

Infection de nécrose

| Study or Subgroup | Prophylaxis Events | Prophylaxis Total | Control Events | Control Total | Weight | Risk Ratio M-H, Fixed, 95% CI |
|---|---|---|---|---|---|---|
| Barreda et al 09 | 3 | 24 | 2 | 34 | 1.8% | 2.13 [0.38, 11.76] |
| Delcenserie et al 96 | 0 | 11 | 3 | 12 | 3.7% | 0.15 [0.01, 2.70] |
| Dellinger et al 07 | 9 | 50 | 6 | 50 | 6.6% | 1.50 [0.58, 3.90] |
| Garcia-Barrasa 09 | 8 | 22 | 8 | 19 | 9.4% | 0.86 [0.40, 1.85] |
| Isenmann et al 04 | 7 | 58 | 5 | 56 | 5.6% | 1.35 [0.46, 4.01] |
| Nordback et al 01 | 1 | 25 | 6 | 33 | 5.7% | 0.22 [0.03, 1.71] |
| Pederzoli et al 93 | 5 | 41 | 10 | 33 | 12.2% | 0.40 [0.15, 1.06] |
| Rokke et al 07 | 3 | 36 | 6 | 37 | 6.5% | 0.51 [0.14, 1.90] |
| Sainio et al 95 | 9 | 30 | 12 | 30 | 13.2% | 0.75 [0.37, 1.51] |
| Schwarz et al 97 | 8 | 13 | 7 | 13 | 7.7% | 1.14 [0.59, 2.22] |
| Spicak et al 02 | 1 | 33 | 0 | 30 | 0.6% | 2.74 [0.12, 64.69] |
| Spicak et al 03 | 3 | 20 | 6 | 21 | 6.4% | 0.53 [0.15, 1.82] |
| Xue et al 09 | 8 | 29 | 10 | 27 | 11.4% | 0.74 [0.35, 1.61] |
| Yang et al 09 | 6 | 28 | 8 | 26 | 9.1% | 0.70 [0.28, 1.74] |
| **Total (95% CI)** | | **420** | | **421** | **100.0%** | **0.78 [0.60, 1.02]** |
| Total events | 71 | | 89 | | | |

Heterogeneity: $Chi^2 = 11.39$, $df = 13$ ($p = 0.58$); $I^2 = 0\%$

Test for overall effect: $Z = 1.81$ ($p = 0.07$)



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**Mathias Wittau, Benjamin Mayer, Jan Scheele, Doris Henne-Bruns, E. Patchen Dellinger & Rainer Isenmann**

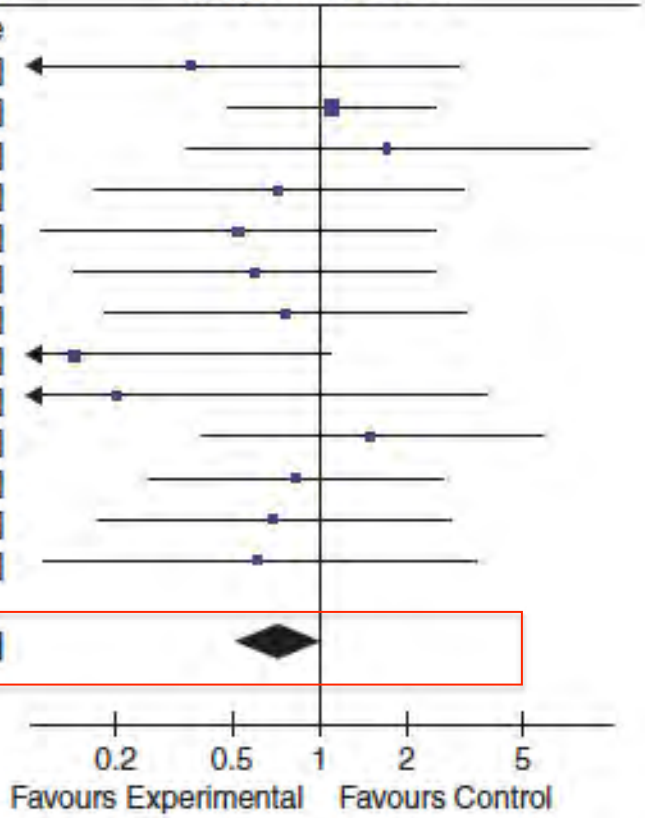
*Scandinavian Journal of Gastroenterology*, 2011; 46: 261–270

Mortalité

| Study or Subgroup | Prophylaxis Events | Prophylaxis Total | Control Events | Control Total | Weight | Risk Ratio M-H, Fixed, 95% CI |
|---|---|---|---|---|---|---|
| Barreda et al 09 | 0 | 24 | 0 | 34 | | Not estimable |
| Delcenserie et al 96 | 1 | 11 | 3 | 12 | 5.2% | 0.36 [0.04, 3.00] |
| Dellinger et al 07 | 10 | 50 | 9 | 50 | 16.2% | 1.11 [0.49, 2.50] |
| Garcia-Barrasa 09 | 4 | 22 | 2 | 19 | 3.9% | 1.73 [0.35, 8.41] |
| Isenmann et al 04 | 3 | 58 | 4 | 56 | 7.3% | 0.72 [0.17, 3.09] |
| Nordback et al 01 | 2 | 25 | 5 | 33 | 7.8% | 0.53 [0.11, 2.50] |
| Pederzoli et al 93 | 3 | 41 | 4 | 33 | 8.0% | 0.60 [0.15, 2.51] |
| Rokke et al 07 | 3 | 36 | 4 | 37 | 7.1% | 077 [0.19, 3.20] |
| Sainio et al 95 | 1 | 30 | 7 | 30 | 12.6% | 0.14 [0.02, 1.09] |
| Schwarz et al 97 | 0 | 13 | 2 | 13 | 4.5% | 0.20 [0.01,3.80] |
| Spicak et al 02 | 5 | 33 | 3 | 30 | 5.7% | 1.52 [0.40, 5.81] |
| Spicak et al 03 | 4 | 20 | 5 | 21 | 8.8% | 0.84 [0.26, 2.69] |
| Xue et al 09 | 3 | 29 | 4 | 27 | 7.5% | 0.70 [0.17, 2.84] |
| Yang et al 09 | 2 | 28 | 3 | 26 | 5.6% | 0.62 [ 0.11, 3.41] |
| **Total (95% CI)** | | **420** | | **421** | **100.0%** | **0.74 [0.50, 1.07]** |
| Total events | 41 | | 55 | | | |

Heterogeneity: $Chi^2 = 7.25$, df = 12 ($p = 0.84$); $I^2 = 0\%$

Test for overall effect: Z = 1.59 ($p = 0.11$)

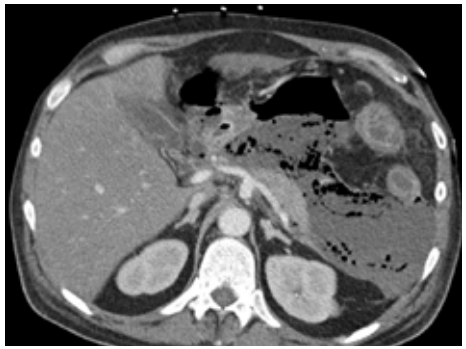


# Diagnostic

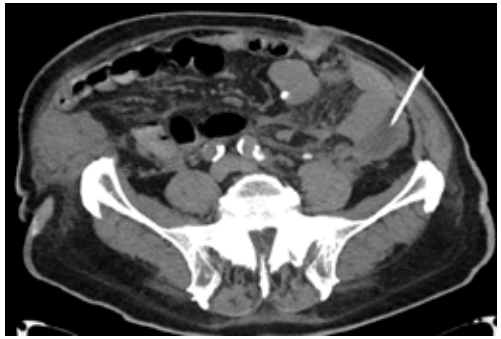
## 1-Suspicion clinique/biologique

- Fièvre
- Hyperleucocytose
- Apparition ou aggravation défaillances viscérales
- Bactériémie à germes digestifs

