

Journée « Best of » en Infectiologie 2008

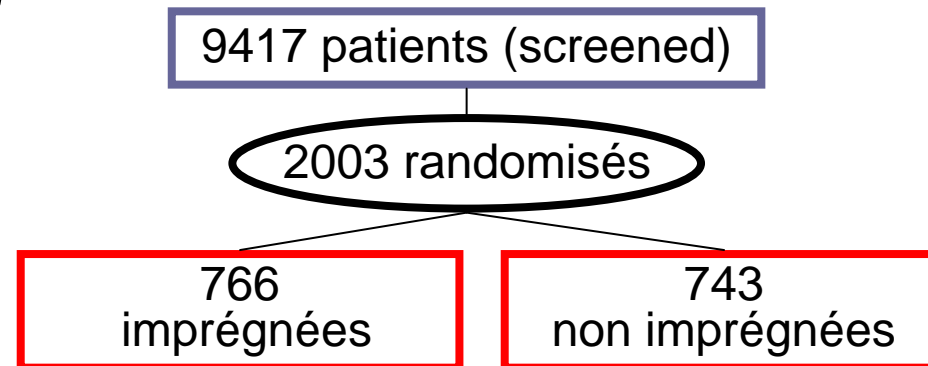
Infections nosocomiales - Réanimation

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CHRU Lille

- **Objectif:** Bénéfice des sondes d'intubation imprégnées d'argent sur l'incidence des PAVM?
- **Design:** Prospective, randomisée, simple aveugle, 54 centres USA (2002 à 2006)

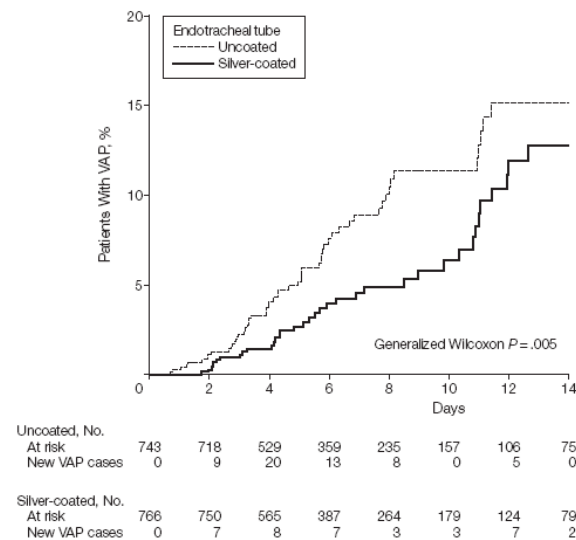


- **Critère principal:** Incidence PAVM
- **Critères secondaires:** délai d'apparition PAVM, durée d'intubation, de séjour en réa et à l'hôpital, mortalité, effets indésirables
- **Diagnostic de PAVM:** avec culture quantitative LBA > 10⁴ UFC/ml

Table 2. Incidence of Microbiologically Confirmed Ventilator-Associated Pneumonia (VAP)^a

	Evaluable Patients With VAP, No./Total (%) [95% CI]		RR Reduction, % (95% CI)	P Value
	Silver-Coated Tube	Uncoated Tube		
VAP at any time Intubated ≥24 h	37/766 (4.8) [3.4-6.6]	56/743 (7.5) [5.7-9.7]	35.9 (3.6-69.0)	.03
All intubated	37/968 (3.8) [2.7-5.2]	56/964 (5.8) [4.4-7.5]	34.2 (1.2-67.9)	.04
VAP within 10 d of intubation Intubated ≥24 h	27/766 (3.5) [2.3-5.1]	50/743 (6.7) [5.0-8.8]	47.6 (14.6-81.9)	.005
All intubated	27/968 (2.8) (1.9-4.0)	50/964 (5.2) (3.9-6.8)	46.2 (12.6-81.1)	.007
Microbiology ^b				
<i>Staphylococcus aureus</i>	9	16		
Methicillin-resistant <i>S aureus</i>	3	7		
<i>Pseudomonas aeruginosa</i>	8	11		
Enterobacteriaceae	10	5		
Yeast	5	7		
<i>Streptococcus</i> species	4	7		
<i>Haemophilus influenzae</i>	3	3		
<i>Acinetobacter baumannii</i>	1	5		
Other ^c	5	17		

Figure 2. Kaplan-Meier Analyses of Occurrence of Microbiologically Confirmed Ventilator-Associated Pneumonia (VAP) in Patients Intubated for 24 Hours or Longer



- 37 patients - sonde imprégnée, prévention d'1 PAVM
- Simple aveugle
- Négativation du LBA par ATB
- Plus de BPCO dans le groupe « non imprégnées »
- Mesures de prévention associées?

