
Le best of des... infections cardiovasculaires

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Menu

- Endocardites infectieuses
 - Épidémiologie
 - Prise en charge thérapeutique
 - Prophylaxie
 - Antibiothérapie anti-*Chlamydia* et prévention secondaire du risque cardiovasculaire
 - Vaccination, infection et infarctus ou AVC
 - Maladie de Kawasaki
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Infective endocarditis in Europe: lessons from the EuroHeart Survey

Table 2 Microorganisms in patients who had blood cultured before antibiotic treatment

	Native valve IE (n=77)	Prosthetic valve IE (n=27)	Total (n=104)
<i>Streptococcus viridans</i>	14%	11%	13%
Enterococci	14%	15%	14%
Other streptococci	19%	4%	15%
<i>Staphylococcus aureus</i>	34%	30%	33%
Other microorganisms	7%	18%	10%
No microorganism	12%	22%	14%

Staphylococcus aureus endocarditis a consequence of medical progress

- ICE: 1779 definite IE cases collected prospectively between Jun '00 and Dec '03

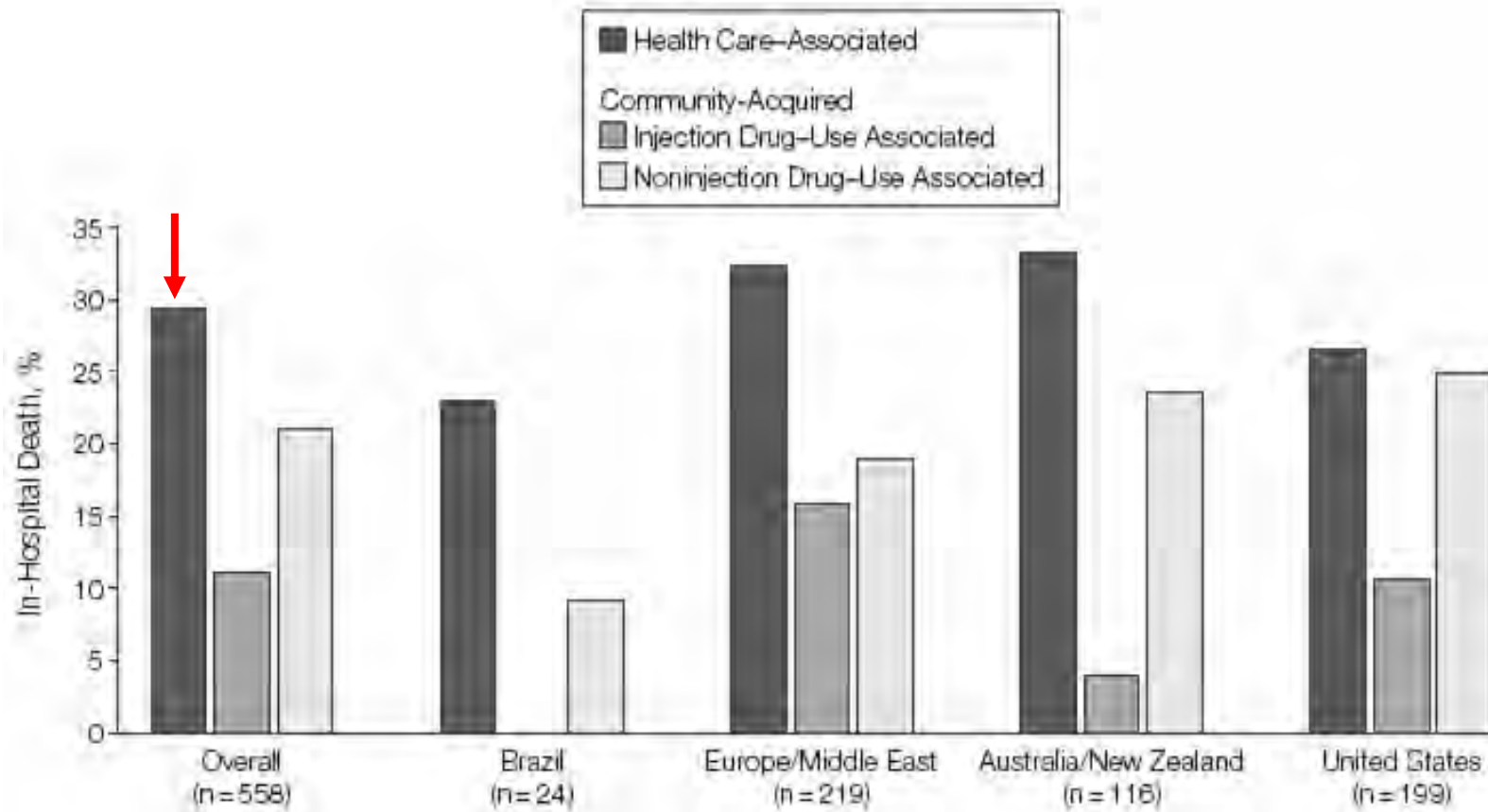
	No. (%)
Staphylococcus	
<i>S aureus</i>	558 (31.6)
Coagulase-negative staphylococci	186 (10.5)
Streptococcus	
Viridans group streptococci	319 (18.0)
<i>Streptococcus bovis</i>	114 (6.5)
Other streptococci	91 (5.1)
Enterococci	188 (10.6)
HACEK	30 (1.7)
Non-HACEK gram-negative bacteria	38 (2.1)
Fungi	32 (1.8)
Polymicrobial	23 (1.3)
Other*	56 (3.1)
Culture negative	144 (8.1)

Staphylococcus aureus endocarditis a consequence of medical progress

- ICE: 1779 definite IE cases collected prospectively between Jun '00 and Dec '03

Characteristics	No. (%)		P Value
	Non- <i>S aureus</i> (n = 1221)	<i>S aureus</i> (n = 558)	
Male sex	868 (71.1)	341 (61.1)	<.001
Age, median (25th-75th percentiles), y	59.3 (45.2-72.2)	56.6 (41.1-70.5)	.007
Type of IE			
Prosthetic valve	276 (22.6)	86 (15.4)	23.7% <.001
Native valve	846 (69.3)	401 (71.9)	32.1% .27
Other and unknown	99 (8.1)	71 (12.7)	.002