## 2-Scanographie évocatrice



## 3-Bactérie à l'examen microbiologique d'une ponction de nécrose

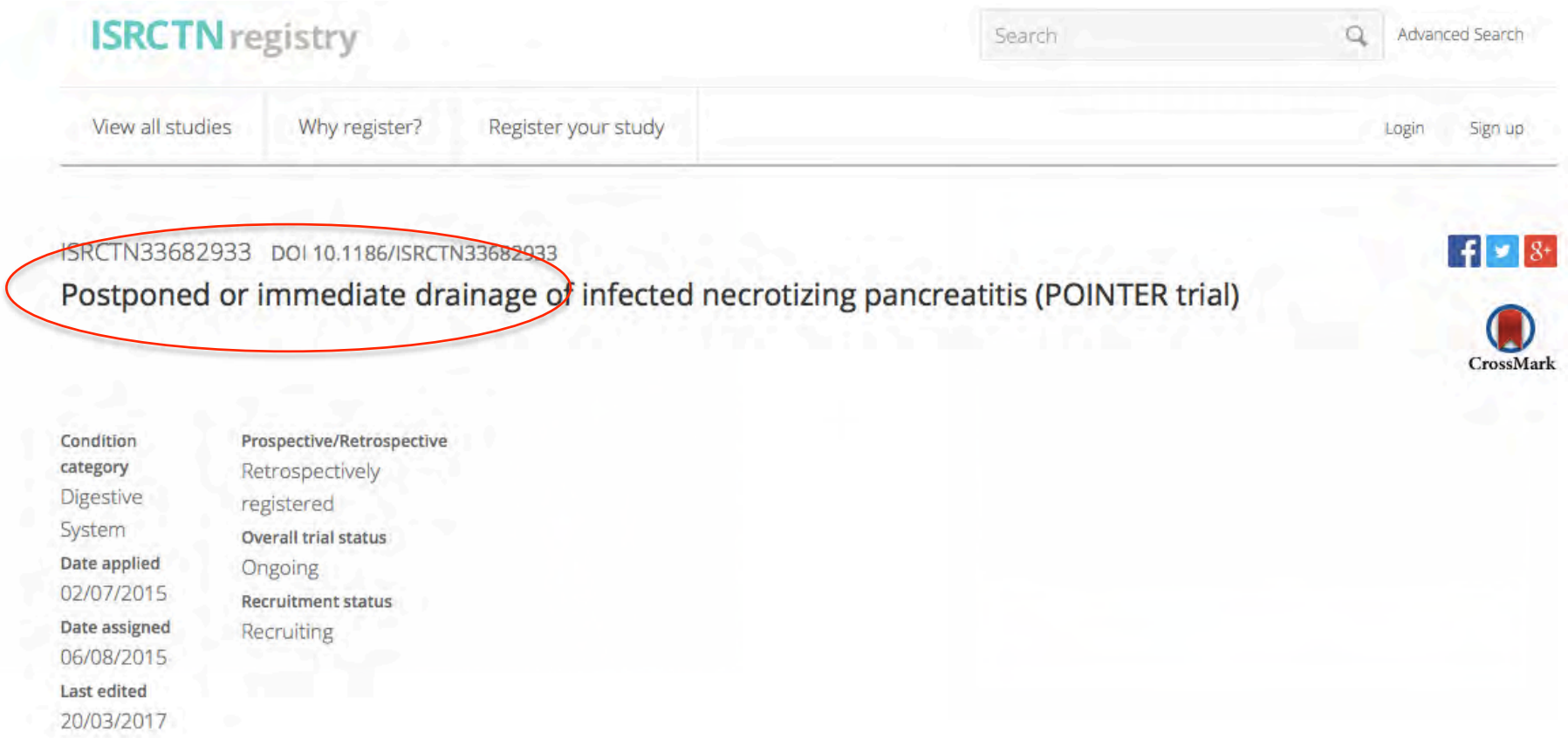


# Aspects microbiologiques

- Prélèvements polymicrobiens : 13 à 60 %
- E. coli 30 à 50 %
- Staphylococcus sp 2 à 57 %
- Entérocoques 5 à 40 %
- Pseudomonas sp 0 à 20 %
- Anaérobies 4 à 15 %
- Candida sp 4 à 20 %

*Montravers Gastroenterol Clin Biol 2001*

# Principes de prise en charge



# Principes de prise en charge

- **Approche « historique » = Chirurgie**
  - Ventre ouvert (laparostomie) (mortalité 70%)
  - nécrosectomie drainage Simple à ventre fermé (DC 40%)
  - nécrosectomie et irrigation continue des sites de Drainage (DC 10 à 25%)
  - Nécrosectomie retropéritonéale

# Données Historiques

PANCREATITES AIGUES NECROTIQUES

DRAINAGE ACTIF PROLONGE ET NUTRITION JEJUNALE CONTINUE (114)

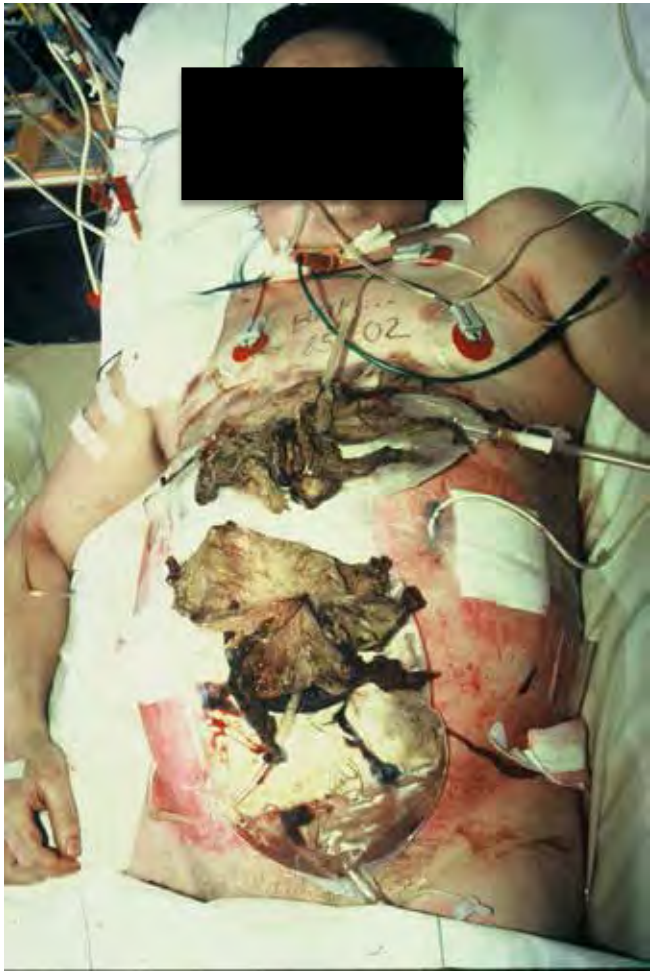
**Résultats de la chirurgie conventionnelle**

- Débridement et drainage d'abcès

| | |
|---|---|
| 1981 RANSON | 65 % de mortalité |
| 1985 WARSHAW | 24 % de mortalité |
| 1988 WILSON and IMRIE | 38 % de mortalité |

- Résection pancréatique

| | |
|---|---|
| 1981 ALEXANDRE | 60 % de mortalité |
| 1984 KIVILAAKSO | 22% de mortalité |
| 1985 ALDRIDGE | 33 % de mortalité |
| 1986 NORDBLACK | 43 % de mortalité |



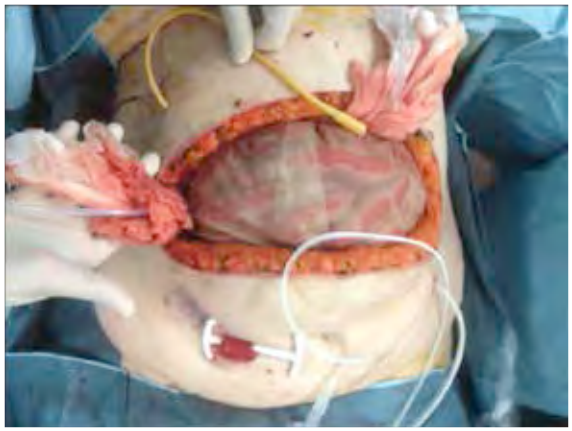
Diapositives E. Levy (198X)

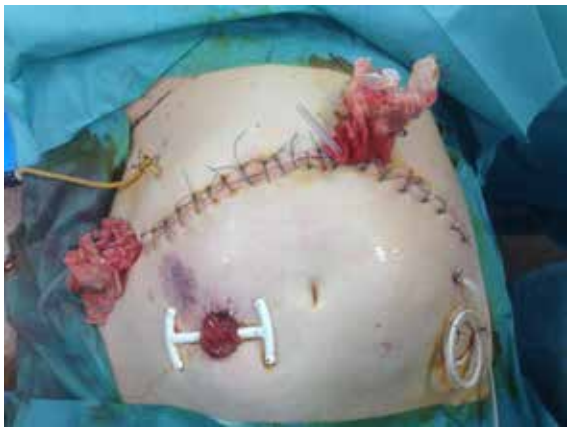
# LE DRAINAGE ACTIF PROLONGÉ DES PANCRÉATITES AIGUËS NÉCROTICO-HÉMORRAGIQUES

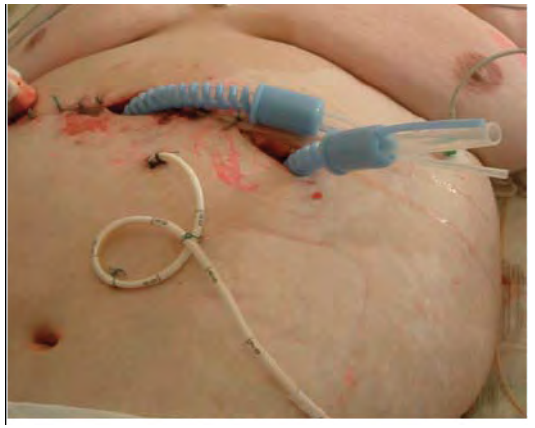
## Indications. Techniques. Résultats préliminaires
## A propos de vingt-six cas

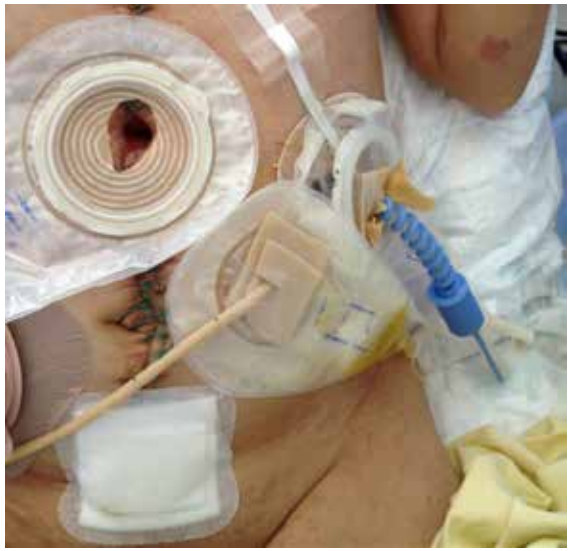
E. LEVY[1], L. HANNOUN[2], R. PARC[2],
J. HONIGER[1], C. HUGUET[2], J. LOYGUE[2]

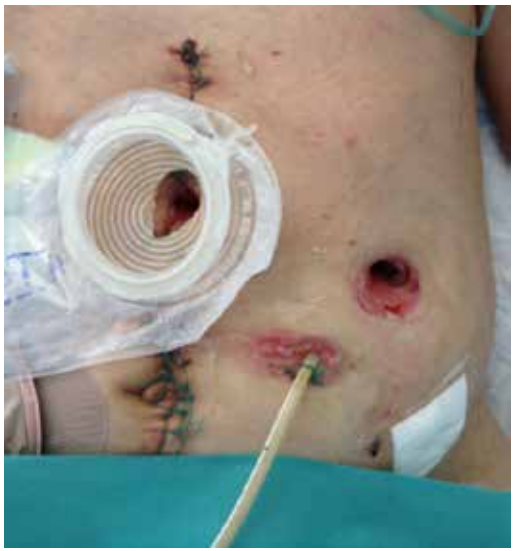
ANNALES DE CHIRURGIE
VOL. 38, N° 5
JUIN 1984