Galactomannan in Bronchoalveolar Lavage Fluid

A Tool for Diagnosing Aspergillosis in Intensive Care Unit Patients

Wouter Meersseman¹, Katrien Lagrou², Johan Maertens³, Alexander Wilmer¹, Greet Hermans¹, Steven Vanderschueren¹, Isabel Spriet⁴, Eric Verbeken⁵, and Eric Van Wijngaerden¹

Am J Respir Crit Care Med Vol 177 pp 27-34 2008

- **Design:** Prospective, 1 centre

- **Patients éligibles:**

- Hémopathie
- Cancer avec chimio < 3 mois
- Transplantation d'organe
- Corticothérapie
- Trt immunosuppresseur
- Cirrhose Child C
- HIV

+

- Fièvre réfractaire malgré ATB
- DI pleurale, expectorations, hémoptysie
- Nouvel infiltrat radio

110 patients

26 AI prouvées

dont 10 patients neutropéniques

24 décès

22% patients neutropéniques

67% patients sans hémopathie

	No. of Patients		Total
	Invasive Aspergillosis (n = 26)	No Invasive Aspergillosis† (n = 46)	
Serum galactomannan, no.‡			
Positive	11	3	14
Negative	15	43	58
Total	26	46	72
BAL galactomannan, no.‡			
Positive	23	6	29
Negative	3	40	43
Total	26	46	72
BAL culture, direct examination, no.‡			
Positive (%)	15 (58)	14 (30)	29
Negative (%)	11 (42)	32 (70)	43
Total	26	46	72

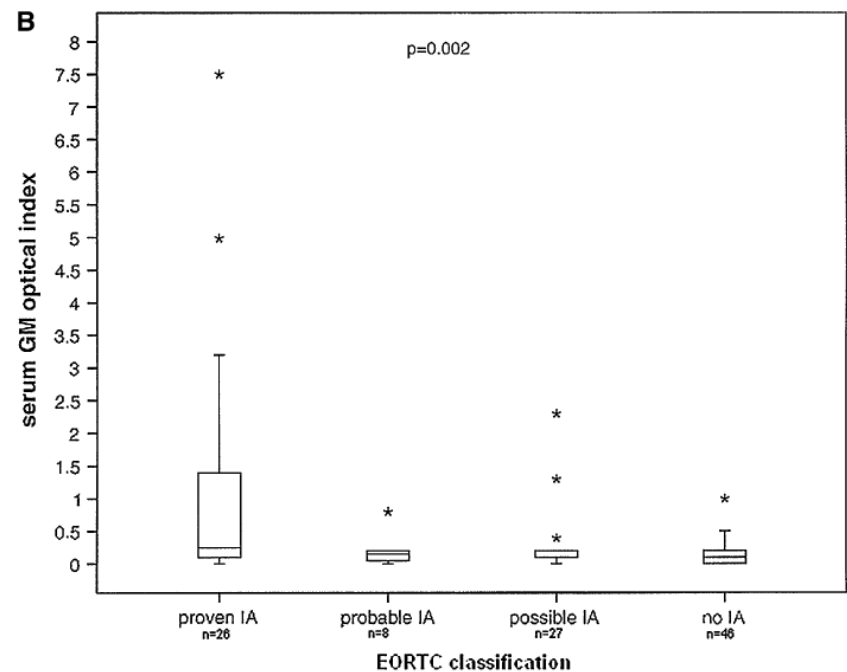
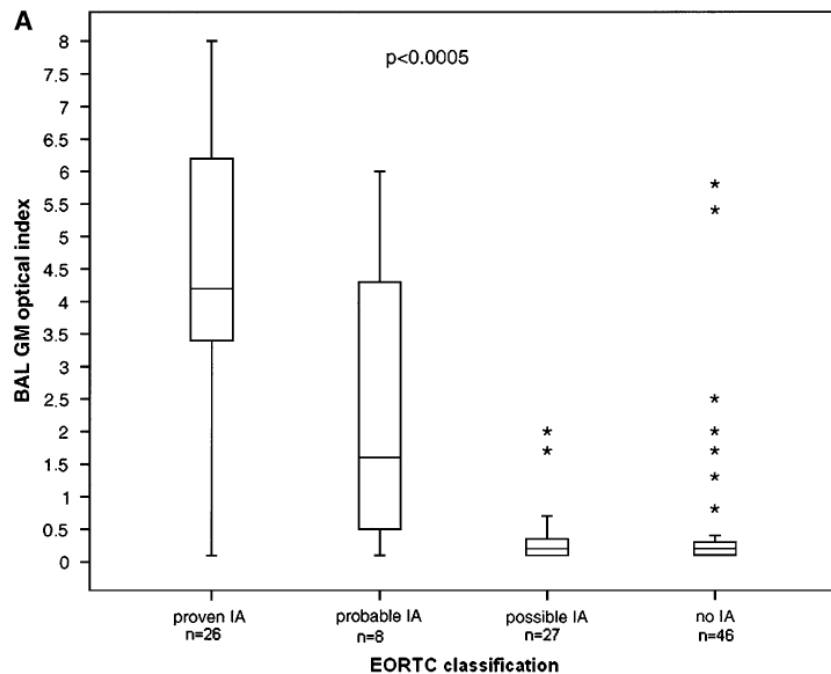