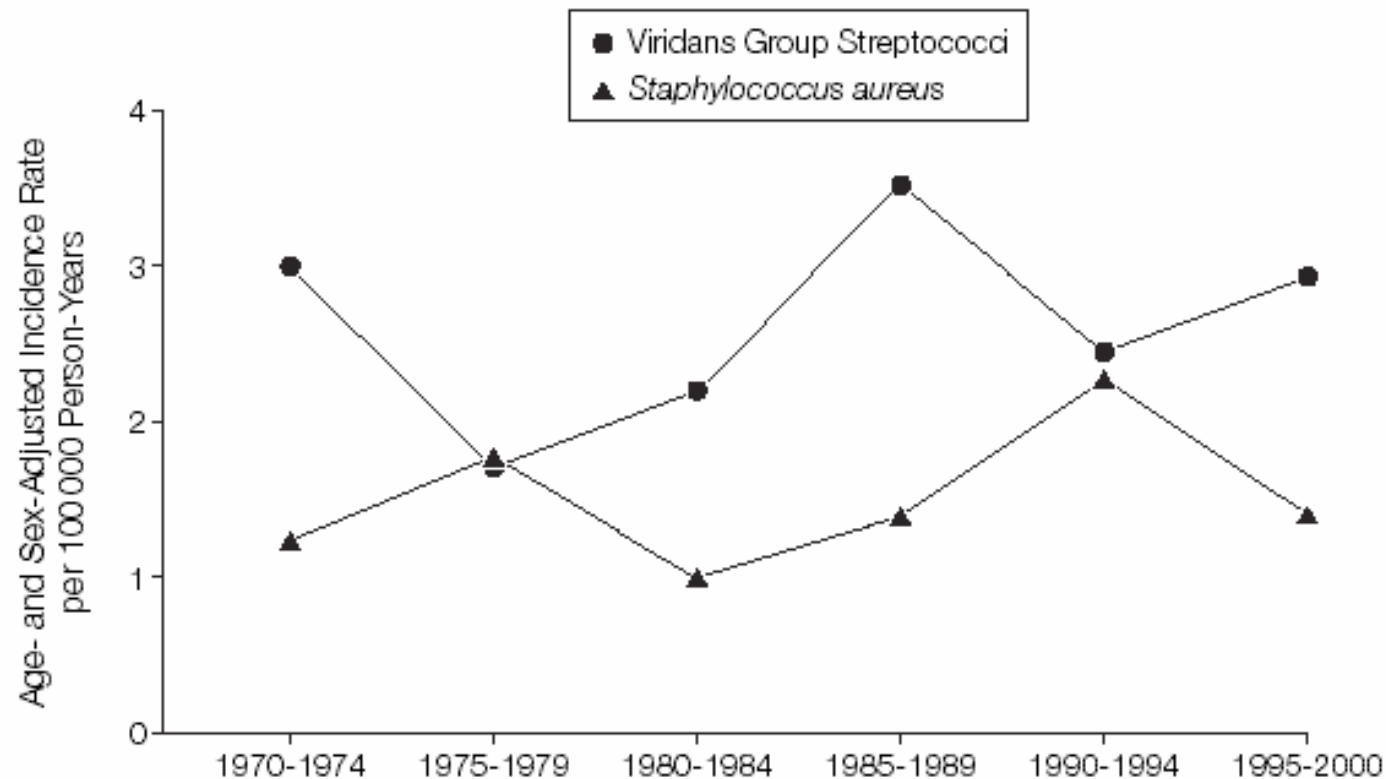
Staphylococcus aureus endocarditis a consequence of medical progress



Temporal Trends in Infective Endocarditis

A Population-Based Study in Olmsted County, Minnesota

- Incidence of IE ranged from 5 to 7 cases per 10^5 person-years and did not change significantly over time ($P=.42$ for trend).



Staphylococcus aureus native valve infective endocarditis:
Report of 566 episodes from the ICE merged database

- International Collaboration on Endocarditis MD
 - combination of 7 existing databases from 5 countries
 - 2212 cases of definite infective endocarditis (IE).
- 1640 patients with native valve IE
 - 566 patients (34%) had IE due to *S. aureus*,
 - 1074 patients (66%) had IE due to other pathogens
- Patients with *S. aureus* IE were more likely to
 - die (20% vs. 12%; $p < 0.001$)
 - experience an embolic event (60% vs. 31%; $p < 0.001$)
 - more likely to develop a CNS event (20% vs. 13%; $p < 0.001$)
 - NOT undergo surgery (26% vs. 39%; $p < 0.001$)

Staphylococcus aureus native valve infective endocarditis:
Report of 566 episodes from the ICE merged database

Prognostic factors – Multivariate analysis

	OR	95% CI
Age	1.4	1.1 – 1.7
Periannular abscess	2.4	1.1 – 5.6
Heart failure	3.9	2.3 – 6.7
No surgery	2.3	1.3 – 4.2

Native Valve Endocarditis due to Coagulase-Negative Staphylococci: Report of 99 Episodes from the ICE Merged Database

Variable	Infecting organism			P value CoNS vs. <i>S. aureus</i>	P value CoNS vs. viridans group streptococci
	CoNS	<i>S. aureus</i>	Viridans group streptococci		
Total no. of patients	99	353	478		
Demographics					
Age, median years (25th–75th percentile)	68 (50–75)	63 (49–73)	59 (43–71)	.26	<.01
Male sex	76/99 (77)	223/353 (62)	329/476 (69)	<.01	.13
Place of acquisition					
Health care associated ^a	27/67 (40)	64/194 (33)	4/293 (1.36)	.36	<.001
Community	40/67 (60)	127/194 (65)	289/293 (99)	.36	<.001
Complications and outcome					
Heart failure	49/99 (49)	147/351 (42)	147/478 (31)	.18	<.001
Cardiac abscess	15/99 (15)	29/353 (8.2)	38/478 (8)	.04	.03
Surgery	53/99 (54)	123/353 (35)	167/478 (35)	<.001	<.001
In-hospital mortality	19/99 (19)	89/352 (25)	31/471 (6.6)	.21	<.001

Risk of Embolism and Death in IE: prognostic value of echocardiography

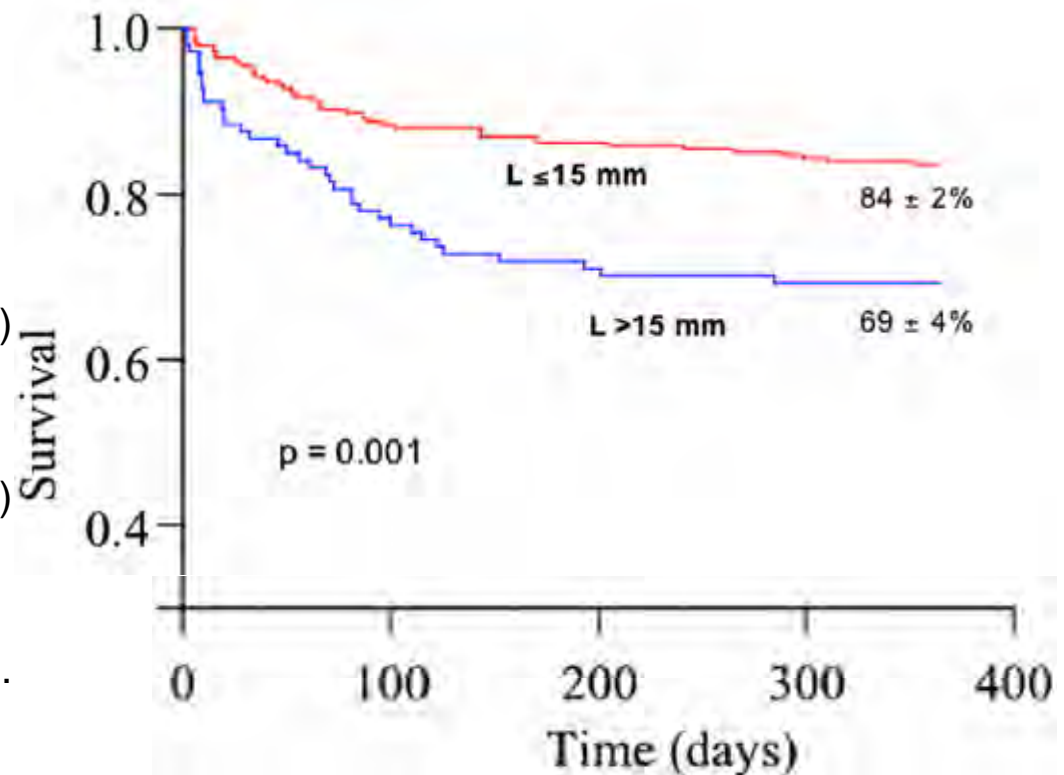
- Multicenter prospective European study
 - 384 consecutive patients – TEE performed in all patients.
- Embolism occurred
 - at any time (total-EE) in 131 patients (34.1%)
 - after start of antibiotics (new-EE) in 28 patients (7.3%).