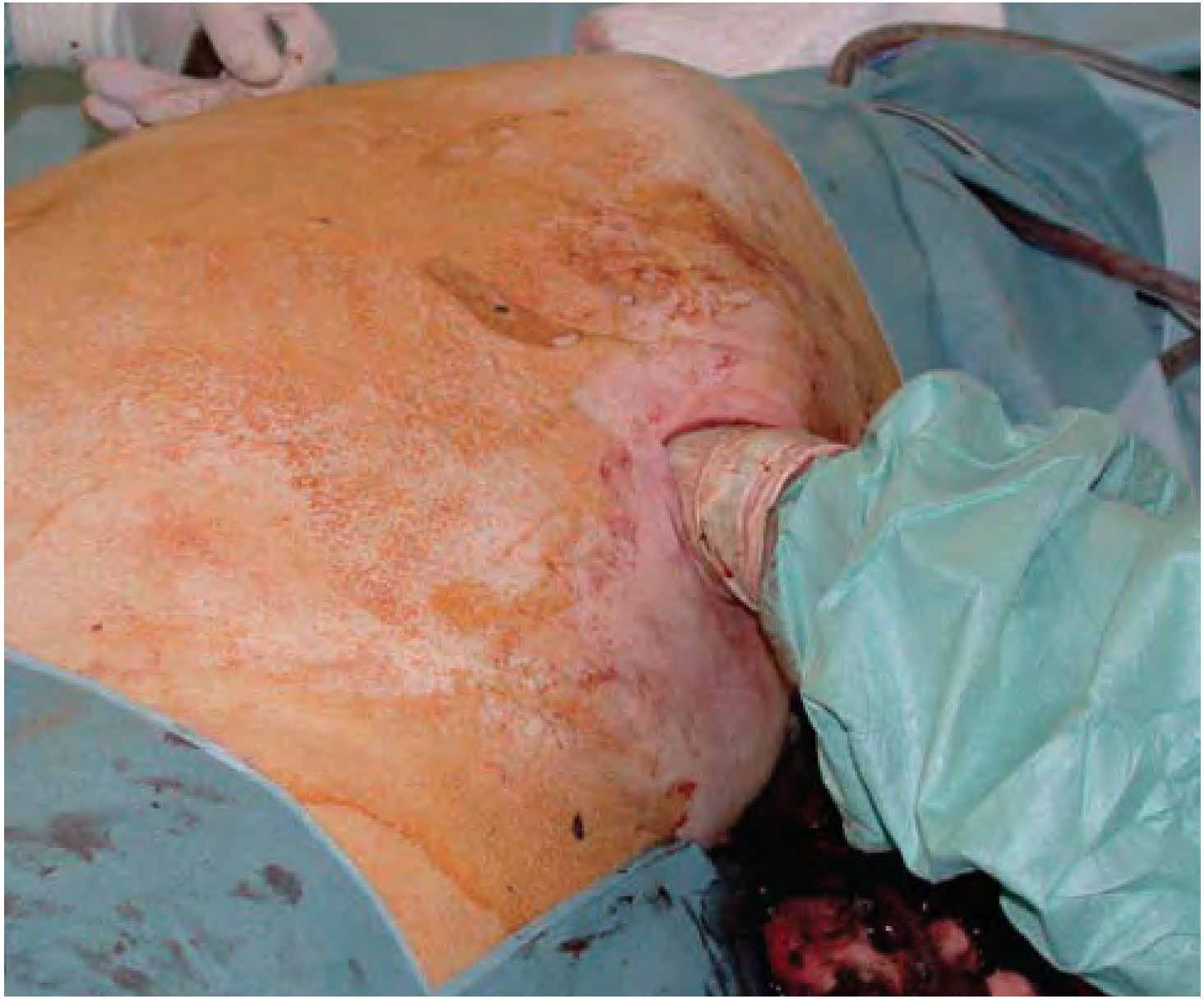








# Nécrosectomie rétropéritonéale



# Principes de prise en charge

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  - nécrosectomie drainage Simple à ventre fermé (DC 40%)
  - nécrosectomie et irrigation continue des sites de Drainage (DC 10 à 25%)
  - Nécrosectomie retropéritonéale

- **Techniques mini-invasives**

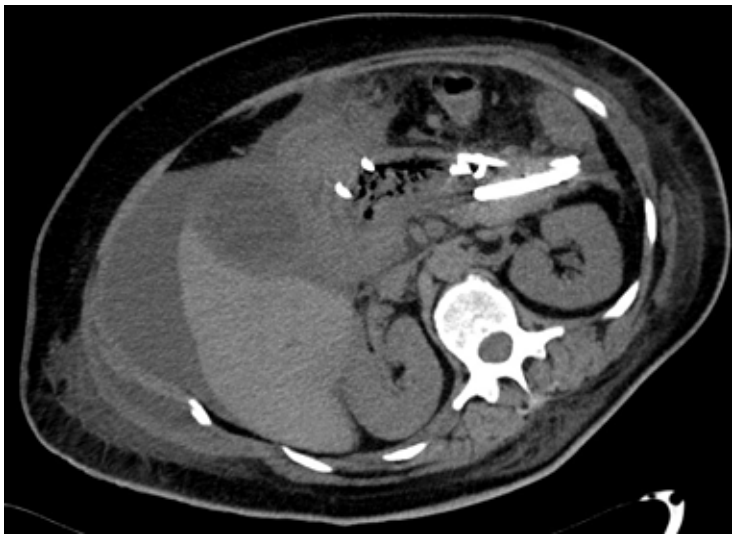
  - Drainage scanographique
  - Nécrostectomie rétropéritonéale sous videoscopie
  - Nécrosectomie transgastrique endoscopique

# Drainage percutané

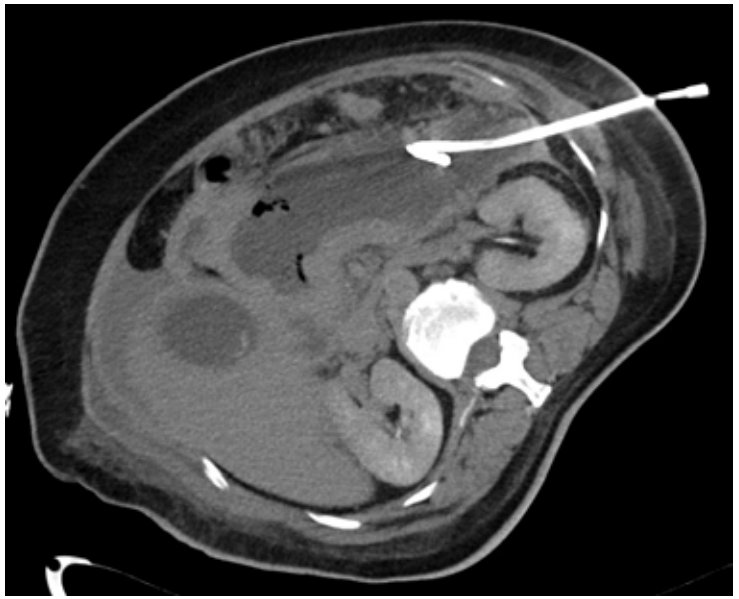
**Systematic review of percutaneous catheter drainage as primary treatment for necrotizing pancreatitis**

M. C. van Baal[1], H. C. van Santvoort[1], T. L. Bollen[2], O. J. Bakker[1], M. G. Besselink[1] and H. G. Gooszen[3] for the Dutch Pancreatitis Study Group

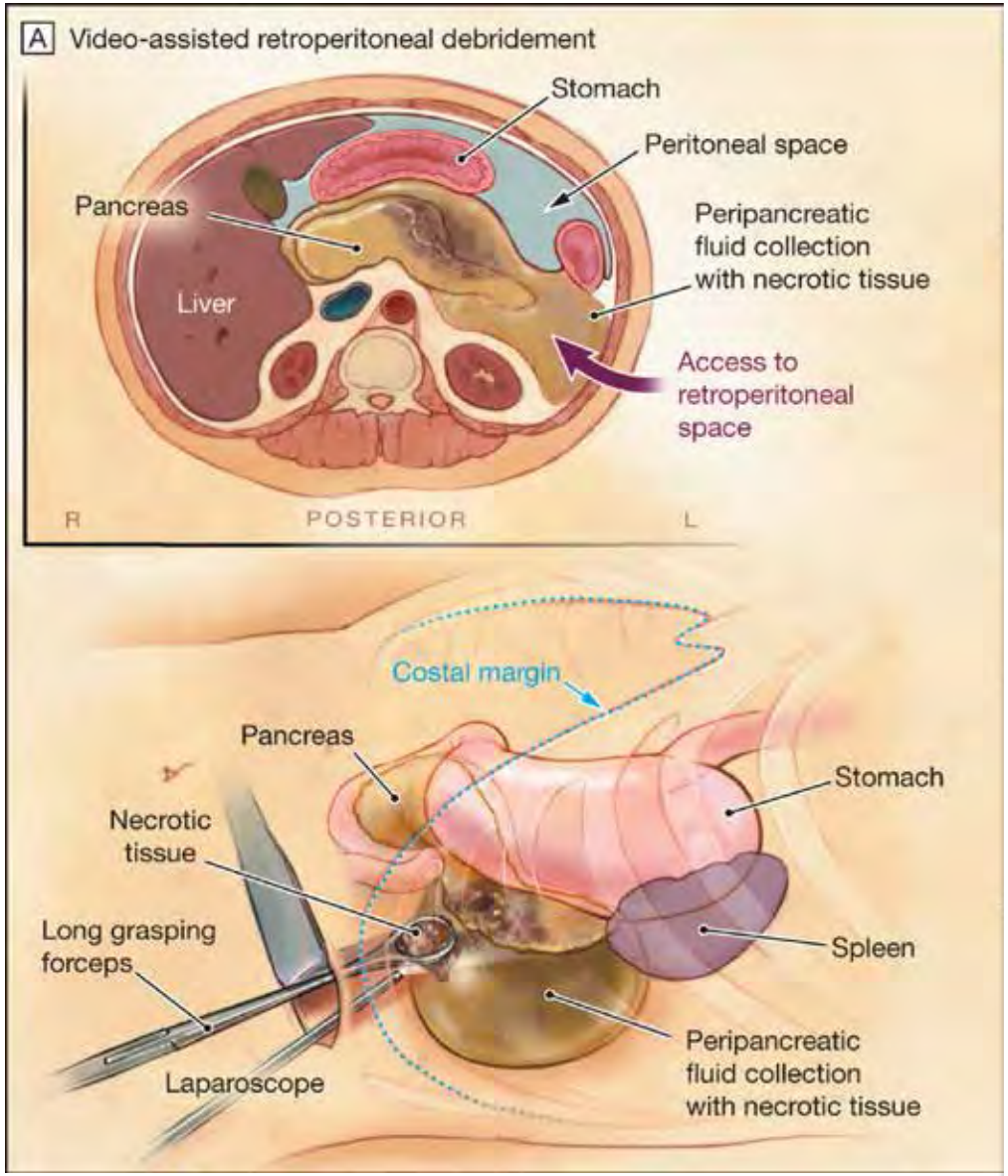
*British Journal of Surgery* 2011; **98**: 18–27