TABLE 4. CLINICAL CHARACTERISTICS OF NEUTROPENIC AND NONNEUTROPENIC PATIENTS WITH PROVEN INVASIVE ASPERGILLOSIS

Characteristics	Neutropenic Patients (n = 10)	Nonneutropenic Patients (n = 16)	All Proven IA Cases (n = 26)
No. of males (%)	4 (40)	10 (63)	14 (54)
Age, mean yr	62	62	62
Clinical characteristics			
Fever, no. of patients (%)	8 (80)	10 (63)	18 (69)
Respiratory failure requiring MV, no. (%)	10 (100)	15 (94)	25 (96)
Length of stay, no. of days (range)	7 (4–21)	13 (3–68)	13 (3–68)
Macroscopic lesions,* no. of patients (%)	4 (40)	3 (19)	7 (27)
CT rate, no. of patients (%)	6 (60)	9 (56)	15 (58)
Necrotizing pneumonia on CT scan† (%)	1 (17)	6 (67)	7 (47)
Halo sign on CT scan (%)	0 (0)	13 (0)	0 (0)
Steroids, no. of patients (%)	2 (20)	3 (81)	15 (58)
Cirrhosis (%)	0 (0)	55 (19)	3 (12)
SAPS II‡	60	55	57
Predicted mortality, %	71	62	
Outcome			
Survival, no. of patients (%)	0 (0)	2 (12)	2 (8)
Lung autopsy (n = 25) and/or biopsy results			
Strong inflammation, low fungal burden	1/10 (10)	13/16 (81)	14/26 (54)
Scant inflammation, high fungal burden	9/10 (90)	3/16 (19)	12/26 (46)
Sensitivity of test, n/N (%)§			
BAL culture or direct examination positive	5/10 (50)	10/16 (63)	15/26 (60)
<i>Aspergillus</i> GM BAL	9/10 (90)	14/16 (88)	23/26 (88)
<i>Aspergillus</i> GM serum	7/10 (70)	4/16 (25)	11/26 (42)
Median GM value in BAL Day 1 (range)	5.5 0.1–7.9	4.0 0.1–8.0	4.3 0.1–8.0
Median GM value in serum Day 1 (range)	0.7 0.1–5.0	0.1 0.0–7.5	0.3 0.0–7.5

Table 2. Risk of invasive aspergillosis among patients admitted to the intensive care unit (ICU; medical, mixed or surgical).

High-risk category

- Neutropenia (neutrophil count, <500 neutrophils/mm³)
- Hematological malignancy
- Allogeneic bone marrow transplantation

Intermediate-risk category

- Prolonged treatment with corticosteroids before admission to the ICU
- Autologous bone marrow transplantation
- Chronic obstructive pulmonary disease
- Liver cirrhosis with a duration of stay in the ICU >7 days
- Solid-organ cancer
- HIV infection
- Lung transplantation
- Systemic diseases requiring immunosuppressive therapy

Low-risk category

- Severe burns
 - Other solid-organ transplant recipients (e.g., heart, kidney, or liver transplant recipients)
 - Steroid treatment with a duration of ≤ 7 days
 - Prolonged stay in the ICU (>21 days)
 - Malnutrition
 - Post-cardiac surgery status
-

**Sepsis et immunoparalysie ?
Hydrocortisone (7j)?**

Cytomegalovirus Reactivation in Critically Ill Immunocompetent Patients

Ajit P. Limaye; Katharine A. Kirby; Gordon D. Rubenfeld; et al.

JAMA. 2008;300(4):413-422 (doi:10.1001/jama.300.4.413)

- Patients de réanimation « immunocompétents », étude prospective
- Réactivation fréquente en réa
- Absence de facteurs de risque identifiés (hormis sexe masculin)
- Association à augmentation durée de séjour et mortalité

Table 2. CMV Reactivation as Assessed by PCR

CMV Variable	Overall (n = 120)	Burn ICU (n = 20)	Cardiac ICU (n = 20)	Medical ICU (n = 40)	Trauma ICU (n = 40)
CMV viremia at any level, No. (%)	39 (33)	11 (55)	3 (15)	10 (25)	15 (38)
CMV viremia at >1000 copies/mL, No. (%)	24 (20)	9 (45)	1 (5)	6 (15)	8 (20)
CMV viremia at >10 000 copies/mL, No. (%)	11 (9)	4 (20)	0	4 (10)	3 (8)
Maximum CMV load, median (range), log ₁₀ PCR copies	3.3 (1.8-5.5)	3.9 (2.5-5.5)	2.4 (1.8-3.7)	3.4 (2.3-4.8)	3.1 (2.1-4.5)
Days to first detectable CMV viremia, median (range)	12 (3-57)	19 (7-57)	15 (9-21)	8 (3-13)	11 (3-21)
Duration of viremia, median (range), d	17 (2-45)	20 (4-45)	4 (2-17)	18 (4-38)	14 (2-32)

Prophylactic Antibiotics Cannot Reduce Infected Pancreatic Necrosis and Mortality in Acute Necrotizing Pancreatitis: Evidence From a Meta-Analysis of Randomized Controlled Trials

Am J Gastroenterol 2008

Yu Bai, M.D., Jun Gao, M.D., Duo-wu Zou, M.D., and Zhao-shen Li, M.D.