	<i>P</i>	Adjusted Odds Ratio	95% CI
Total-EE			
<i>S bovis</i>	<0.001	3.9	1.86–8.21
<i>S aureus</i>	0.002	2.4	1.15–4.83

Risk of Embolism and Death in IE: prognostic value of echocardiography

- 1 year-mortality: 20.6%
 - 9.6% in hospital stay
 - 11% after discharge
 - 62% due do IE lesions
- By multivariable analysis, baseline predictors of 1-year mortality were
 - Vegetation length > 15 mm (RR 1.7; 95%CI 1.1–2.64; $P=0.03$)
 - Higher age (RR 1.02; 95%CI 1.0–1.04; $P=0.009$)
 - female sex (RR 1.6; 95%CI 1.01–2.57; $P=0.04$)
 - serum creatinine >2 mg/dL (RR 2.1; 95%CI 1.29–3.46; $P=0.003$)
 - *S aureus* (RR 1.9; 95%CI, 1.16–3.14; $P=0.01$)
 - moderate or severe CHF (RR 1.6; 95%CI, 1.02–2.54; $P=0.04$).

1-year survival according to vegetation length

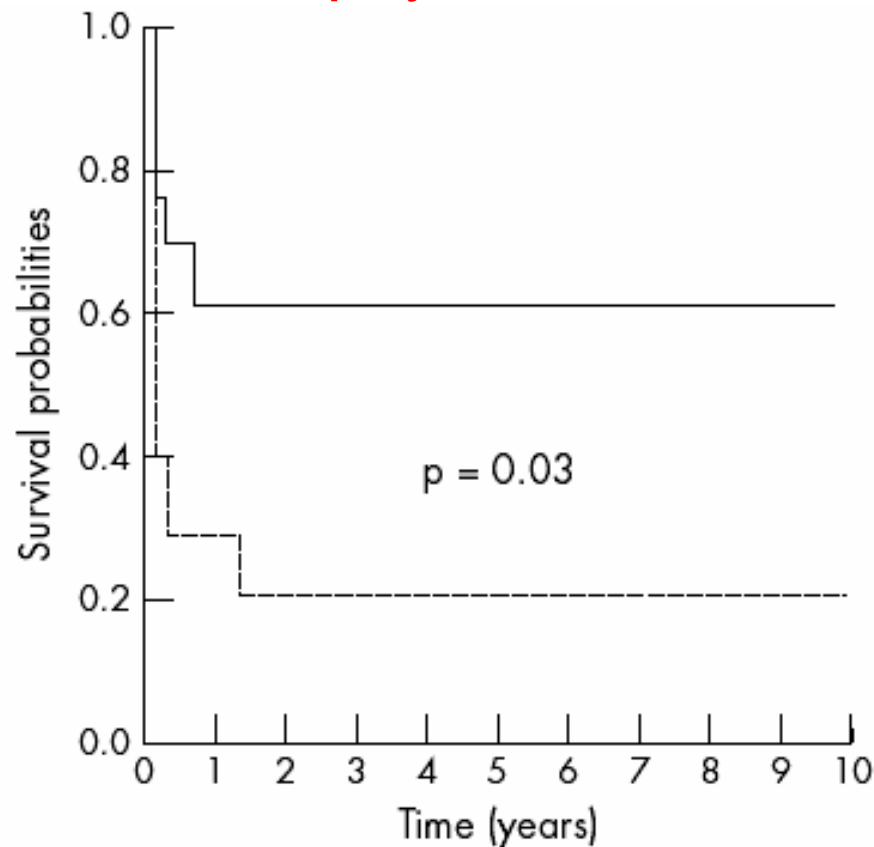


Prosthetic valve endocarditis: who needs surgery? A multicentre study of 104 cases

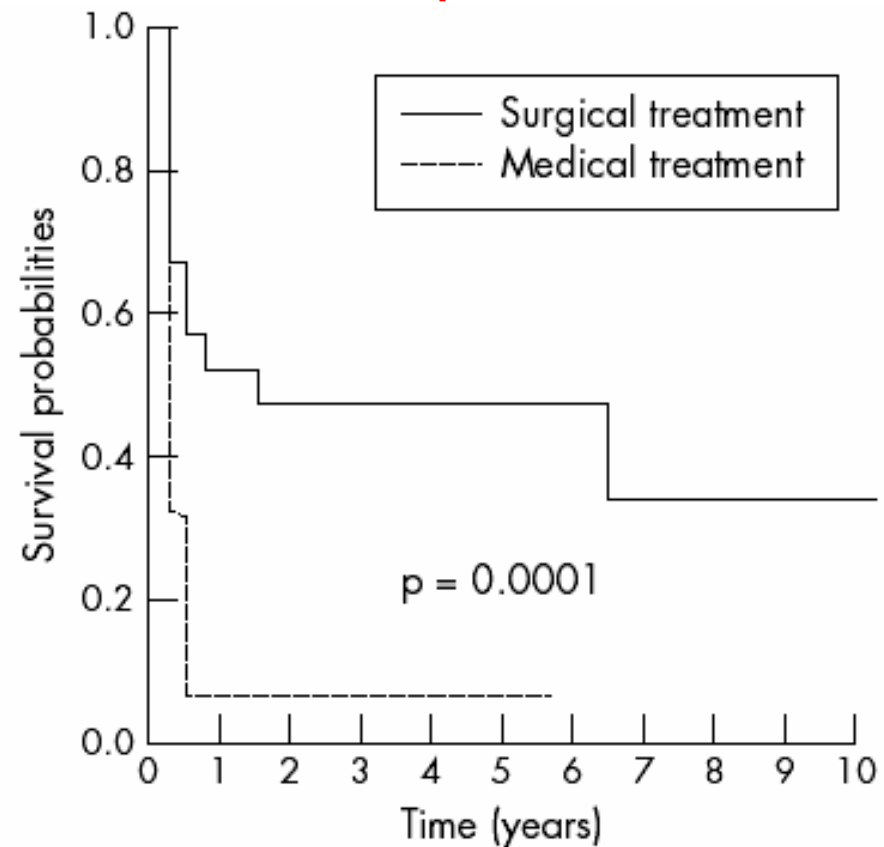
Logistic regression analysis			
Predictors of in-hospital mortality	p Value	Adjusted OR	95% CI
Severe heart failure	0.002	5.5	1.9 to 16.1
<i>S aureus</i>	0.002	6.1	1.9 to 19.2

Prosthetic valve endocarditis: who needs surgery? A multicentre study of 104 cases

Staphylococcal PVE



Complicated PVE



Risk of endocarditis among patients with prosthetic valves and *S. aureus* bacteremia

- 12-week prospective evaluation of all patients with a PV or ring who developed *S. aureus* bacteremia.
- Overall rate of definite PV IE : 26/51 (51%).
- The risk of endocarditis was similar in patients with
 - late (>12 months after valve implantation) vs. early *S. aureus* bacteremia (50% vs.52%, NS),
 - mitral vs. aortic prostheses (62% vs. 48%, NS),
 - mechanical vs. bioprosthetic valves (62% vs. 44%, NS).
- All patients with a prosthetic valve who develop *S. aureus* bacteremia should be aggressively screened for the diagnosis of endocarditis.