- 384 patients/ 11 études
- Drainage de nécrose/collection initialement infectées dans 70% des cas
- 50% de survie sans nécessité de nécrosectomie chirurgicale
- Mortalité = 15 %



# Drainage chirurgicale rétropéritonéal



ORIGINAL ARTICLE

# A Step-up Approach or Open Necrosectomy for Necrotizing Pancreatitis

Hjalmar C. van Santvoort, M.D., Marc G. Besselink, M.D., Ph.D.,

NEJM 2010

**APPROCHE MINI-INVASIVE (N=43)**
- Drainage percutané
- Drainage retropéritonéal sous videoscopie

**NÉCROSECTOMIE CHIRURGICALE (N=45)**

Drainage seul dans 35% des cas
Nécrosectomie retardée dans 60% des cas

Ré intervention dans 42% des cas

ORIGINAL ARTICLE

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Hjalmar C. van Santvoort, M.D., Marc G. Besselink, M.D., Ph.D.,

NEJM 2010

| Outcome | Minimally Invasive Step-up Approach (N=43) | Primary Open Necrosectomy (N=45) | Risk Ratio (95% CI) | P Value |
|---|---|---|---|---|
| **Primary composite end point: major complications or death — no. (%)†** | 17 (40) | 31 (69) | 0.57 (0.38–0.87) | 0.006 |
| **Secondary end points** | | | | |
| Major complication — no. (%) | | | | |
| New-onset multiple-organ failure or systemic complications‡ | 5 (12) | 19 (42) | 0.28 (0.11–0.67) | 0.001 |
| Multiple-organ failure | 5 (12) | 18 (40) | | |
| Multiple systemic complications | 0 | 1 (2) | | |
| Intraabdominal bleeding requiring intervention | 7 (16) | 10 (22) | 0.73 (0.31–1.75) | 0.48 |
| Enterocutaneous fistula or perforation of a visceral organ requiring intervention | 6 (14) | 10 (22) | 0.63 (0.25–1.58) | 0.32 |
| Death — no. (%) | 8 (19) | 7 (16) | 1.20 (0.48–3.01) | 0.70 |
| Other outcome — no. (%) | | | | |
| Pancreatic fistula | 12 (28) | 17 (38) | 0.74 (0.40–1.36) | 0.33 |
| Incisional hernia§ | 3 (7) | 11 (24) | 0.29 (0.09–0.95) | 0.03 |
| New-onset diabetes§ | 7 (16) | 17 (38) | 0.43 (0.20–0.94) | 0.02 |
| Use of pancreatic enzymes§ | 3 (7) | 15 (33) | 0.21 (0.07–0.67) | 0.002 |

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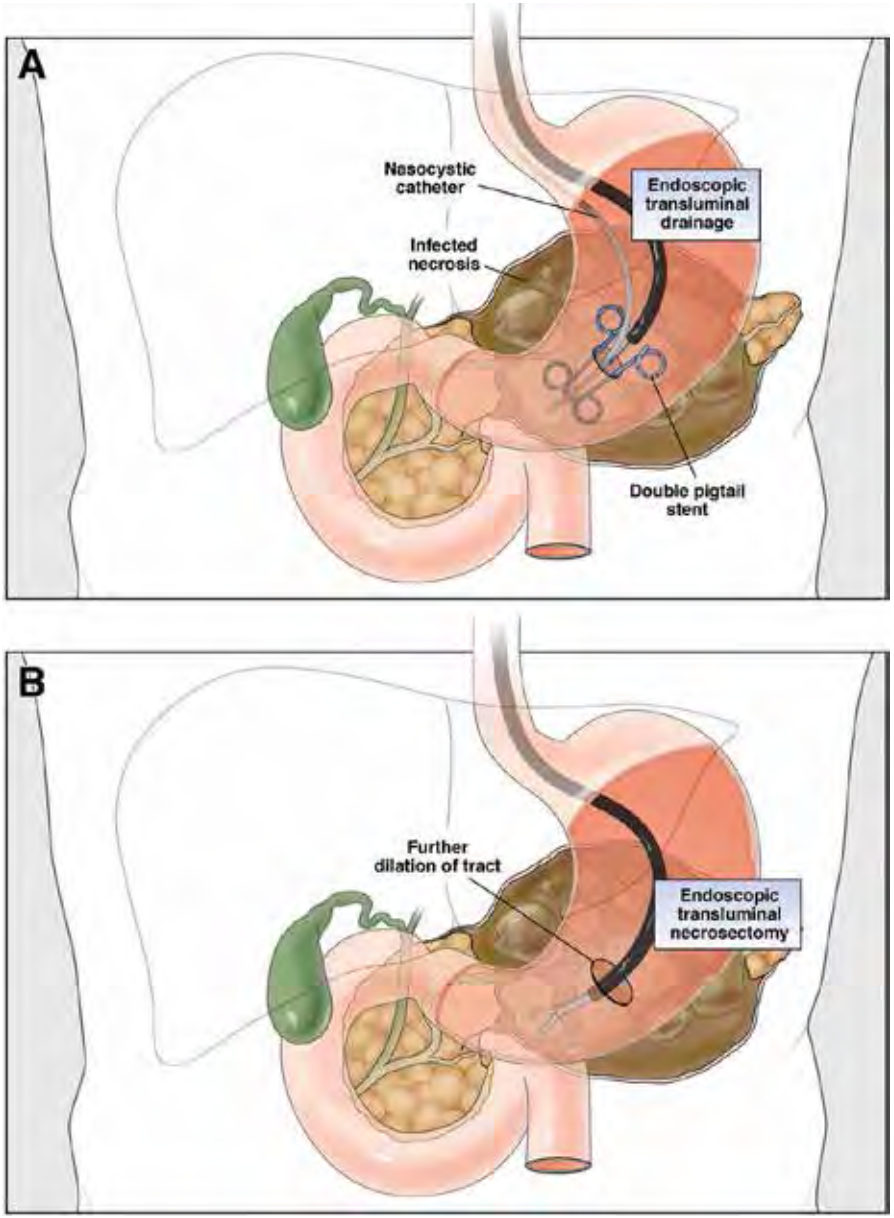
| Use of pancreatic enzymes§ | 3 (7) | 15 (33) | 0.21 (0.07–0.67) | 0.002 |

# Traitement endoscopique

Drainage

Nécrosectomie




*Hollemans RA, Pancreapedia 2016*

# Nécrosectomie endoscopique
# Études multicentriques rétrospectives

| | Etude GEPARD* | Etude US** | Etude JENIPaN *** |
|---|---|---|---|
| Patients | 93 | 104 | 57 |
| Nécrose infectée | 76% | 42% | 100% |
| Douleurs persistantes | 88% | 61% | ND |
| Nombre moyen de séances | 6.2 (1-35) | 3.7 (1-13) | 5 (1-20) |
| Délai par rapport à la PA | 43 jours (11-158) | 46 jours (6-510) | 50 jours (13-436) |
| Succès | 80% | 91.3% | 75% |
| Complications | 26% | 14% | 33% |
| Mortalité | 7.5% | 5.7% | 11% |

Complications : hémorragies mineures ou majeures, perforations péritonéales, fistules, pneumopéritoine, embolies gazeuses.

Seifert H et al. Gut 2009;58:1260-1266; ** Gardner TB et al. Gastrointest Endosc 2011;73:718-726
*** I.Yasuda et al. Endoscopy 2013;45 : 627-634.

# Endoscopic Transgastric vs Surgical Necrosectomy for Infected Necrotizing Pancreatitis

## A Randomized Trial

Olaf J. Bakker, MD

JAMA, March 14, 2012—Vol 307, No. 10

**NECROSECTOMIE TRANSGASTRIQUE SOUS ENDOSCOPIE**
(n=10)
- Drainage retopéritonéal (n=6)
-Drainage scanographqique (n=4)
-

**NECROSECTOMIE CHIRURGICALE**
(n=10)
- Drainage retopéritonéal (n=6)
-Drainage scanographqique (n=4)
-

<u>Critère de jugement</u>
Score composite (**complications** ou **décès**)
IL-6 plasmatique