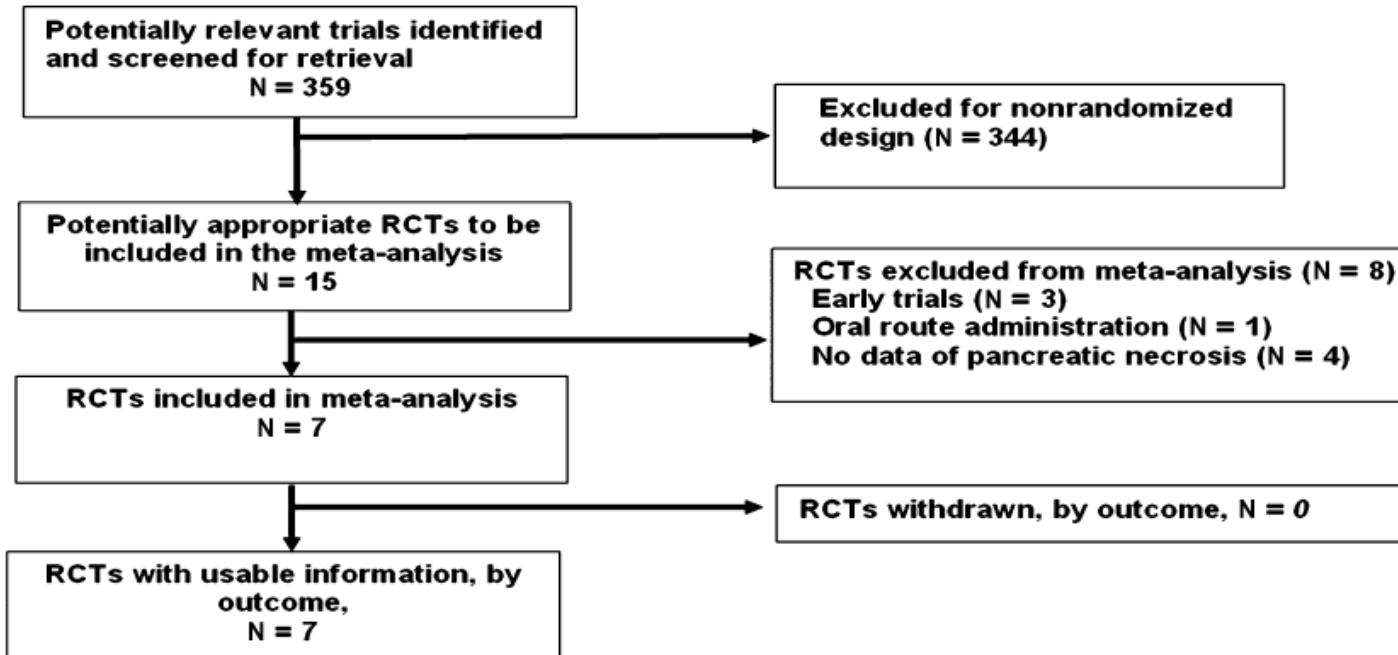


Table 1. Characteristics of RCTs Included in the Meta-Analysis

Author (Ref.)	Year	Setting	Total No.	Blinding	Risk of Bias	Dosage and Duration
Pederzoli (9)	1993	Multicenter	74	Single	High	Imipenem 0.5 g IV 8 hourly
Sainio (22)	1995	Single center	60	Single	High	Cefuroxime 1.5 g IV 8 hourly
Schwarz (23)	1997	Single center	26	Single	High	Ofloxacin 0.2 g b.i.d. IV & metronidazole 0.5 g b.i.d. IV
Nordback (10)	2001	Single center	39	Single	High	Imipenem 1 g IV 8 hourly
Isenmann (11)	2004	Multicenter	76	Double	Low	Ciprofloxacin 0.4 g b.i.d. IV & metronidazole 0.5 g b.i.d. IV
Dellinger (24)	2007	Multicenter	100	Double	Low	Meropenem 0.5 g IV 8 hourly
Rokke (25)	2007	Multicenter	73	No	High	Imipenem 0.5 g IV 8 hourly