Endocardites fongiques : de nouvelles perspectives thérapeutiques ?

- Native valve endocarditis due to *Candida glabrata* treated without valvular replacement: a potential role for caspofungin in the induction and maintenance treatment
 - MJ Jimenez-Esposito, Clin Infect Dis 2004; 39(7):e70
 - *Candida* prosthetic valve endocarditis cured by caspofungin therapy without valve replacement
 - R Rajendram, Clin Infect Dis 2005; 40(9):e72
 - Successful treatment of *Aspergillus* prosthetic valve endocarditis with oral voriconazole
 - LJ Reis, Clin Infect Dis 2005; 41(5):752
-

Infective endocarditis in Europe: lessons from the EuroHeart Survey

Prophylaxis awareness among patients at risk

- In patients with native valve IE
 - 50% educated about prophylaxis
 - 33% regular dental follow-up
- In patients with prosthetic valve IE
 - 77% educated about prophylaxis
 - 53% regular dental follow-up

Infective Endocarditis

**Diagnosis, Antimicrobial Therapy, and Management of Complications
A Statement for Healthcare Professionals From the Committee on Rheumatic
Fever, Endocarditis, and Kawasaki Disease, Council on Cardiovascular
Disease in the Young, and the Councils on Clinical Cardiology, Stroke, and
Cardiovascular Surgery and Anesthesia, American Heart Association**

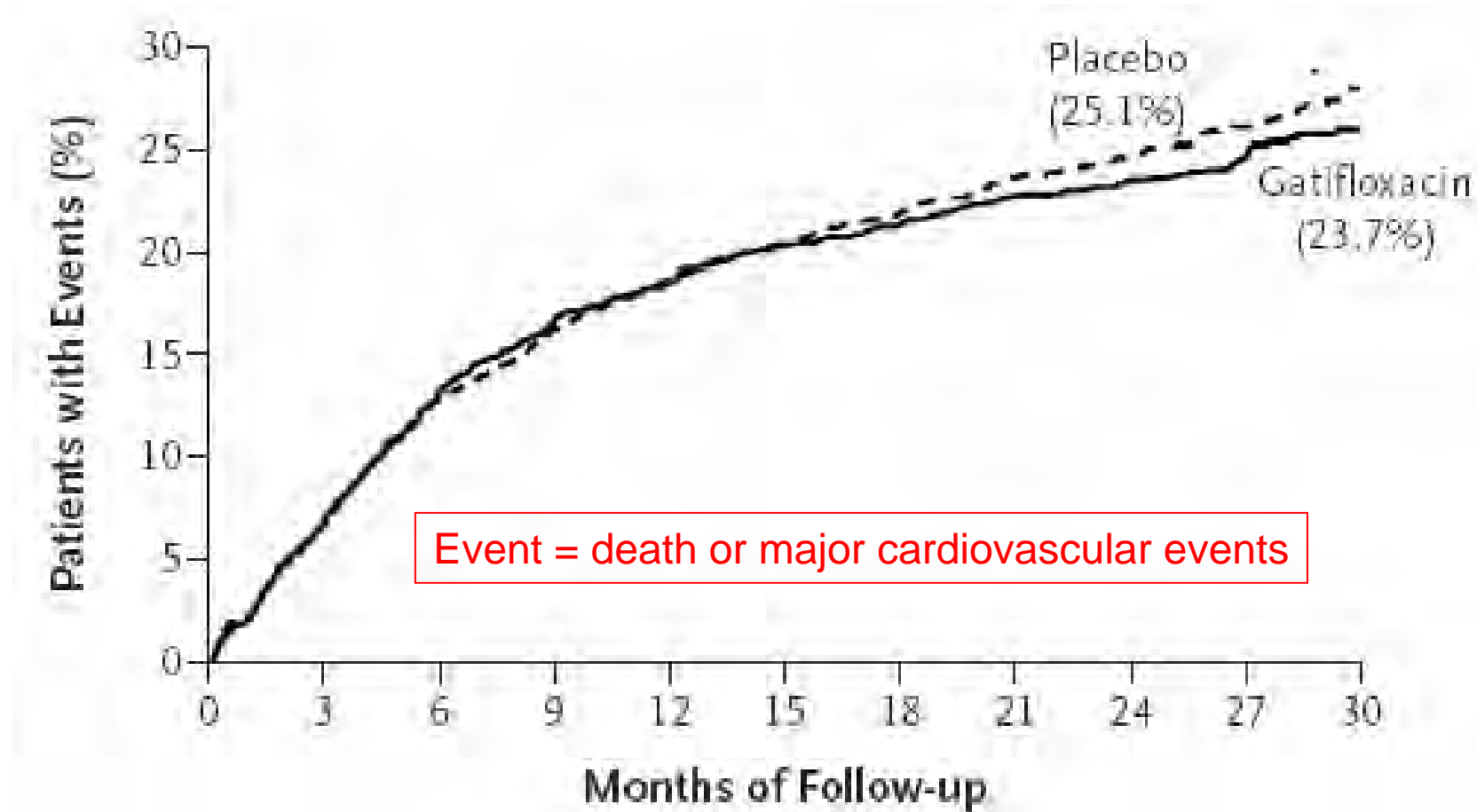
Endorsed by the Infectious Diseases Society of America