# Endoscopic Transgastric vs Surgical Necrosectomy for Infected Necrotizing Pancreatitis

## A Randomized Trial

Olaf J. Bakker, MD

JAMA, March 14, 2012—Vol 307, No. 10

**Table 2.** Clinical End Points[a]

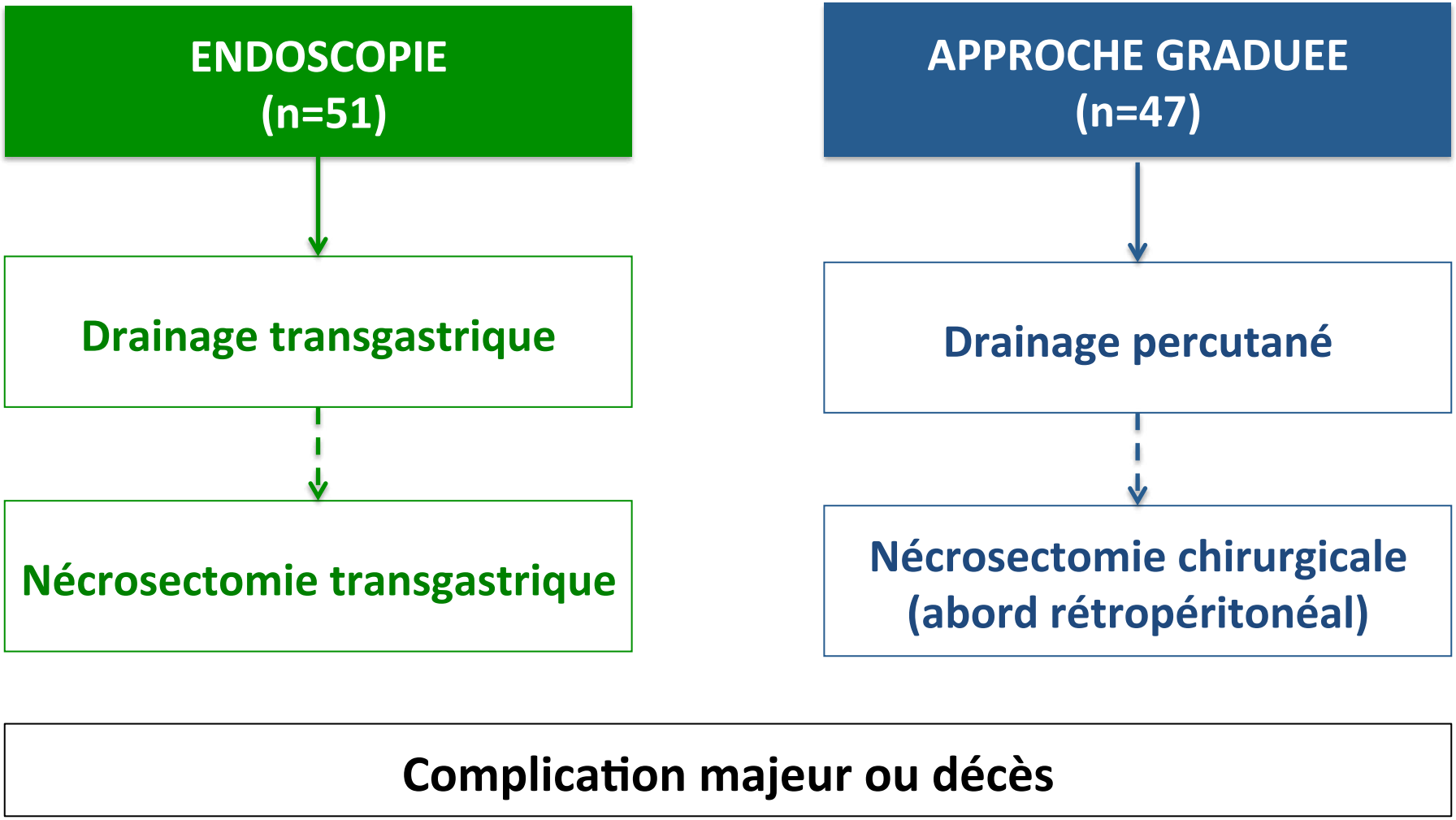
| | Surgical Necrosectomy (n = 10) | Endoscopic Transgastric Necrosectomy (n = 10) | Risk Difference (95% CI) | *P* Value |
|---|---|---|---|---|
| Major complications or death, No. (%)[b] | 8 (80) | 2 (20) | 0.60 (0.16 to 0.80) | .03 |
| Death, No. (%) | 4 (40) | 1 (10) | 0.30 (–0.08 to 0.60) | .30 |
| Major complications, No. (%) | | | | |
| New-onset multiple organ failure[c] | 5 (50) | 0 (0) | 0.50 (0.12 to 0.76) | .03 |
| Intra-abdominal bleeding requiring intervention | 0 (0) | 0 (0) | | |
| Enterocutaneous fistula or perforation of a visceral organ requiring intervention | 2 (20) | 0 (0) | 0.20 (–0.11 to 0.51) | .47 |
| Pancreatic fistula | 7 (70) | 1 (10) | 0.60 (0.17 to 0.81) | .02 |
| Long-term complications, No. (%)[d] | (n = 6) | (n = 9) | | |
| New-onset diabetes | 3 (50) | 2 (22) | 0.28 (–0.17 to 0.63) | .33 |
| Use of pancreatic enzymes | 3 (50) | 0 (0) | 0.50 (0.07 to 0.81) | .04 |
| Persisting fluid collections[e] | 3 (50) | 2 (22) | 0.28 (–0.17 to 0.63) | .33 |
| Health care utilization, No. | (n = 10) | (n = 10) | | |
| No. of necrosectomies, endoscopic or surgical | 1 (1 to 2) | 3 (2 to 6) | | .007 |
| New ICU admission anytime after randomization, No. (%) | 5 (50) | 1 (10) | 0.4 (–0.002 to 0.68) | .14 |
| Days in hospital after randomization[f] | 36 (17 to 74) | 45 (12 to 69) | | .91 |

➔ Réduction des complications majeures et décès dans le groupe « endoscopie »

## Endoscopic or surgical step-up approach for infected necrotising pancreatitis: a multicentre randomised trial

Sandra van Brunschot, Janneke van Grinsven, Hjalmar C van Santvoort, Olaf J Bakker, Marc G Besselink, Marja A Boermeester, Thomas L Bollen, Koop Bosscha, Stefan A Bouwense, Marco J Bruno, Vincent C Cappendijk, Esther C Consten, Cornelis H Dejong, Casper H van Eijck, Willemien G Erkelens, Harry van Goor, Wilhelmina M U van Grevenstein, Jan-Willem Haveman, Sijbrand H Hofker, Jeroen M Jansen, Johan S Laméris, Krijn P van Lienden, Maarten A Meijssen, Chris J Mulder, Vincent B Nieuwenhuijs, Jan-Werner Poley, Rutger Quispel, Rogier J de Ridder, Tessa E Römkens, Joris J Scheepers, Nicolien J Schepers, Matthijs P Schwartz, Tom Seerden, B W Marcel Spanier, Jan Willem A Straathof, Marin Strijker, Robin Timmer, Niels G Venneman, Frank P Vleggaar, Rogier P Voermans, Ben J Witteman, Hein G Gooszen, Marcel G Dijkgraaf, Paul Fockens, for the Dutch Pancreatitis Study Group*