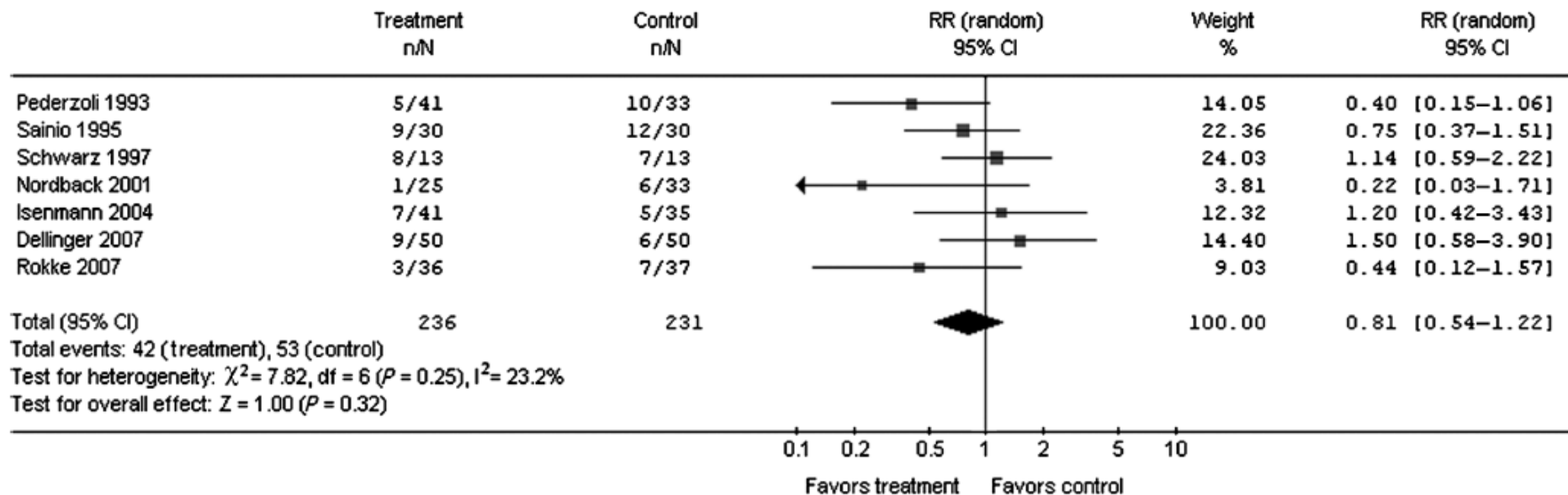


Figure 4. Antibiotic prophylactic effect on infected pancreatic necrosis.

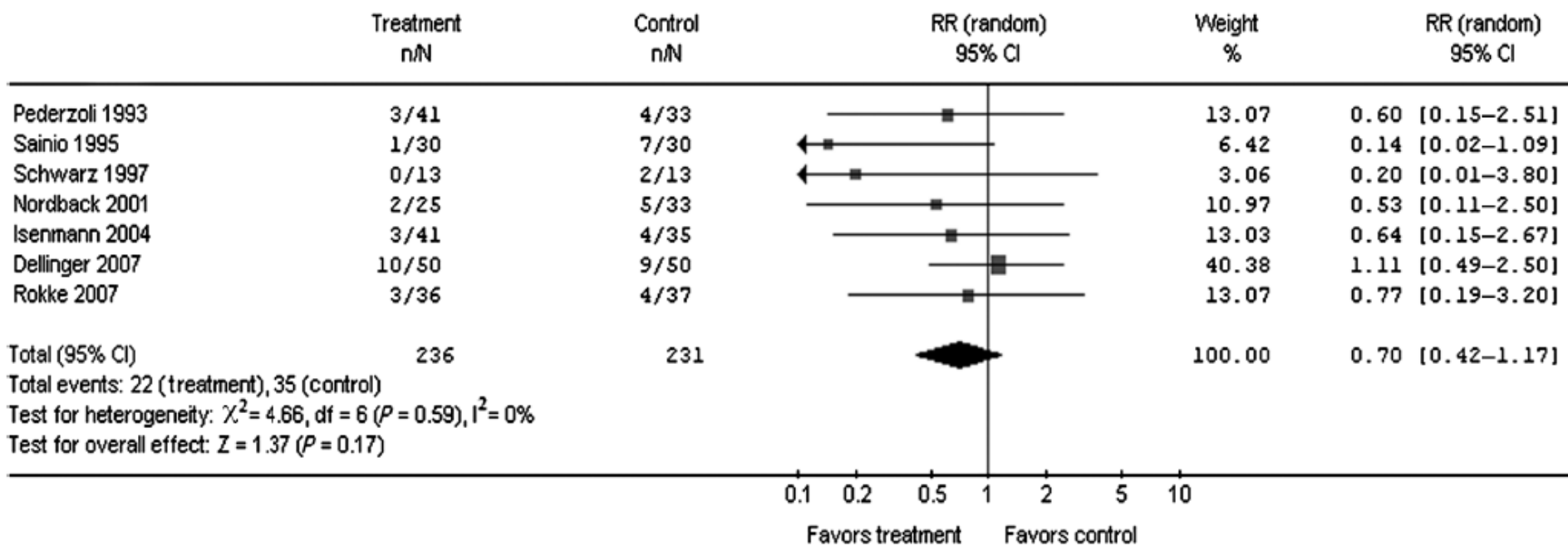


Figure 5. Antibiotic prophylactic effect on mortality.

- Addition de formes graves et bénignes
- Délai entre début des symptômes et administration des ATB non précisé
- Posologie souvent inadaptée aux variations de pharmacocinétique
- Durée variable d'une étude à l'autre

Table 1. Characteristics of the Meta-Analyses Published in 2006–2007.