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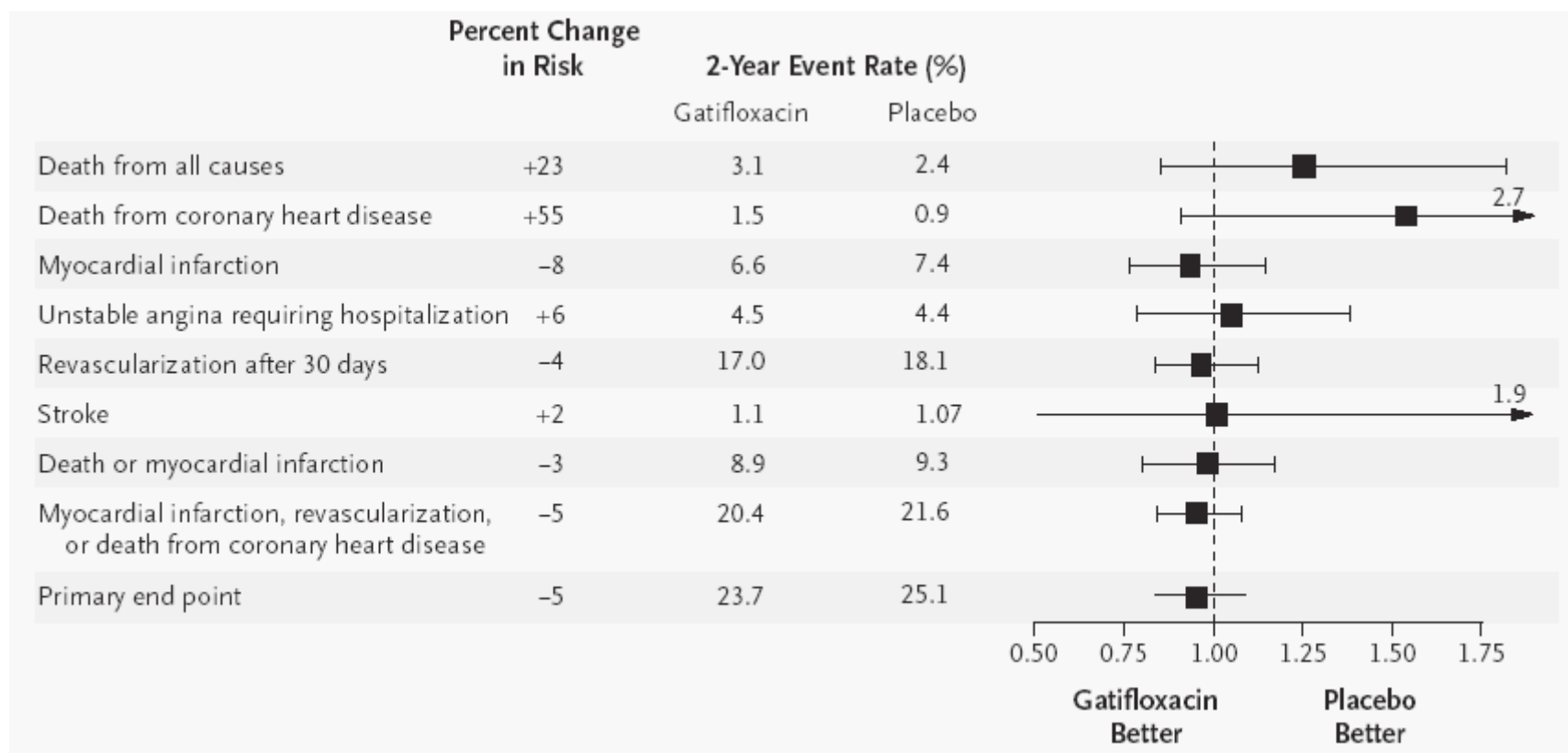
Antibiotic Treatment of *Chlamydia pneumoniae* after Acute Coronary Syndrome

- Double-blind, randomized, placebo-controlled trial
- 4162 patients hospitalized for an acute coronary syndrome within the preceding 10 days
- Gatifloxacin 400 mg daily or matching placebo
 - initial 2-week course starting 2 weeks after randomization,
 - subsequent 10-day course every month for a mean of 2 years.
- The primary end point was a composite of death from all causes, myocardial infarction, documented unstable angina requiring rehospitalization, revascularization (performed at least 30 days after randomization), and stroke.

Antibiotic Treatment of *Chlamydia pneumoniae* after Acute Coronary Syndrome



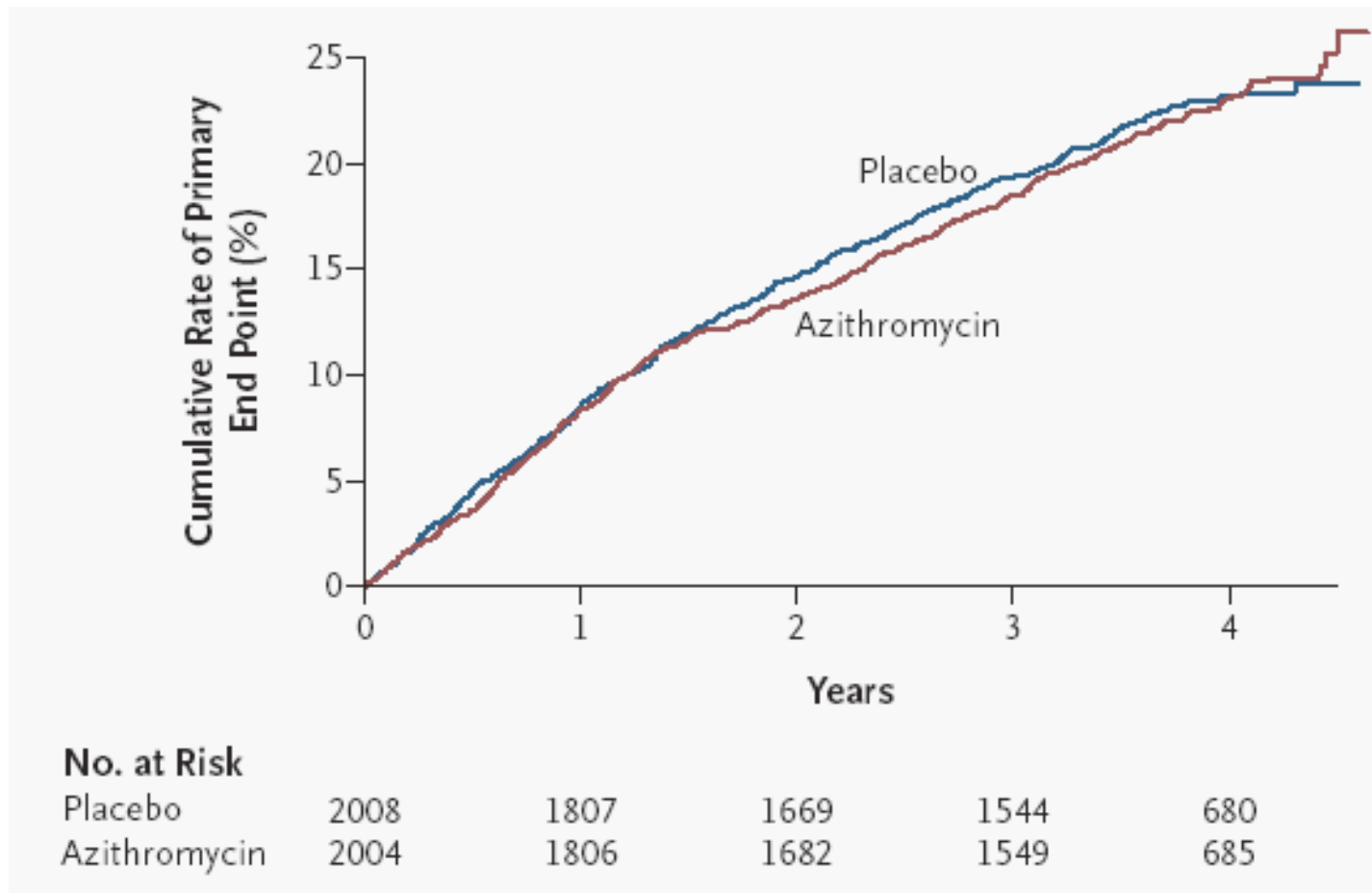
Antibiotic Treatment of *Chlamydia pneumoniae* after Acute Coronary Syndrome



