Neutropénie fébrile
Urgence majeure

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Conflit d'intérêt

- Aucun conflit d'intérêt en relation avec le sujet traité

Comment définir la neutropénie fébrile?

Fièvre > 38°C à 2 reprises ou > 38,5°C

ET

Neutropénie

- Taux de polynucléaires neutrophiles inférieur à:
  - Valeur inférieure de la normale (1400/mm³)
  - Significatif < 1000/mm³
    < 500/mm³
    < 100/mm³

Why Do Patients With Cancer Visit Emergency Departments? Results of a 2008 Population Study in North Carolina

Deborah K. Mayer, Debbie Travers, Annah Wyss, Ashley Leak, and Anna Waller

Chest pain	2,429	
Abdominal pain	3,044	
Back pain	900	
Extremity	888	
Other	1,971	
Respiratory	5,856	2
Respiratory distress/SOB	4,711	
Cough	591	
Hemoptysis	120	
Fever/possible pneumonia	282	
COPD	137	
Other	229	
GI	3,280	3
Nausea/vomiting	2,543	
Diarrhea	568	
Constipation	187	
Bowel obstruction	55	
Other	243	
Malaise	2,577	4
Neurologic	2,218	5
Bleeding	2,184	6
Fever	2,000	7
Injury	1,930	8
Falls	1,262	
Lacerations	81	
Bites	38	
MVA	133	
Other	447	
Cancer	1,724	9
Syncope	1,071	10
Blood clots	115	11
Allergic reaction	111	12
Psychiatric	99	13

J Clin Oncol 2011

La fièvre chez les patients se présentant aux urgences d'un hôpital cancérologique : place de la neutropénie fébrile

Febrile neutropenia at the emergency department of a cancer hospital

C. Debey[1,2], A.-P. Meert[1], T. Berghmans[1], J.-M. Thomas[2] et J.-P. Sculier[1]

[1]Unité des Soins Intensifs médico-chirurgicaux et Urgences oncologiques & Oncologie Thoracique, Institut Jules Bordet, Centre des Tumeurs de l'ULB, [2]Département de Médecine générale, ULB

- Période du 1/1/2008 au 31/12/2008
- 2130 consultations aux urgences de l'Institut Bordet
- 408 consultations pour fièvre
  - 88 (21,6%) pour neutropénie fébrile

Debey et al, Rev Med Brux 2011: 74

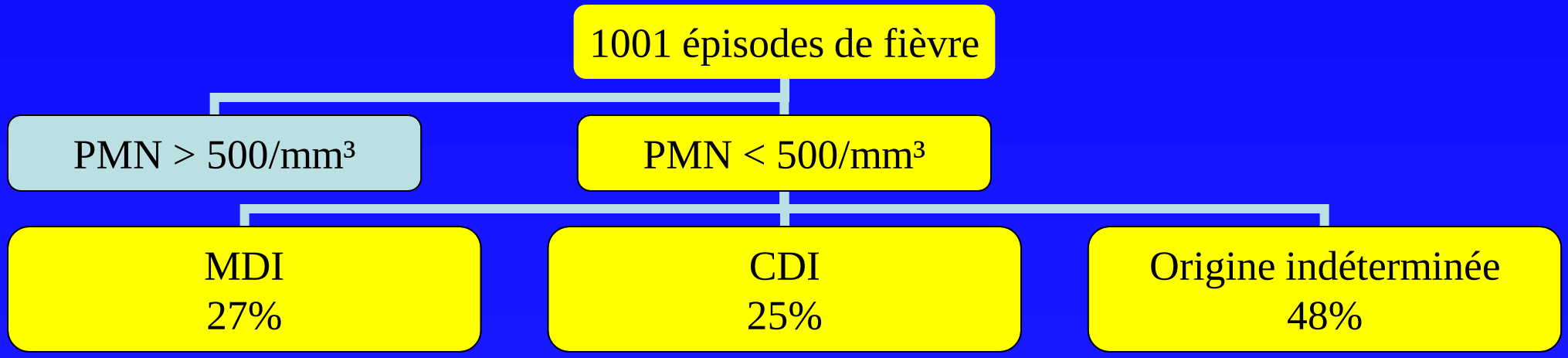
Emergency department visits for symptoms experienced by oncology patients: a systematic review