Lancet nov 2017

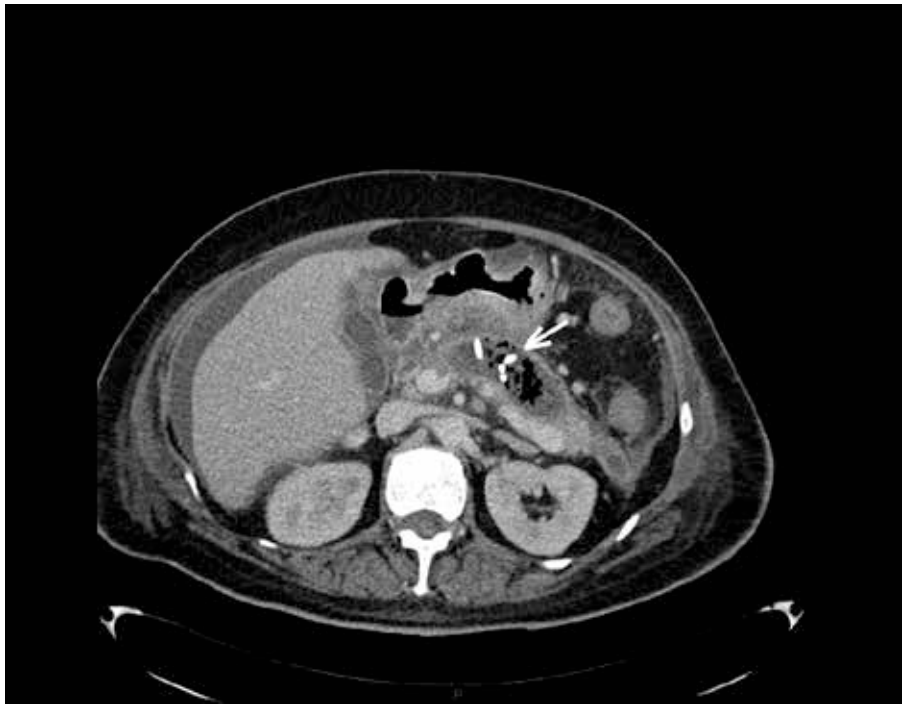


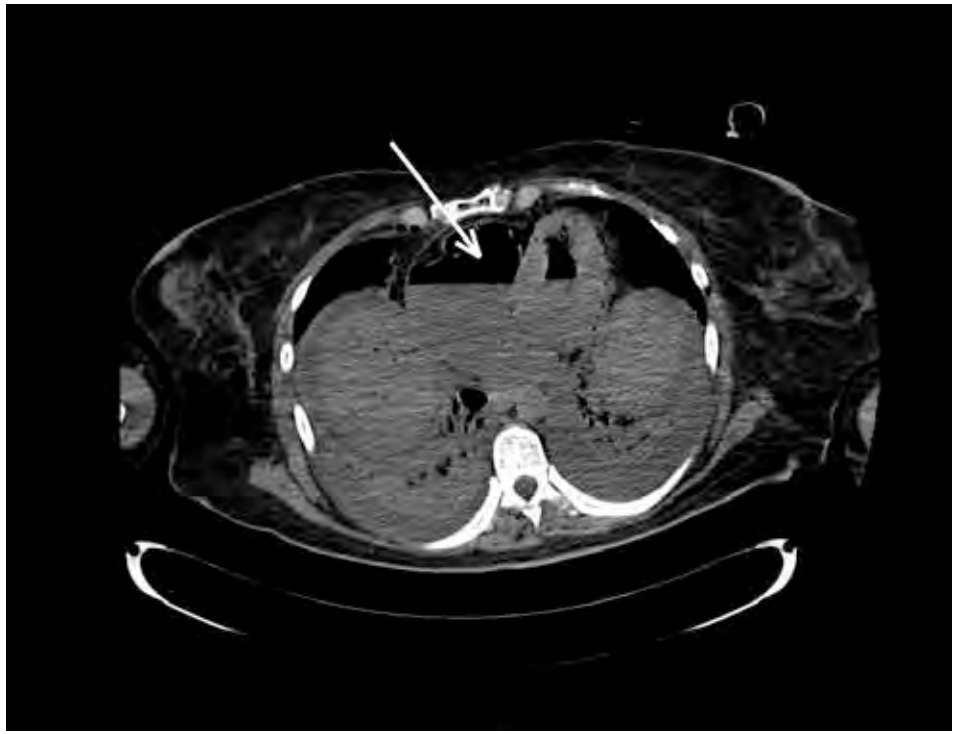
| | Endoscopic step-up approach (n=51) | Surgical step-up approach (n=47) | Relative risk (95% CI) | p value |
|---|---|---|---|---|
| **Primary endpoint** | | | | |
| Major complications or death* | 22 (43%) | 21 (45%) | 0·97 (0·62–1·51) | 0·88 |
| **Secondary endpoints** | | | | |
| New-onset organ failure† | | | | |
| Pulmonary | 4 (8%) | 7 (15%) | 0·53 (0·16–1·68) | 0·27 |
| Persistent pulmonary | 4 (8%) | 5 (11%) | 0·74 (0·21–2·58) | 0·63 |
| Cardiovascular | 3 (6%) | 9 (19%) | 0·31 (0·09–1·07) | 0·045 |
| Persistent cardiovascular | 2 (4%) | 8 (17%) | 0·23 (0·05–1·03) | 0·032 |
| Renal | 2 (4%) | 6 (13%) | 0·31 (0·07–1·45) | 0·11 |
| Persistent renal | 2 (4%) | 6 (13%) | 0·31 (0·07–1·45) | 0·11 |
| Single organ failure | 7 (14%) | 13 (28%) | 0·50 (0·22–1·14) | 0·087 |
| Persistent single organ failure | 6 (12%) | 11 (23%) | 0·50 (0·20–1·25) | 0·13 |
| Multiple organ failure | 2 (4%) | 6 (13%) | 0·31 (0·07–1·45) | 0·11 |
| Persistent multiple organ failure | 2 (4%) | 5 (11%) | 0·37 (0·08–1·81) | 0·20 |
| Bleeding (requiring intervention) | 11 (22%) | 10 (21%) | 1·01 (0·47–2·17) | 0·97 |
| Perforation of a visceral organ or enterocutaneous fistula (requiring intervention) | 4 (8%) | 8 (17%) | 0·46 (0·15–1·43) | 0·17 |
| Incisional hernia | 0 | 1 (2%) | .. | 0·30 |
| Death | 9 (18%) | 6 (13%) | 1·38 (0·53–3·59) | 0·50 |

**Fatal Gas Embolism after Endoscopic Transgastric Necrosectomy for Infected Necrotizing Pancreatitis**

Benjamin Bonnot, MD[1], Isabelle Nion-Larmurier, MD[2], Benoit Desaint, MD[2], Najim Chafai, MD[3], François Paye, MD, PhD[3], Marc Beaussier, MD, PhD[1] and Thomas Lescot, MD, PhD[1]

PAN compliquée d'infection de nécrose
6ème séance de nécrosectomie
ACR per procédure





Am Journal Gastro 2013

# Conclusions

- **Pancréatite aigüe sévère:** persistance d'une défaillance d'organe
- **Expansion volémique** sans modification contextuelle
- **Pas d'antibioprophylaxie** en routine
- **Place de l'analgésie péridurale** en cours d'exploration
- **Nutrition artificielle entérale**: sans se presser
- **Stratégies mini invasive** du traitement de l'infection de nécrose
- **Approche multidiscplinaire**
- **Stratification des patients:** à préciser

# Prise en charge des Pancréatites AIGUES nécrosantes
# Algorithme de Saint-Antoine

**BILAN SYSTEMATIQUE**
TDM dans les 48 heures
Echographie abdominale dans les 48 heures
Bilan lipidique à l'admission

**DEFAILLANCE D' ORGANES**
Admission en unité de soins aigus
Monitorage de la pression intra-abdominale

**ALIMENTATION ET NUTRITION**
nutrition entérale continue dès J3-J5
25-30 kcal/kg/jour
Nutrition parentérale:
*- Si intolérance à la NE*
*- Si besoins énergétiques non couverts à J5-J7*

**INDICATIONS CHIRURGICALES**
Syndrome du compartiment abdominal
Suspicion d' ischémie digestive
Suspicion de perforation digestive
Hémorragie digestive non traitable (endoscopiquement ou radiologiquement)

**SUSPISCION D'INFECTION DE NECROSE**
*Hyperleucocytose/fièvre/absence d'amélioration ou aggravation des défaillances d'organes/ bulles gazeuses intra-nécrotiques au scanner*