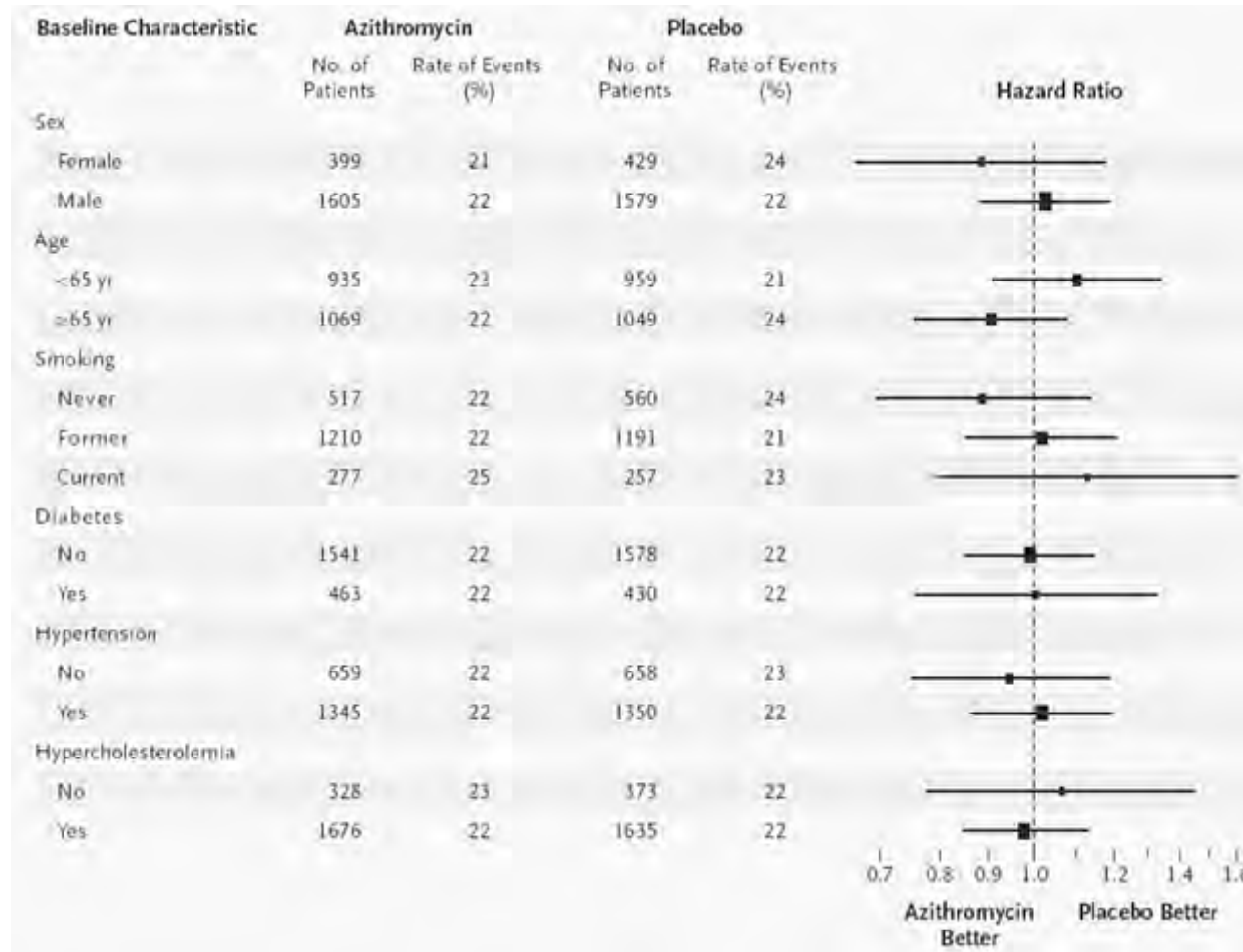
Azithromycin for the Secondary Prevention of Coronary Events

- Double-blind randomized placebo-controlled trial
- 4012 patients with documented stable coronary artery disease
- Azithromycin 600 mg weekly or placebo for one year
- Participants were followed for a mean of 3.9 years
- Primary endpoint : a composite of death due to coronary heart disease, nonfatal myocardial infarction, coronary revascularization, or hospitalization for unstable angina.

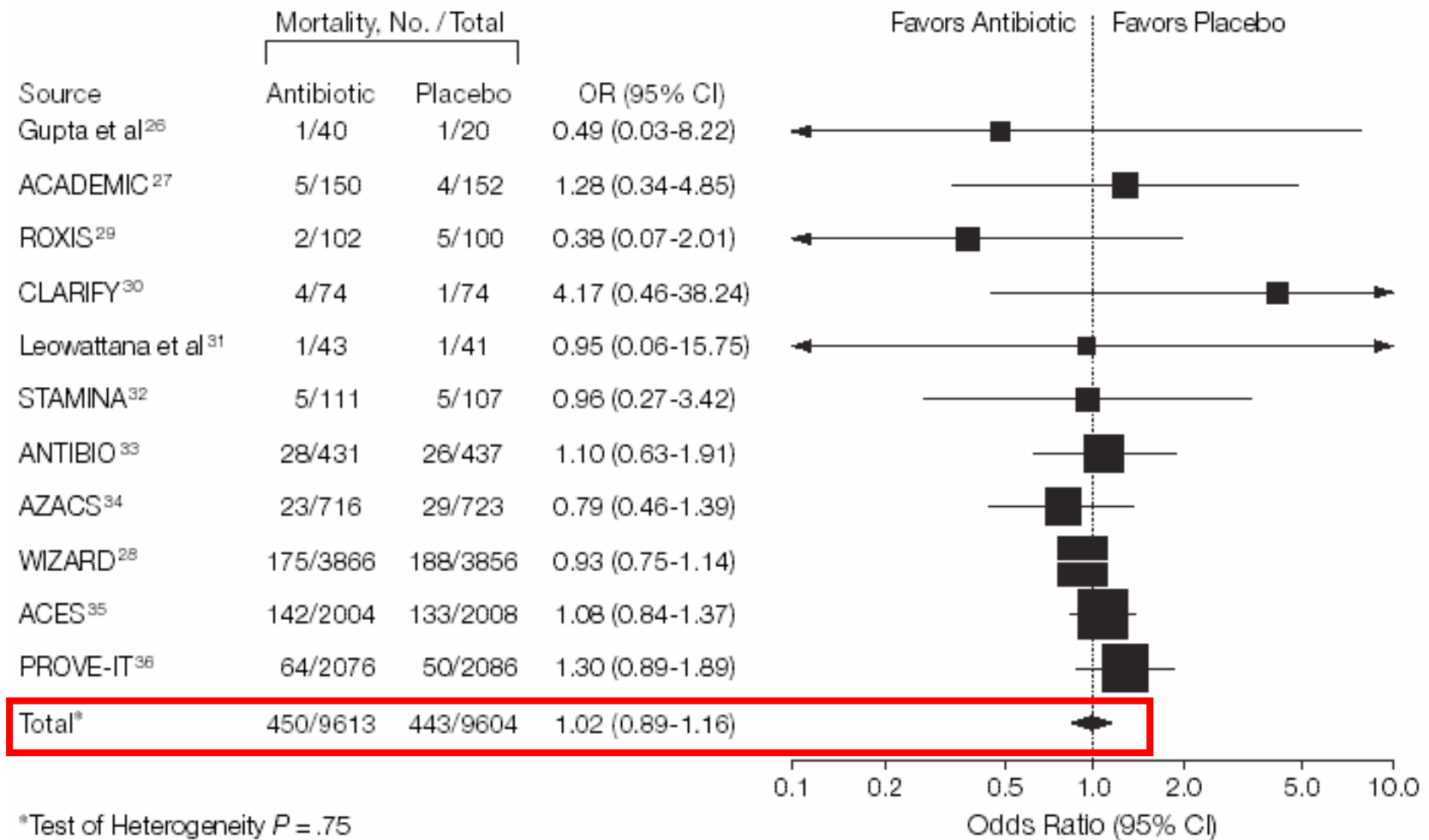
Azithromycin for the Secondary Prevention of Coronary Events