Table 6 Symptoms for which patients visit the emergency department

Symptom	All included studies (n=18 studies)			Multi-symptom focus (n=8 studies)		
	Median % (min–max)	Quartiles 25th, 75th	No. studies reporting	Median % (min–max)	Quartiles 25th, 75th	No. studies reporting
Altered nutrition	8 (1–11)	2, 10	3	8 (1–11)	2, 10	3
Fever and infection	23 (4–100)	11, 67	14			
Febrile neutropenia	58 (4–100)		8			
Fever	18 (11–100)		9			
Infection	42 (6–86)		4			
Sepsis	36 (27–45)		2			
Jaundice	9 (7–10)		2	7 (7–7)		1
Mucositis	17 (4–30)		2	4 (4–4)		1
Fever and infection	23 (4–100)	11, 67	14	11 (4–86)	7, 21	7
Febrile neutropenia	58 (4–100)		8	8 (4–15)		4
Fever	18 (11–100)		9	14 (11–23)		5
Infection	42 (6–86)		4	46 (6–86)		2
Sepsis	36 (27–45)		2	27 (27–27)		1
Respiratory	10 (4–100)	6, 20	10	11 (4–28)	6, 17	5
Dyspnea	13 (6–100)		8	12 (6–28)		4
Cough	8 (4–11)		2	8 (4–11)		2
Respiratory failure	5 (5–5)		1	n.r.		0
Anuria/dysuria	6 (3–16)	–	3	6 (3–16)	5, 11	3
Anxiety	3 (3–3)	–	1	3 (3–3)	–	1
Neurological	7 (4–11)	5, 7	5	6 (4–11)	5, 8	4
Edema	5 (3–7)	–	2	5 (3–7)	–	2
Fatigue	6 (4–24)	4, 20	4	7 (4–24)	–	3
Pain	26 (10–93)	22, 55	11	22 (10–41)	10, 24	5

Vandyk et al Supp Care Cancer 2012

Causes de fièvre chez le patient cancéreux en neutropénie

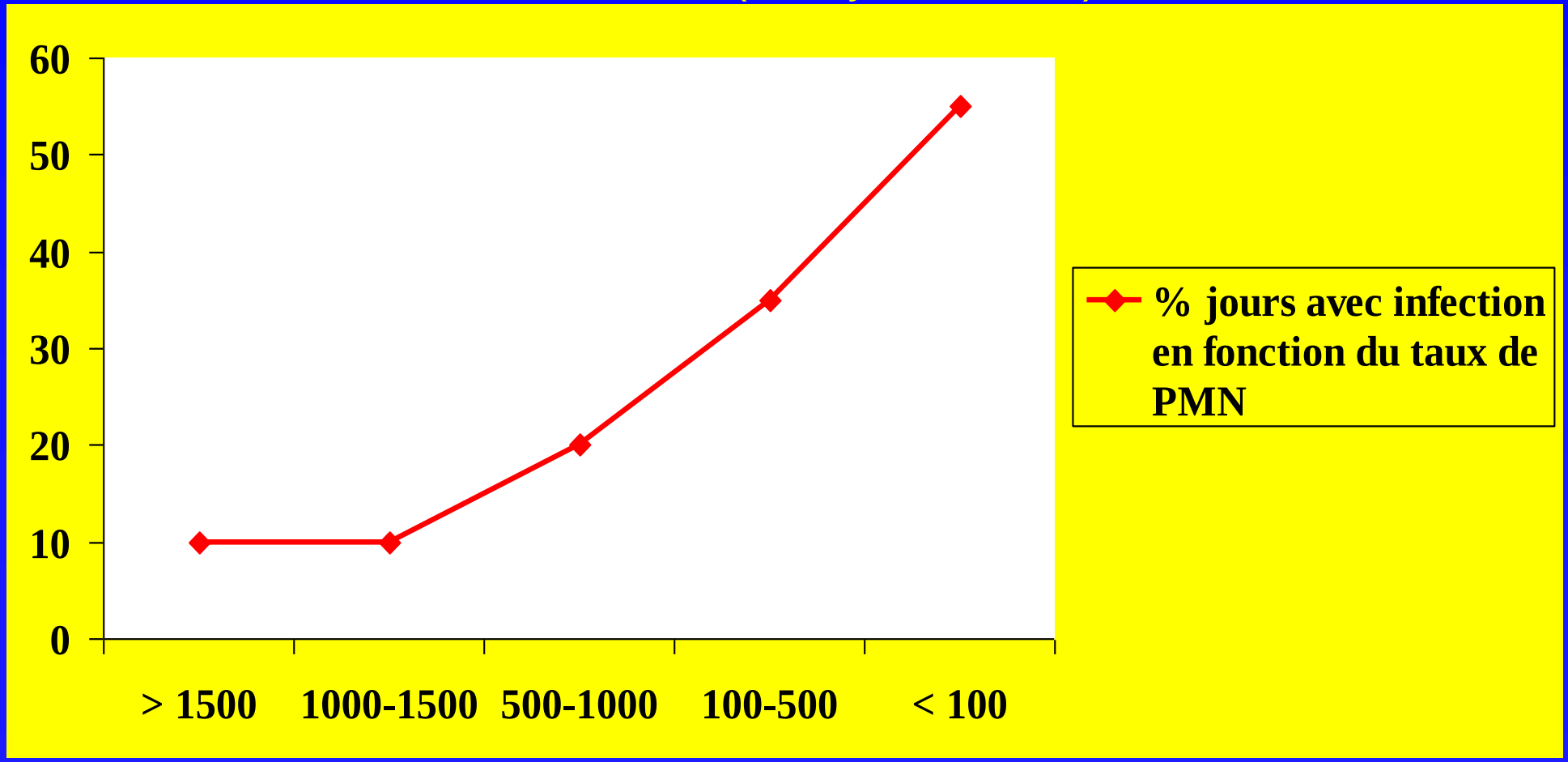


MDI: infection microbiologiquement démontrée

CDI: infection cliniquement démontrée

Pizzo et al, Medicine 1982

Risque de développer un épisode fébrile (Bodey et al, 1966)