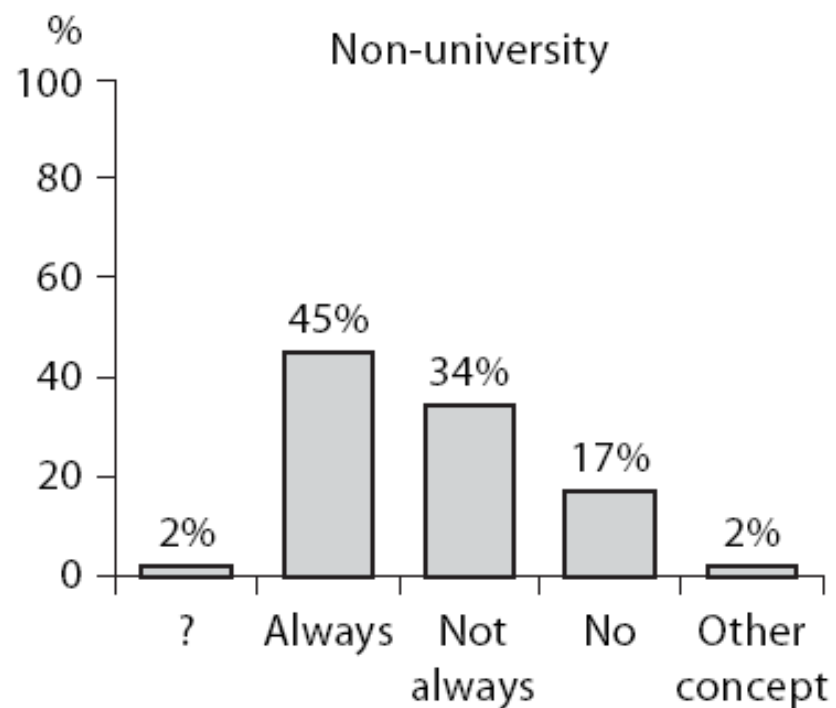
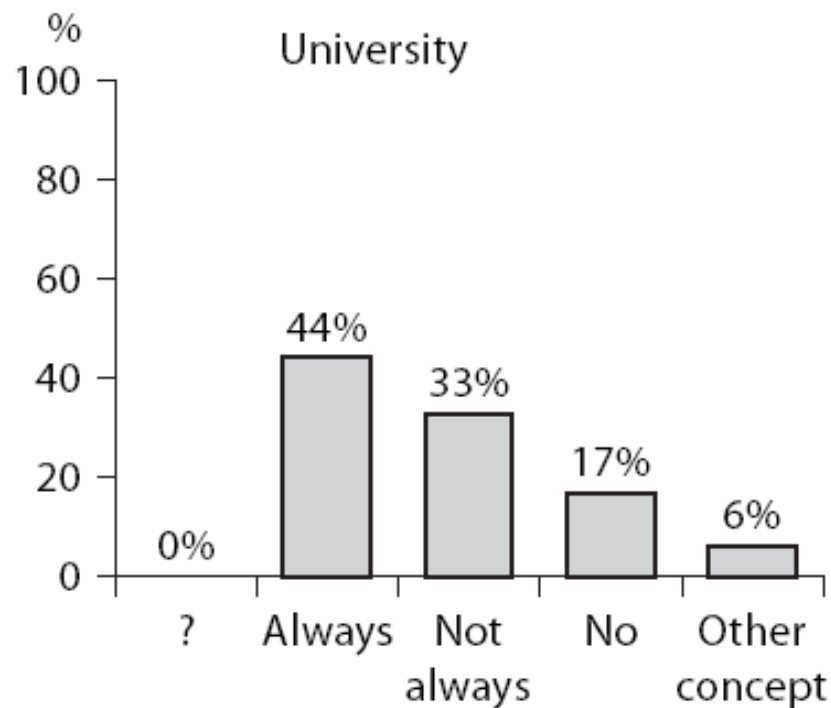
Reference	Time of On-line Publication	Number of Included Trials	Total Number of Patients	Prophylactic Effect of Antibiotics
5	February 2006	6	338	Nonsignificant
9	February 2006	6	390	Significant
10	June 2006	6	329	Nonsignificant
11	October 2006	5	294	Significant
12	April 2007	10	1,279	Significant
13	September 2007	6	397	Nonsignificant
1	October 2007	7	467	Nonsignificant

Une utilisation des antibiotiques qui reste importante....

Conviction par la physiopathologie? (contamination par translocation digestive à la phase précoce = SIRS)

Survey Do German surgeons follow IAP guideline 2?

Prophylactic use of antibiotics in severe acute pancreatitis



Chlorhexidine-Based Antiseptic Solution vs Alcohol-Based Povidone-Iodine for Central Venous Catheter Care

Olivier Mimoz, MD, PhD; Stéphanie Villeminey, MD; Stéphanie Ragot, PharmD, PhD; Claire Dahyot-Fizelier, MD; Leila Laksiri, MD; Franck Petitvas, MD; Bertrand Debaene, MD, PhD