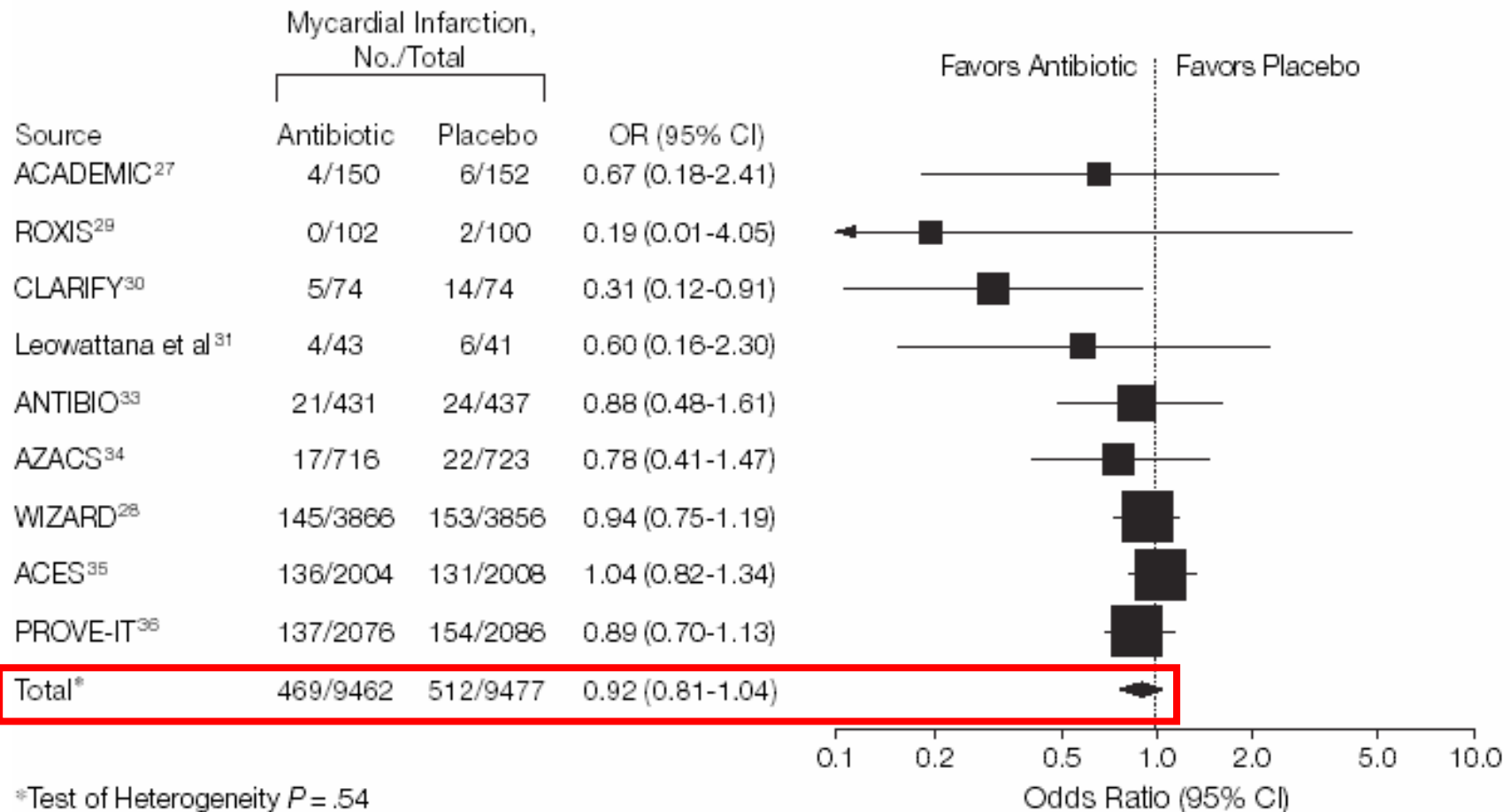
Azithromycin for the Secondary Prevention of Coronary Events



Effects of antibiotic therapy on outcomes of patients with coronary artery disease: a meta-analysis of RCT



Effects of antibiotic therapy on outcomes of patients with coronary artery disease: a meta-analysis of RCT

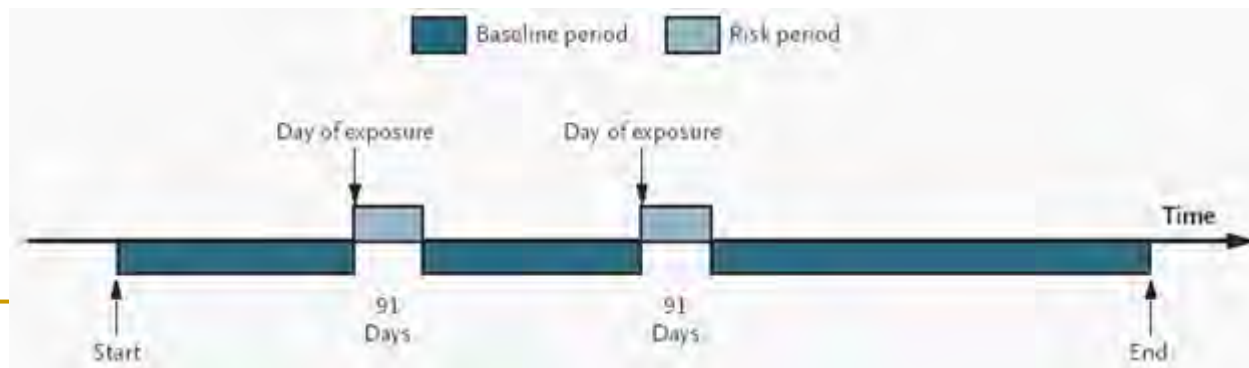


Antibiothérapie anti-*Chlamydia* et maladies coronariennes : est-ce bien fini ?

- Effects of a brief course of Azithromycin on soluble cell adhesion molecules and markers of inflammation in survivors of an acute coronary syndrome: a double-blind, randomized, placebo controlled study
 - GS Hillis, Am Heart J 2004;148:72–9
 - Infection, antibiotics, and atherothrombosis: end of the road or new beginnings?
 - JL Anderson, N Engl J Med 2005;352:1706-08
-

Risk of Myocardial Infarction and Stroke after Acute Infection or Vaccination

- ❑ United Kingdom General Practice Research Database, which contains computerized medical records of > 5 million patients
- ❑ Extraction of patients who had received 1 or 2 new diagnoses of myocardial infarction or stroke during the period of at least six months after the start of their follow-up in the GPRD.
- ❑ Exposure:
 - influenza, tetanus or pneumococcal vaccination
 - Acute systemic UTI or RTI
- ❑ Within-person comparisons, using the case-series method