Fréquence de survenue de la NF

- Fonction de
  - Type de tumeur:
    - tumeur solide
    - Affection hématologique
    - Greffe de moelle
  - Type de chimiothérapie

Cancer	CT	N Pts.	Neutropénie(Grade 4) (%)	NF (%)
Lymphome	MOPP	123	22	—
	ABVD	115	3	—
	CHOP	216	22	—
	CHOP-R	33	58	18
	VAPEC-B	39	72	44
	ESHAP	122	500/µl médian	30
	DHAP	90	53	48
CBNPC	Cis/VNR	206	59	10
	Cis/Pac(24hr)	288	57	16
	Cis/Gem	288	39	4
	Cis/Doc	289	48	11
	CBDCA/Pac	290	43	4
	Doc(75mg/m^2)	276	—	12.7
	Pemetrexed	265	—	1.9
Sein	Doc (100)	161	78.6	5.7
	AC	215	88(3+4)	10
	AT	214	97(3+4)	33
	TAC	54	100(3+4)	34
	CapDoc	255	11	16
	Doc	256	12	21

Mortalité et neutropénie fébrile

- Années '60
  - **Mortalité 90%**
  - Antibiothérapie seulement en cas de documentation microbiologique

- Concept d'antibiothérapie empirique à large spectre (Schimpff 1971)

⇨ mortalité << 10%

Empiric Therapy with Carbenicillin and Gentamicin for Febrile Patients with Cancer and Granulocytopenia

Stephen Schimpff, M.D., Winston Satterlee, M.D., Viola Mae Young, Ph.D., and Arthur Serpick, M.D.

Abstract

Seventy-five acutely ill, febrile patients with cancer and granulocytopenia were treated empirically with a combination of carbenicillin and gentamicin for presumed bacterial infection. Cultures taken before the initiation of antibiotics subsequently documented the presence of infection in 48 of these patients, of whom **21 were shown to have *Pseudomonas aeruginosa* infections. Fourteen of these patients with pseudomonas infections had complete improvement**, three improved temporarily but later died of infection, two had no improvement, and two could not be evaluated. was less promising for the infections caused by other gram-negative ba uperinfection occurred in eight patients. Combination carbenicillin and g l antibiotic therapy for suspected *Ps. aeruginosa* infection in granulocytopenic patients with cancer but only after careful examination and extensive culturing.

Taux de réponse:
14/21 = 67%

N Engl J Med 1971; 284:1061-5

Situation actuelle

Type cancer	N	N décès
Breast cancer	9/32 (28.1)	0/9 (0)
Lung cancer	5/32 (15.6)	1/5 (20)
Oesophageal cancer	5/32 (15.6)	0/5 (0)
Ovarian cancer	4/32 (12.5)	2/4 (50)
Brain tumour	2/32 (6.3)	2/2 (100)
Sarcoma	2/32 (6.3)	0/2 (0)
Pancreatic cancer	1/32 (3.1)	1/1 (100)
Bladder cancer	1/32 (3.1)	0/1 (0)
Colorectal cancer	1/32 (3.1)	0/1 (0)
Thyroid cancer	1/32 (3.1)	0/1 (0)
Melanoma	1/32 (3.1)	0
Total	32	6

Schelenz et al Ann Oncol 2012

Treatment-Related Death in Patients with Small-Cell Lung Cancer in Phase III Trials over the Last Two Decades

Nobuaki Ochi[1,2], Katsuyuki Hotta[1]*, Nagio Takigawa[1,2], Isao Oze[1], Yoshiro Fujiwara[1], Eiki Ichihara[1], Akiko Hisamoto[1], Masahiro Tabata[1], Mitsune Tanimoto[1], Katsuyuki Kiura[1]