Arch Intern Med. 2007;167(19):2066-2072

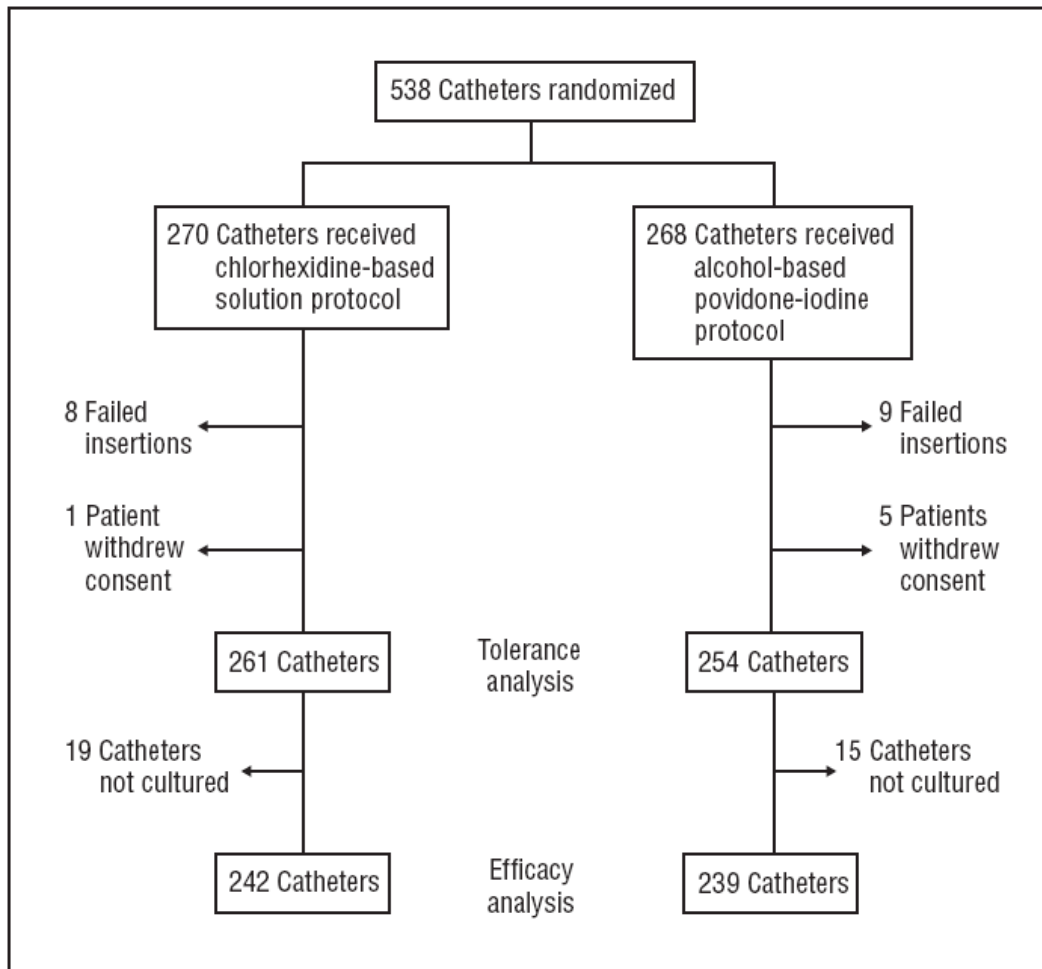
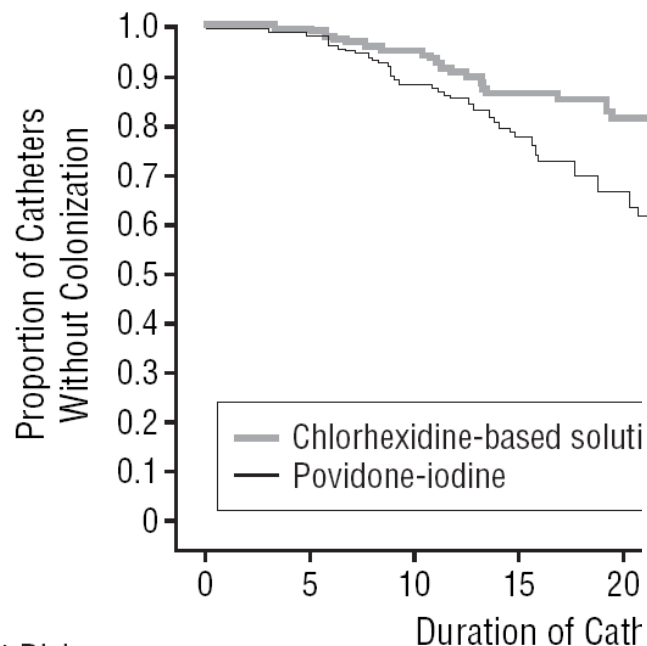


Table 2. Characteristics of Catheters^a

Characteristic	Chlorhexidine-Based Solution	Alcohol-Based Povidone-Iodine	P Value ^b
No. of catheters/patients	242/195	239/204	
Insertion site			
Jugular vein	44 (18.2)	51 (21.3)	.38
Subclavian vein	198 (81.8)	188 (78.7)	
Time from ICU admission to insertion, d			
0	115 (47.5)	121 (50.6)	.79
< 5	56 (23.1)	53 (22.2)	
5-10	25 (10.3)	27 (11.3)	
> 10	46 (19.0)	38 (15.9)	
Insertion complications			
Difficult insertion ^c	36 (14.9)	27 (11.3)	.25
Arterial puncture	13 (5.4)	18 (7.5)	.33
Pneumothorax	4 (1.7)	3 (1.3)	.72
Catheter use			
Antibiotics	194 (80.2)	191 (79.9)	.95
Transfusion	125 (51.7)	124 (51.9)	.96
Parenteral alimentation	48 (19.8)	58 (24.3)	.24
Duration of catheter placement, d			
Mean (SD)	12.0 (9.1)	12.1 (9.2)	.86
≤ 3	38 (15.7)	28 (11.7)	.50
> 3 and ≤ 7	48 (19.8)	52 (21.8)	
> 7 and ≤ 30	147 (60.7)	146 (61.1)	
> 30	9 (3.7)	13 (5.4)	