**SCANNER** en urgence
*et* **DRAINAGE** des collections nécrotiques
*pour* **EXAMEN BACTERIOLOGIQUE**

**Bactério STERILE**

**ABLATION DU DRAIN**

*5 jours*

**AMELIORATION**

**STAGNATION AGGRAVATION**

**Bactério POSITIVE**

**ANTIBIOTHERAPIE et maintien du DRAINAGE**

*5 jours*

**STAGNATION AGGRAVATION**

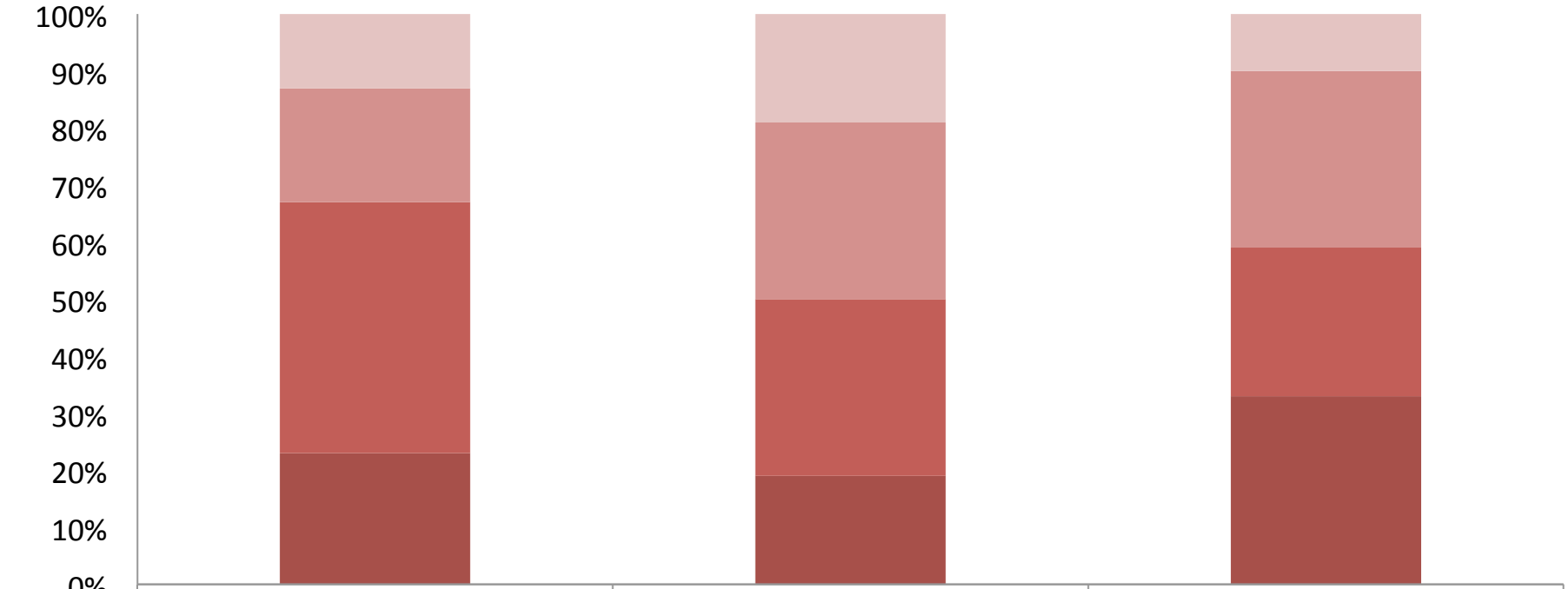
**AMELIORATION**

**SCANNER +/- Transfert en centre spécialisé**

**Discuter REDRAINAGE RADIO ou NECROSECTOMIE** *(3/4 semaines)* **Chirurgicale ou endoscopique**

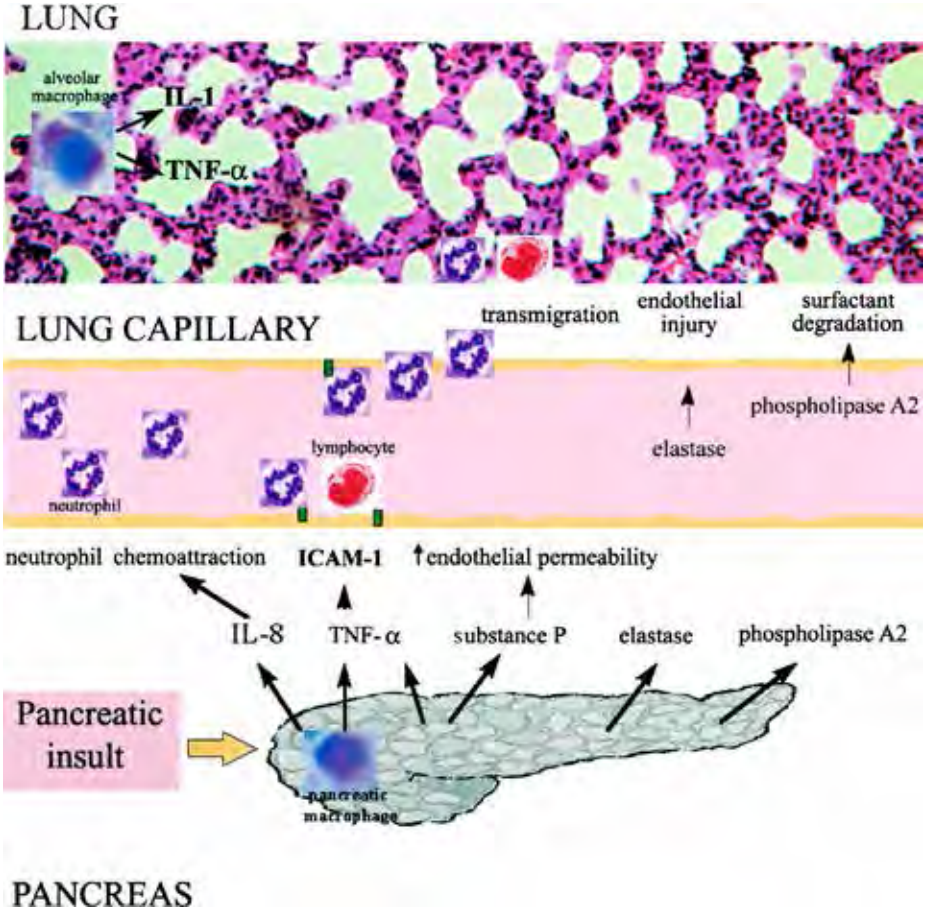
T Lescot soumis

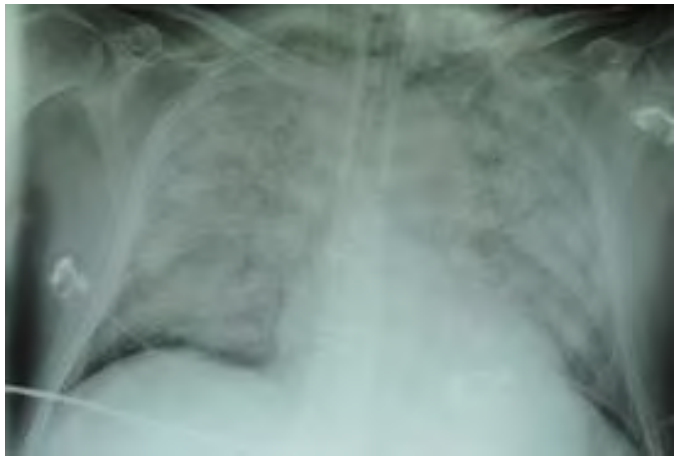
# Evolution par nombre de défaillances




| | Admission | D2 | D7 |
|---|---|---|---|
| 3 OF | 13 | 19 | 10 |
| 2 OF | 20 | 31 | 31 |
| 1 OF | 44 | 31 | 26 |
| 0 OF | 23 | 19 | 33 |

# Défaillance respiratoire



Pastor C M et al. Chest 2003;124:2341-2351

CHEST



- Dysfonction diaphragmatique
- Epanchement pleuraux
- SDRA (≈10 %)
- Infections

# Determinant-Based Classification of Acute Pancreatitis Severity

## *An International Multidisciplinary Consultation*

*E. Patchen Dellinger, MD,† Christopher E. Forsmark, MD,‡ Peter Layer, MD, PhD,§ Philippe Lévy, MD,‖ Enrique Maraví-Poma, MD, PhD,¶ Maxim S. Petrov, MD, MPH, PhD,# Tooru Shimosegawa, MD, PhD,** Ajith K. Siriwardena, MD,†† Generoso Uomo, MD,‡‡ David C. Whitcomb, MD, PhD,§§ and John A. Windsor, MBChB, MD, FRACS#; on behalf of the Pancreatitis Across Nations Clinical Research and Education Alliance (PANCREA)*

Annals of surgery 2012

| | Mild AP | Moderate AP | Severe AP | Critical AP |
|---|---|---|---|---|
| **(Peri)pancreatic necrosis** | No | Sterile | Infected | Infected |
| | *AND* | *AND/OR* | *OR* | *AND* |
| **Organ failure** | No | Transient | Persistent | Persistent |

Dysfonction d'organe: SOFA (rénale, hémodynamique, respiratoire) $\geq$ 2
Transitoire si durée < 48 heures

# Performance of the revised Atlanta and determinant-based classifications for severity in acute pancreatitis

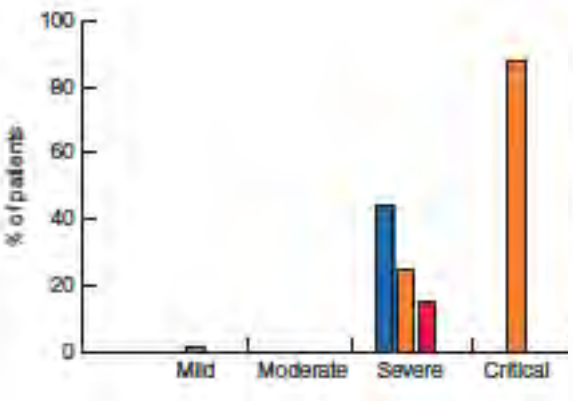
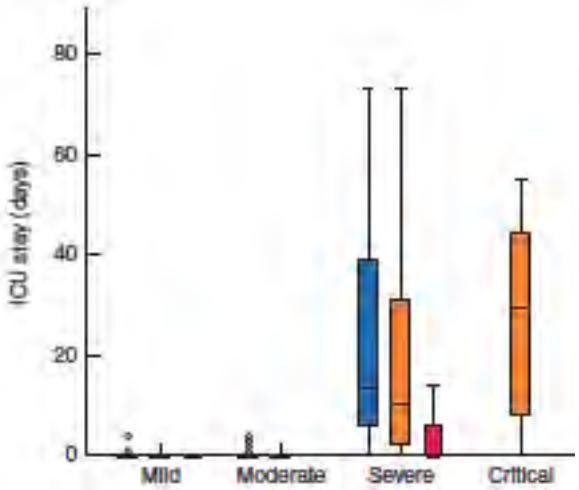
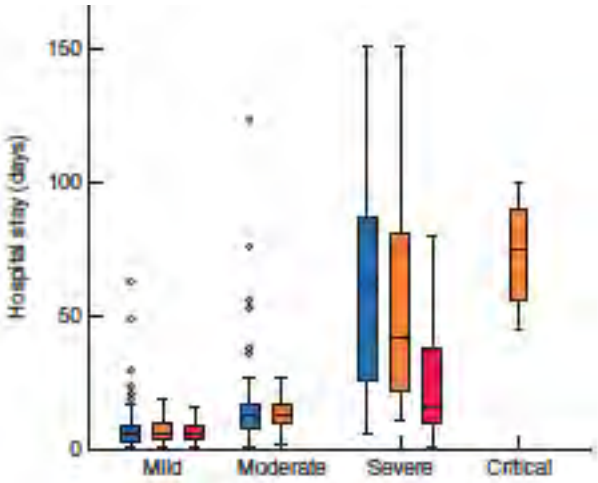
S. S. Bansal[1], J. Hodson[2], R. S. Sutcliffe[1], R. Marudanayagam[1], P. Muiesan[1], D. F. Mirza[1], J. Isaac[1] and K. J. Roberts[1]

Departments of [1]Pancreatic Surgery and [2]Statistics, University Hospitals Birmingham NHS Trust, Birmingham, UK
*Correspondence to:* Mr K. J. Roberts, Department of Pancreatic Surgery, University Hospitals Birmingham NHS Trust, Birmingham B15 2TH, UK
(e-mail: j.k.roberts@bham.ac.uk)

*British Journal Surgery 2016*

228 patients

DBC Vs ATLANTA

| | Mortalité | Durée de séjour réa | Durée de séjour H |
|---|---|---|---|
| |  |  |  |
| DBC | 0,931 | 0,673 | 0,635 |
| ATLANTA | 0,955 | 0,637 | 0,648 |

# Comparison Between Revised Atlanta Classification and Determinant-Based Classification for Acute Pancreatitis in Intensive Care Medicine. Why Do Not Use a Modified Determinant-Based Classification?

Felix Zubia-Olaskoaga, MD, PhD[1]; Enrique Maravi-Poma, MD, PhD[2]; Iratxe Urreta-Barallobre, MD[3]; María-Rosario Ramírez-Puerta, MD[4]; Mónica Mourelo-Fariña, MD[5]; María-Pilar Marcos-Neira, MD, PhD[6]; in representation of the Epidemiology of Acute Pancreatitis in Intensive Care Medicine Study Group

CCM 2016

| Revised Atlanta Classification | Moderately severe | Severe | |
|---|---|---|---|
| Determinant-Based Classification | Moderate | Severe | Critical |
| Modified Determinant-Based Classification | Transient OF without IN (LC) | Transient OF with IN (LC) / Persistent OF without IN (LC) | Persistent OF with IN (LC) |

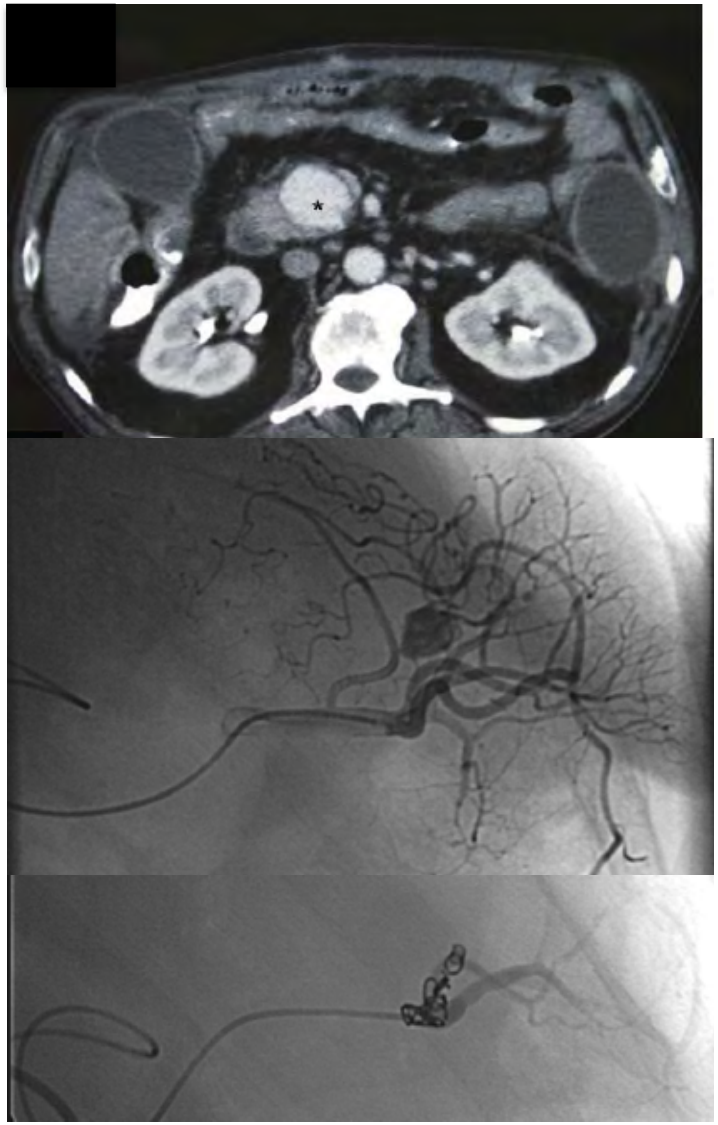
| Classifications | OR (95% CI) Mortality | OR (95% CI) Morbidity |
|---|---|---|
| Modified Determinant-Based Classification (reference group 1) | | |
| Group 2 | 3.09 (0.49–19.39) | 27.16 (9.27–79.55) |
| Group 3 | 30.69 (9.25–101.85) | 1.60 (0.52–4.95) |
| Group 4 | 62.59 (18.46–212.20) | 140.57 (38.75–509.94) |
| AUC (95% CI) | 0.81 (0.77–0.85) | 0.80 (0.73–0.86) |
| Revised Atlanta Classification (reference moderate-severe) | | |
| Severe | 30.14 (11.89–76.41) | 3.03 (1.68–5.45) |
| AUC (95% CI) | 0.77 (0.73–0.81) | 0.64 (0.57–0.70) |
| Determinant-Based Classification (reference moderate) | | |
| Severe | 22.78 (8.03–64.64) | 2.95 (1.34–6.49) |
| Critical | 40.18 (13.41–120.36) | 176.14 (37.12–835.76) |
| AUC (95% CI) | 0.77 (0.72–0.81) | 0.81 (0.74–0.88) |