	Mortality
N patients included	17,570
Overall	2.95%
Febrile neutropenia	1.25%

Ochi et al Plos One 2012

Support Care Cancer
DOI 10.1007/s00520-014-2553-0

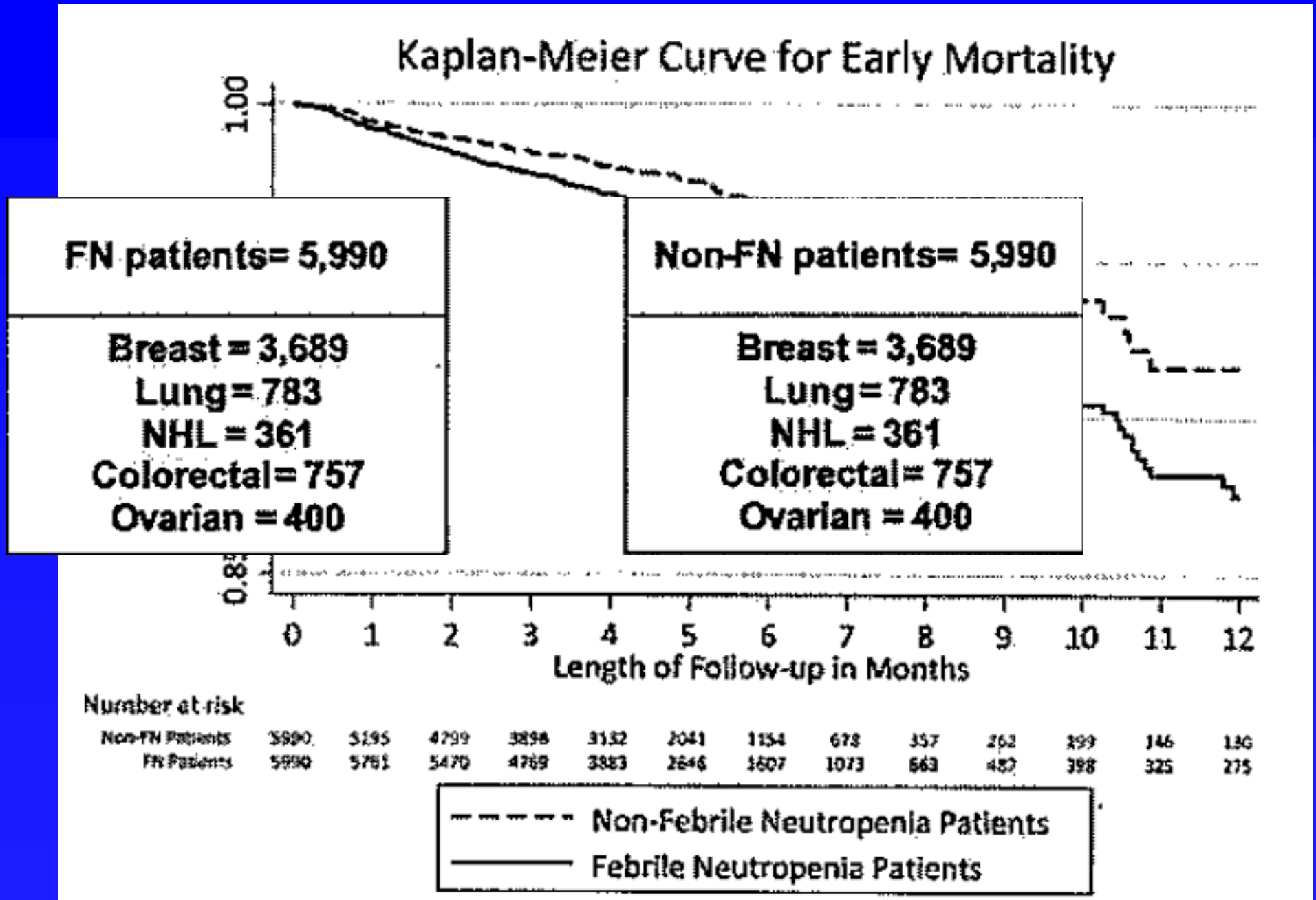
COMMENTARY

Mortality, length of stay, and health care costs of febrile neutropenia-related hospitalizations among patients with breast cancer in the United States

Ranjan Pathak · Smith Giri · Madan Raj Aryal · Paras Karmacharya · Vijaya Raj Bhatt · Mike G. Martin

Table 1 Mortality, length of stay, and mean hospital charges among febrile neutropenia-related hospitalizations among patients with breast cancer in the USA from 2009 to 2011

Year	Mortality[a] (95 % CI)	LOS (95 % CI)	Mean hospital charge in USD (95 % CI)
2009	2.6 (1.9–3.5)	5.85 (5.46–6.24)	37,852 (32,915–42,790)
2010	2.4 (1.8–3.2)	5.60 (5.17–6.02)	34,519 (30,074–38,693)
2011	2.6 (2.1–3.5)	5.77 (5.42–6.12)	38,602 (34,461–42,743)
Overall	2.6 (2.2–3.0)	5.74 (5.50–5.98)	37,087 (34,409–40,165)