No. at Risk	0	5	10	15	20
Chlorhexidine-Based Solution	242	184	126	67	39
Povidone-Iodine	239	183	122	69	39

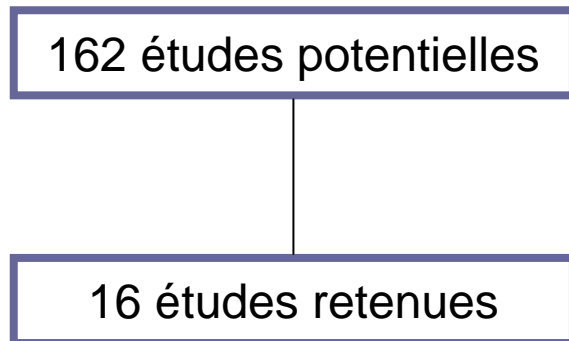
Table 4. Microorganisms Associated With Catheter-Related Bloodstream Infections

Microorganisms	No. of Microorganisms	
	Chlorhexidine-Based Solution (n = 4 Catheters)	Alcohol-Based Povidone-Iodine (n = 10 Catheters)
Gram-positive cocci	2	4
<i>Staphylococcus aureus</i>	2	4
Gram-negative bacilli	1	5
<i>Escherichia coli</i>	0	2
<i>Klebsiella</i> species	0	1
<i>Enterobacter</i> species	0	1
<i>Serratia</i> species	0	1
<i>Pseudomonas</i> species	1	0
Yeasts	1	1
<i>Candida albicans</i>	1	0
<i>Candida parapsilosis</i>	0	1

Antimicrobial Lock Solutions for the Prevention of Infections Associated with Intravascular Catheters in Patients Undergoing Hemodialysis: Systematic Review and Meta-analysis of Randomized, Controlled Trials

Dafna Yahav,^{1,5,a} Benaya Rozen-Zvi,^{2,5,a} Anat Gafter-Gvili,^{3,5} Leonard Leibovici,^{1,5} Uzi Gafter,² and Mical Paul^{4,5}

CID 2008:47 (1 July)



Antibiotiques (n=11)

genta n=3, genta+citrate n=1

genta+vanco n=1

genta+cefazoline n=1

cefotaxime n=2

minocycline+EDTA n=2

Non-antibiotiques (n=5)

citrate n=4

citrate+taurolidine n=1

vs héparine

Bactériémie d'autre origine? Durée d'hospitalisation?

Mortalité n=7

- **Antibiotiques vs héparine:** bénéfique (chacune des études)
 - Taux de bactériémie sur KT
 - Durée de vie du KT
 - Plus efficace si mesures associées (chlorhexidine, mupirocine ...)
- **Non-antibiotique vs héparine:** bénéfique (pool des études)
 - Taux de bactériémie sur KT
 - Durée de vie du KT
 - Infection site d'insertion
- **Conclusion?**
 - Recommandé en routine?
 - Pas d'intérêt sur les infections de KT à répétition
 - Solutions non-antibiotiques efficaces si mesures associées

Risk-factors and predictors of mortality in patients colonised with vancomycin-resistant enterococci

V. Sakka¹, S. Tsiodras¹, L. Galani¹, A. Antoniadou¹, M. Souli¹, I. Galani¹, M. Pantelaki², N. Siafakas², L. Zerva² and H. Giamarellou¹

Clin Microbiol Infect 2008; **14**: 14–21

- 1 cas / 2 contrôles, hors réanimation
- Surveillance: écouvillon rectal: culture, PCR (gènes de résistance) et champs pulsé
- 370 patients, 53 patients + (prévalence 19,7% - 14,4% - 9,5%), *E faecium vanA* (dont 5 résistant au linézolide)
- Aucun cas d'infection à ERV

Variable	OR (95% CI)	P
Risk of VRE colonisation		
Any invasive device	4.8 (1.7–13.5)	0.003
Duration of any antimicrobial treatment before VRE isolation ^a	1.2 (1.1–1.3)	<0.001
Specific antimicrobial exposure ^b		
Anti-anaerobic agents	4.8 (1.9–12)	0.001
Quinolone	4.1 (1.1–15.3)	0.03
Risk of in-hospital death		
Increasing age ^c	1.08 (1.02–1.15)	0.009
Malignancy	8.2 (1.2–53.8)	0.03
VRE colonisation	3.1 (0.6–15.1)	0.2
Chronic renal failure	6.4 (0.8–53.5)	0.09

Vancomycin-resistant enterococci exploit antibiotic-induced innate immune deficits

Katharina Brandl¹†, George Plitas², Coralia N. Mihu¹†, Carles Ubeda¹, Ting Jia¹, Martin Fleisher³, Bernd Schnabl⁴†, Ronald P. DeMatteo² & Eric G. Pamer^{1,3}

nature Vol 455 | 9 October 2008

- Trt ATB: élimination flore commensale, favorise l'implantation de bactéries résistantes
- Modèle souris, trt ATB: diminution expression de RegIII γ = lectine de type C
- Diminution clairance des ERV
- Si stimulation de TLR4 par du LPS, augmentation expression de RegIII γ et récupération de la clairance des ERV