Risk of Myocardial Infarction and Stroke after Acute Infection or Vaccination

Age-Adjusted Incidence Ratios of a First Myocardial Infarction

Outcome and Risk Period	Influenza Vaccination (N=20,486)		Tetanus Vaccination (N=7966)		Pneumococcal Vaccination (N=5925)		Systemic Respiratory Tract Infection (N=20,921)		Urinary Tract Infection (N=10,448)	
	No. of Cases	IR (95% CI)	No. of Cases	IR (95% CI)	No. of Cases	IR (95% CI)	No. of Cases	IR (95% CI)	No. of Cases	IR (95% CI)
Myocardial infarction										
1-3 days	77	0.75 (0.60-0.94)	12	1.10 (0.62-1.92)	4	0.49 (0.19-1.32)	322	4.95 (4.43-5.53)	58	1.66 (1.28-2.14)
4-7 days	94	0.68 (0.56-0.84)	17	1.16 (0.72-1.87)	12	1.11 (0.63-1.96)	276	3.20 (2.84-3.60)	75	1.61 (1.28-2.02)
8-14 days	176	0.73 (0.63-0.85)	25	0.97 (0.66-1.44)	23	1.22 (0.81-1.84)	422	2.81 (2.54-3.09)	100	1.22 (1.00-1.49)
15-28 days	417	0.87 (0.79-0.96)	46	0.89 (0.66-1.19)	43	1.15 (0.85-1.55)	576	1.95 (1.79-2.12)	217	1.32 (1.16-1.52)
29-91 days	2,154	1.03 (0.98-1.08)	253	1.07 (0.94-1.21)	177	1.10 (0.95-1.28)	1,658	1.40 (1.33-1.48)	820	1.23 (1.14-1.33)
Baseline period	17,533	1.00	7605	1.00	5662	1.00	17,099	1.00	9079	1.00

Risk of Myocardial Infarction and Stroke after Acute Infection or Vaccination

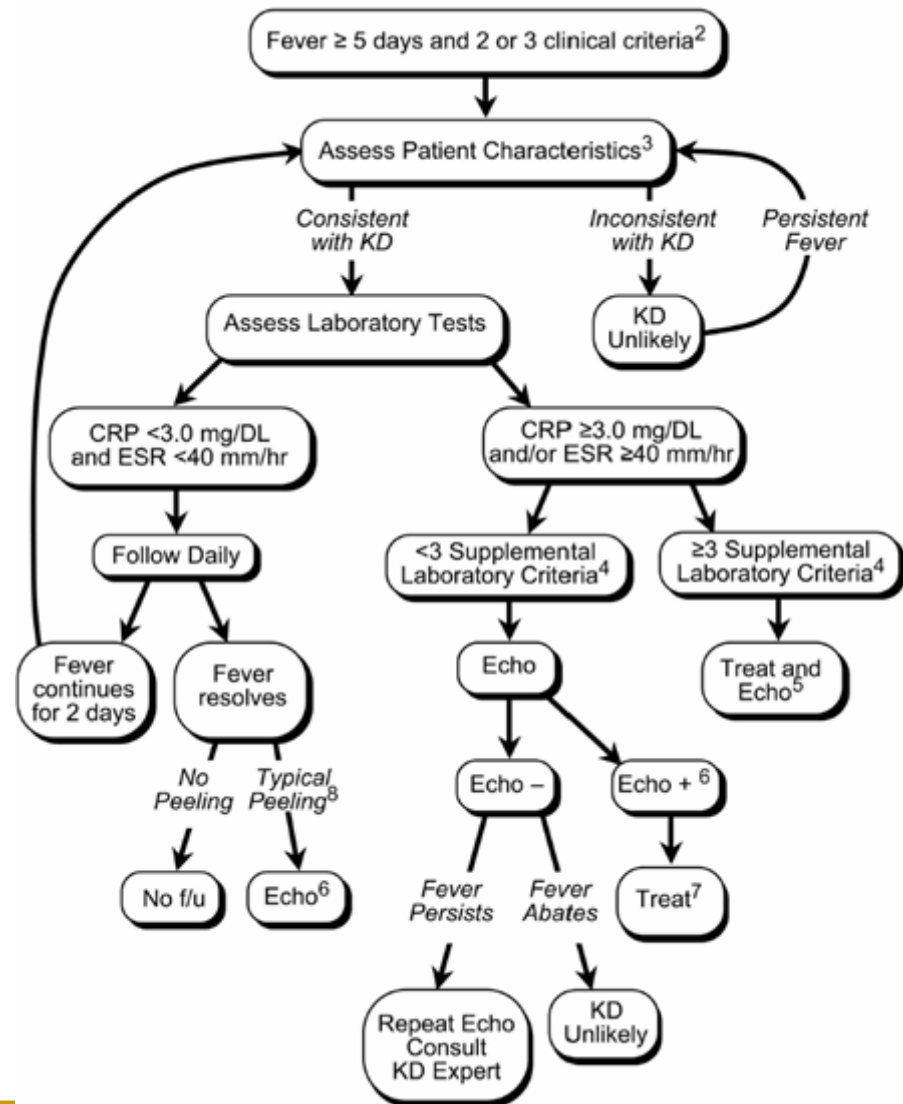
Age-Adjusted Incidence Ratios of a First Stroke

	Influenza Vaccination (N=19,063)		Tetanus Vaccination (N=6155)		Pneumococcal Vaccination (N=4416)		Systemic Respiratory Tract Infection (N=22,400)		Urinary Tract Infection (N=14,603)	
	No. of Cases	IR (95% CI)	No. of Cases	IR (95% CI)	No. of Cases	IR (95% CI)	No. of Cases	IR (95% CI)	No. of Cases	IR (95% CI)
Stroke										
1-3 days	76	0.77 (0.61-0.96)	11	1.33 (0.74-2.41)	9	1.29 (0.67-2.49)	244	3.19 (2.81-3.62)	152	2.72 (2.32-3.20)
4-7 days	95	0.72 (0.59-0.88)	15	1.36 (0.82-2.26)	10	1.08 (0.58-2.01)	237	2.34 (2.05-2.66)	158	2.12 (1.81-2.48)
8-14 days	194	0.84 (0.73-0.96)	15	0.77 (0.46-1.28)	19	1.18 (0.75-1.85)	368	2.09 (1.89-2.32)	245	1.89 (1.65-2.13)
15-28 days	409	0.88 (0.80-0.97)	40	1.02 (0.74-1.39)	29	0.90 (0.63-1.30)	561	1.68 (1.54-1.82)	445	1.71 (1.55-1.88)
29-91 days	2,051	1.01 (0.96-1.06)	209	1.15 (1.00-1.32)	160	1.15 (0.98-1.35)	1,650	1.33 (1.26-1.40)	1,250	1.22 (1.15-1.30)
Baseline period	16,188	1.00	5853	1.00	4184	1.00	18,056	1.00	12,164	1.00

Management of Kawasaki Disease

A statement from AHA

- Critères diagnostiques
 - Fièvre ≥ 5 jours
 - ≥ 4 signes parmi les 5 suivants
 - Anomalies extrémités
 - Conjonctivite bilatérale
 - Chéilite – stomatite
 - Éruption cutanée
 - Adénopathies cervicales
- Critères pour initier le trt
 - ≥ 4 signes
 - Dès le 4^{ème} jour de fièvre
 - < 4 signes
 - si anévrisme coronarien
 - Algorithme ci-contre



Management of Kawasaki Disease

A statement from AHA

- Traitement de première intention
 - Aspirine
 - 80-100 mg/kg/j en 4 prises à la phase aiguë
 - Diminution de dose après disparition de la fièvre
 - IVIG
 - 2 g/kg en une seule administration
 - Avant J10, idéalement avant J7
 - Pas de vaccin rougeole/varicelle pendant 11 mois
 - Corticothérapie
 - Utilité non établie si IVIG
- CAT en cas de non réponse au premier traitement
 - Nouvelle cure d'IVIG
 - Methylprednisolone, 30 mg/kg en 2 à 3 heures pendant 1 à 3 j, si échec de 2 cures d'IVIG
 - Infliximab si échec persistant ?