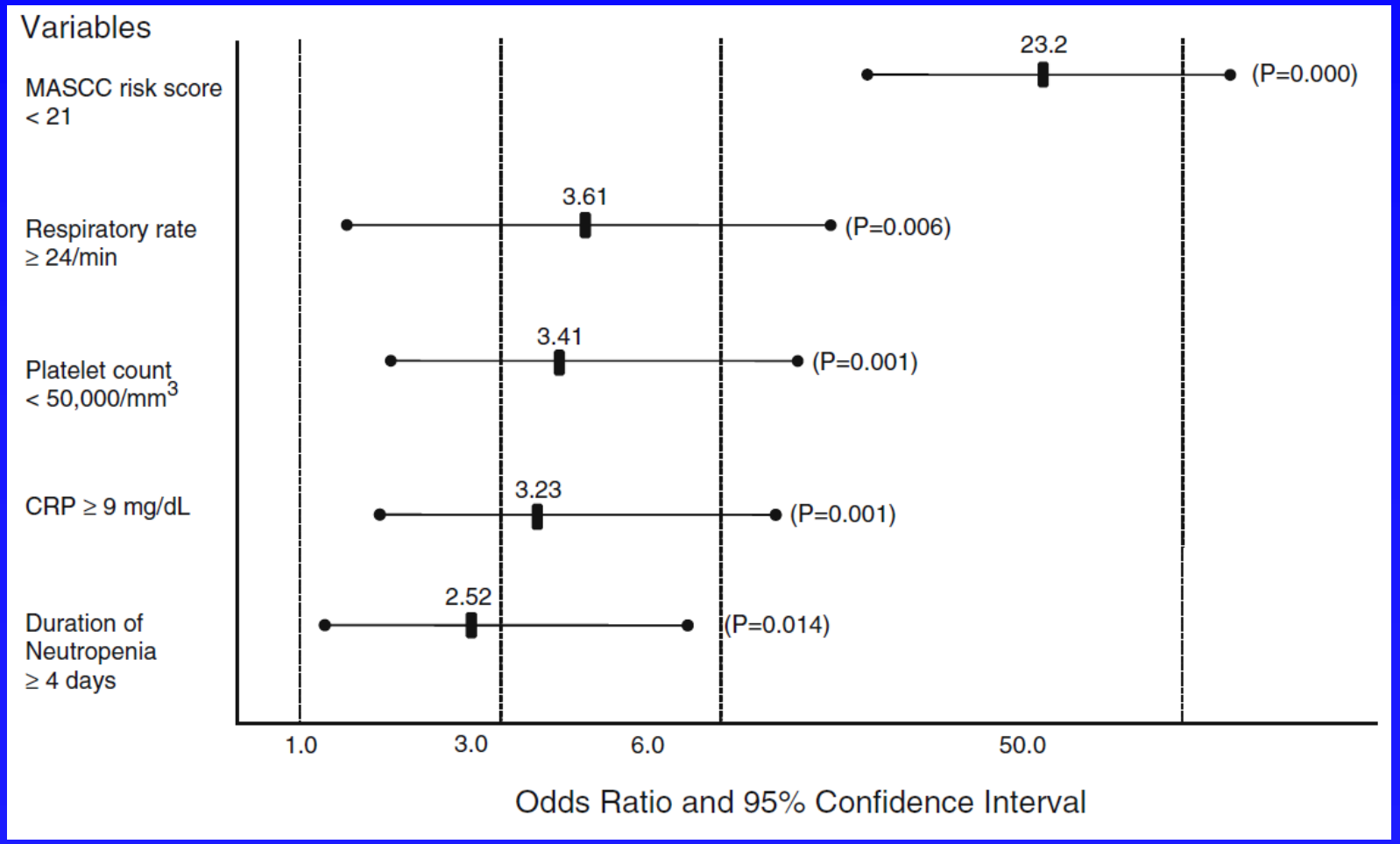


Lyman et al, Cancer 2010

LA NEUTROPENIE FEBRILE EST UNE COMPLICATION POTENTIELLEMENT LETALE CHEZ LE PATIENT CANCEREUX

Neutropénie fébrile
Le risque de complication n'est pas homogène

Predictive factors of poor prognosis in cancer patients with chemotherapy-induced febrile neutropenia