# Complications locorégionales des formes nécrosantes

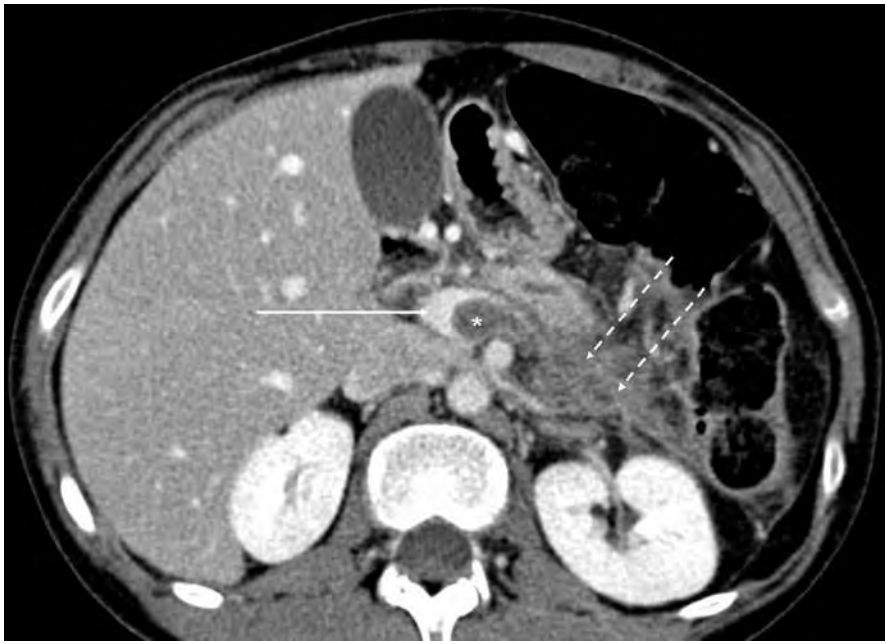
- Complications vasculaires
- Complications Digestives
  => Perforation d'organe creux
- Complications infectieuses

# Complications vasculaires

## Faux anévrysme



## Thrombose veineuse



THE COCHRANE COLLABORATION®

# Antibiotic therapy for prophylaxis against infection of pancreatic necrosis in acute pancreatitis (Review)

Villatoro E, Mulla M, Larvin M

7 essais, 400 patients

**Pas d'effet significatif sur la mortalité, infections de nécrose, infections systémiques ou fungiques**

**Analysis 4.2. Comparison 4 Imipenem versus control, Outcome 2 Infected Pancreatic Necrosis (imipenem).**

Review: Antibiotic therapy for prophylaxis against infection of pancreatic necrosis in acute pancreatitis

Comparison: 4 Imipenem versus control

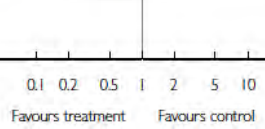
Outcome: 2 Infected Pancreatic Necrosis (imipenem)

| Study or subgroup | Treatment n/N | Control n/N | Odds Ratio M-H,Random,95% CI | Weight | Odds Ratio M-H,Random,95% CI |
|---|---|---|---|---|---|
| Pederzoli 1993 | 5/41 | 10/33 | | 59.0 % | 0.32 [ 0.10, 1.05 ] |
| Nordback 2001 | 1/25 | 6/33 | | 17.6 % | 0.19 [ 0.02, 1.67 ] |
| Rkke 2007 | 2/12 | 4/16 | | 23.5 % | 0.60 [ 0.09, 3.99 ] |
| **Total (95% CI)** | **78** | **82** | | **100.0 %** | **0.34 [ 0.13, 0.84 ]** |

Total events: 8 (Treatment), 20 (Control)

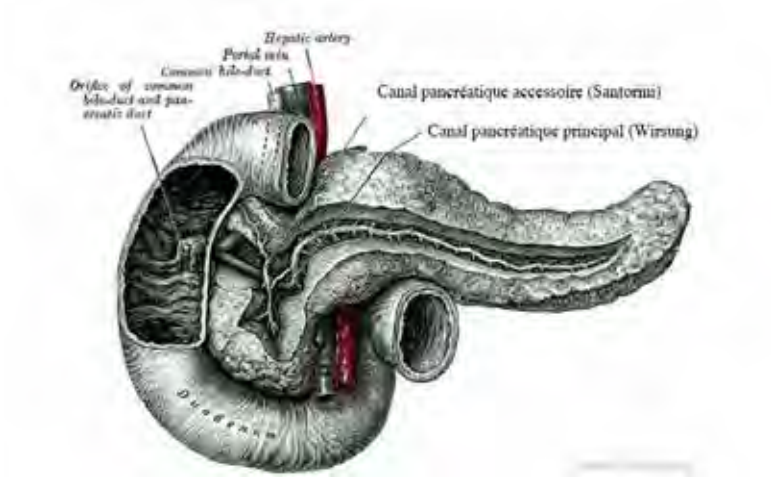
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.64$, df = 2 (P = 0.72); $I^2 = 0.0\%$

Test for overall effect: Z = 2.32 (P = 0.020)



# Pancréas

- « Tout en viande » (*pan*; *kreas*)
- Organe rétropéritonéale, sus mésocolique
- 15 x 6 x 3 cm => 80 grammes
- Tête – isthme - corps - queue
- Glande
  - Fonction Endocrine *(α, glucagon; β, insuline;…)*
  - Fonction Exocrine

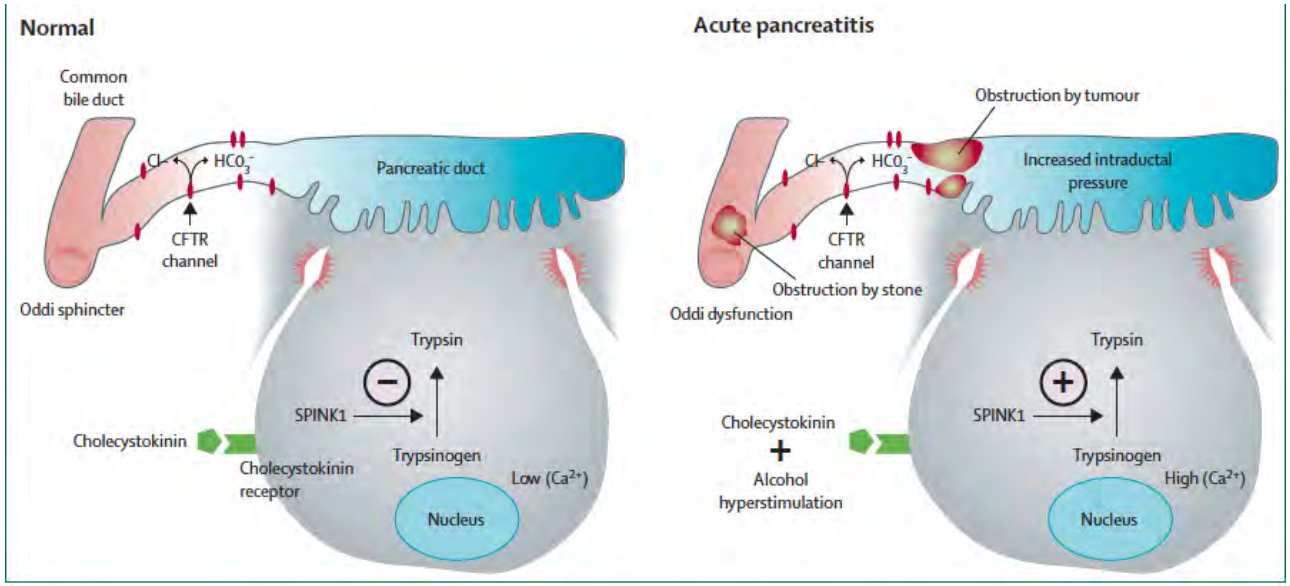


# Pancréatite aigüe

Activation anormale du trypsinogène en trypsine active

« Autodigestion » de la glande

Processus inflammatoire responsable d'une réaction inflammatoire locale et systémique




*Lancet* 2008; 371: 143-52

# Pancréatite aigüe

- **2 critères parmi**
  - Douleur abdominale évocatrice
  - Lipasémie (amylasémie) > 3N
  - Aspect scanographique compatible

- 11 000 cas annuels
- 60% d'hommes, cinquantaine
- Maladie alcoolique + lithiasique biliaire = 80 à 90% des cas
- 2% des patients admis en réanimation / USC

*Banks PA et al., Gut 2013*
*JUNG B et al,. Annales Françaises d'Anesthésie et de Réanimation, 2011*