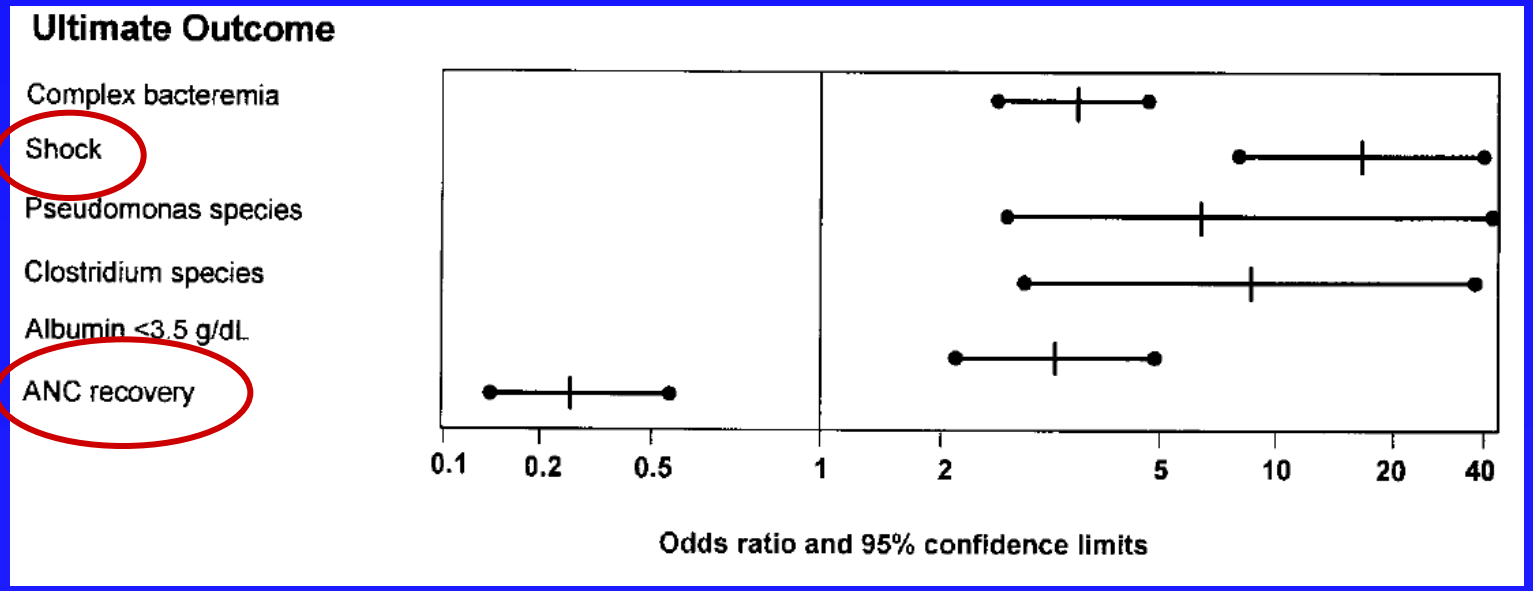
Ahn et al, Supp Care Cancer 2011

Table 1. Risk of Death Based on Selected Complications in Cancer Patients With Febrile Neutropenia

Complication	Risk of Death[a]
Univariate models (models included individual parameters only)	
Pneumonia	3.77 (3.19-4.45)
Hypotension	4.79 (2.66-8.64)
Sepsis	6.90 (5.99-7.96)
ICU use	10.74 (9.23-12.49)
Mechanical ventilatory assistance	50.64 (40.82-62.84)
Multivariate models (model including all the parameters)	
Pneumonia	1.80 (1.47-2.21)
Hypotension	3.16 (1.57-6.35)
Sepsis	3.66 (3.09-4.33)
ICU use	2.69 (2.19-3.31)

Wright et al, JAMA Intern Med 2013

Outcomes of Bacteremia in Patients with Cancer and Neutropenia: Observations from Two Decades of Epidemiological and Clinical Trials



Elting et al, Clin Infect Dis 1997

Bloodstream infections in neutropenic patients with cancer: Differences between patients with haematological malignancies and solid tumours

Table 3 Empirical antibiotic therapy and clinical outcomes of all episodes of bloodstream infection in neutropenic patients with haematological malignancies and solid tumours.

	Haematological malignancies $n = 493$ (%)	Solid tumours $n = 86$ (%)	P
Empirical antibiotic therapy	478 (97)	86 (100)	0.144
Monotherapy			
Carbapenem	43 (8.7)	4 (4.7)	0.209
Glycopeptide	34 (7.1)	1 (1.2)	0.029
Oxyminobetalactam	26 (5.4)	1 (1.2)	0.062
β-lactam + β-lactamase inhibitor	20 (4.2)	14 (16.3)	<0.001
Combination therapy			
Cephalosporine + aminoglycoside	220 (46)	46 (53.5)	0.2
Amoxicillin clavulante + ciprofloxacin	0 (0)	5 (5.8)	<0.001
Other	135 (28.2)	15 (17.4)	0.766
Inadequate initial empirical antibiotic therapy	120 (24.4)	11 (12.8)	0.017
Growing factors	129 (26.7)	32 (38.1)	0.036
Shock at presentation	40 (8.4)	3 (3.7)	<0.001
Intensive care unit admission	55 (11.2)	2 (2.3)	0.009
Invasive mechanical ventilation	29 (52.7)	0 (0)	0.014
Overall case-fatality rate (30 days)	59 (12.1)	32 (37.6)	<0.001
Early case-fatality rate (2 days)	19 (3.9)	11 (12.8)	0.02

Marin et al, J Infection 2014

Facteurs associés à un risque élevé de complications

- PMN < 100/mm³
- Monocytes < 100/mm³
- Neutropénie prolongée >7j

- Co-morbidités
- Cancer actif

- Infection de catheter
- T° > 39°C
- Plaintes neurologiques
- Signes abdominaux
- NF symptomatique
- Rx thorax anormale
- Altération fonction rénale ou hépatique

Freifeld et al, Clin Infect Dis 2011

NF avec sepsis sévère/choc septique

- 428 pts consécutifs admis à l'USI entre 1998 et 2008
  - Leucémie aiguë (35,7%), lymphome (31,7%), tumeurs solides (16,5%)
- MDI: 237 (55,5%), CDI: 141 (32,9%), FUO: 50 (11,9%)
- Beta-lactame plus aminoglycoside: 391 (91,3%)
- Mortalité hospitalière globale 49,8%
  - 58,7% pour période 1998-2003
  - 43% pour période 2004-2008
  - p = 0,006

Legrand et al, Crit Care Med 2011

Peut-on prédire le risque de complication?

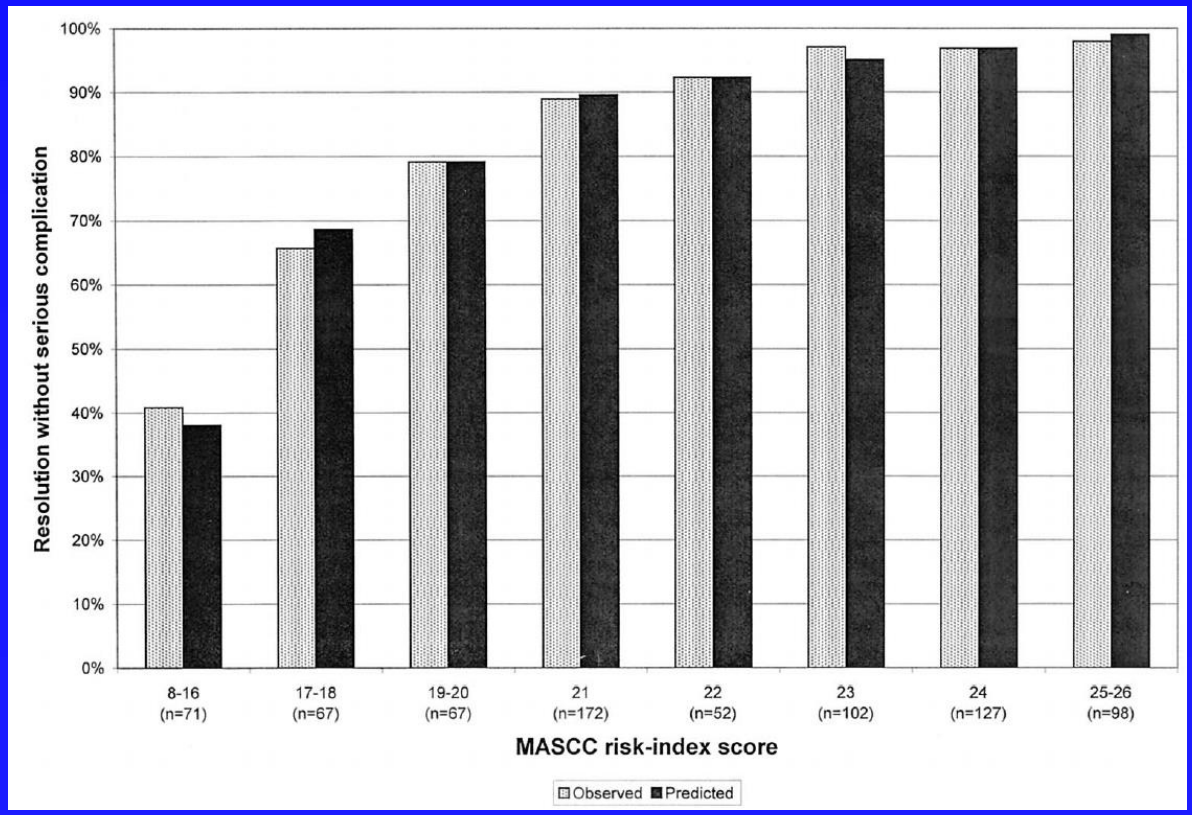
Score MASCC

- Symptomatologie
  - Pas de symptôme ou légers 5
  - Symptômes modérés 3
- Pas d'hypotension 5
- Pas de BPCO 4
- Tumeur solide ou pas d'infection mycotique 4
- Pas de déshydratation 3
- Malade ambulatoire
- Age < 60 ans

Seuil = 21

< 21: haut risque

≥ 21: faible risque



Klastersky et al, J Clin Oncol 2000

Nouveaux scores

A new prognostic model for chemotherapy-induced febrile neutropenia

Shin Ahn[1] · Yoon-Seon Lee[1] · Jae-Lyun Lee[2] · Kyung Soo Lim[1] · Sung-Cheol Yoon[3]

Table 3 New prognostic model for febrile neutropenia

Characteristics	Point
Age ≥60 years	2
Procalcitonin ≥0.5 ng/mL	5
Performance score ≥2	2
Oral mucositis grade ≥3	3
Systolic blood pressure <90 mmHg	3
Respiratory rate ≥24 breaths/min	3
Sum	18

Int J Clin Oncol 2015

Prediction of Serious Complications in Patients With Seemingly Stable Febrile Neutropenia: Validation of the Clinical Index of Stable Febrile Neutropenia in a Prospective Cohort of Patients From the FINITE Study

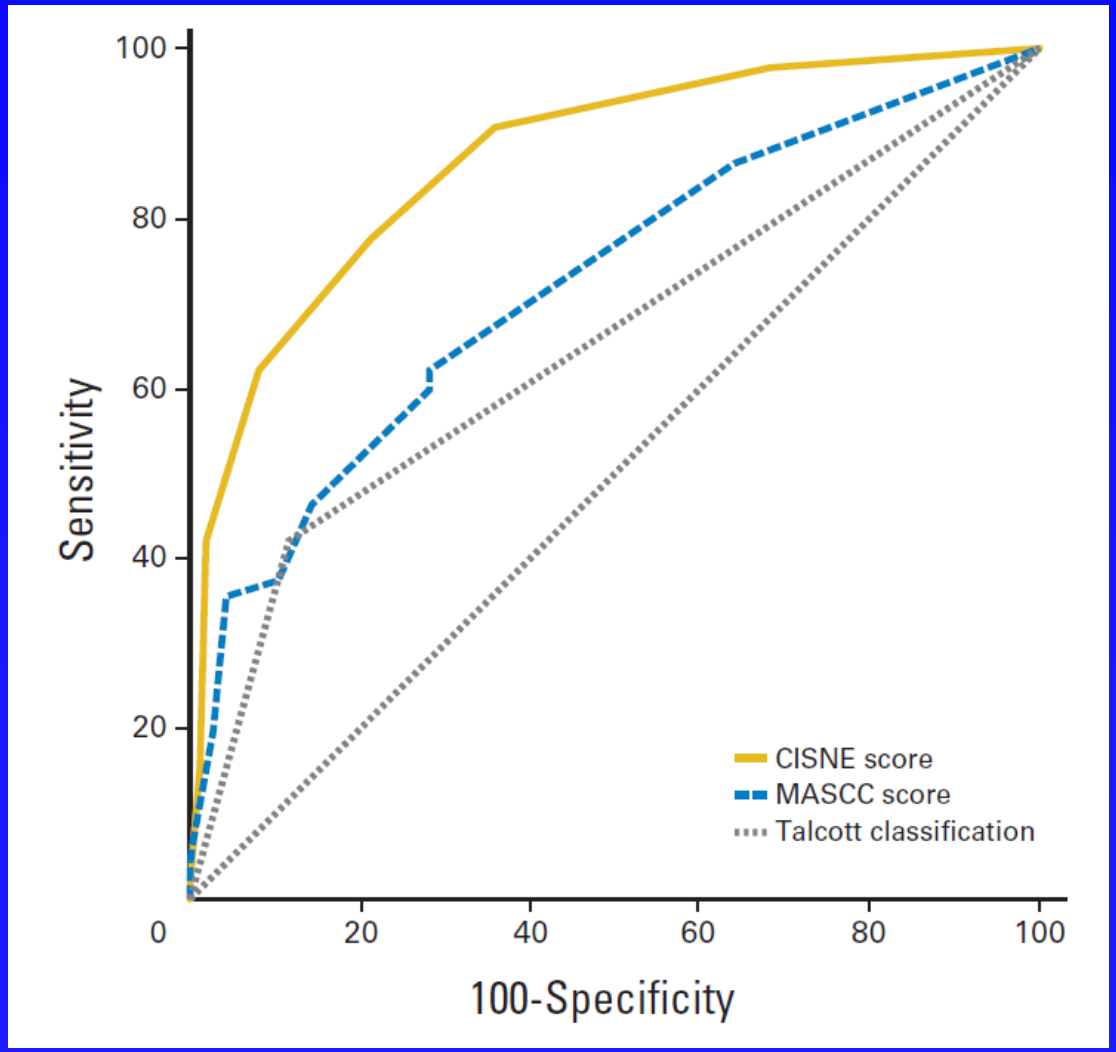
Characteristic	Points
ECOG PS ≥ 2	2
SIH	2
COPD	1
Chronic cardiovascular disease	1
Mucositis NCI grade ≥ 2	1
Monocytes < 200 per μL	1

Abbreviations: CISNE, Clinical Index of Stable Febrile Neutropenia; COPD, chronic obstructive pulmonary disease; ECOG PS, Eastern Cooperative Oncology Group performance status; NCI, National Cancer Institute; SIH, stress-induced hyperglycemia.

J Clin Oncol 2015

New prognostic model, *N* (%)[a]	Risk	Total (*N* = 718)	Unfavorable outcome*		Bacteremia*	
			Yes (*N* = 130)	No (*N* = 588)	Yes (*N* = 49)	No (*N* = 669)
Class I (≤2)	Low	469	28 (6.0)	441 (94.0)	5 (1.1)	464 (98.9)
Class II (3–8)	Intermediate	165	45 (27.3)	120 (72.7)	19 (11.5)	146 (88.5)
Class III (≥9)	High	84	57 (67.9)	27 (32.1)	25 (29.8)	59 (70.2)

Risk Category (class)	Training Subset (n = 801)		Validation Subset (n = 332)		
	%	95% CI	%	95% CI	*P*
Distribution					
I (0 points)	23.2	20.4 to 26.2	27.4	22.8 to 32.4	NS
II (1-2 points)	44.9	41.5 to 48.4	43.4	38.1 to 48.7	NS
III (≥ 3 points)	31.8	28.7 to 35.1	29.2	24.5 to 34.3	NS
Complications					
I (0 points)	1.1	0.3 to 3.8	1.1	0.1 to 5.9	NS
II (1-2 points)	6.1	4.0 to 9.0	6.2	3.3 to 11.4	NS
III (≥ 3 points)	32.5	27.0 to 38.5	36.0	27.2 to 46.0	NS
Mortality					
I (0 points)	0.0	0.0 to 2.0	0.0	0.0 to 4.0	NS
II (1-2 points)	1.6	0.7 to 3.5	0.0	0.0 to 2.6	NS
III (≥ 3 points)	4.3	2.4 to 7.5	3.1	1.0 to 8.7	NS
Bacteremia					
I (0 points)	3.2	1.4 to 6.8	9.1	4.8 to 16.3	.02
II (1-2 points)	9.7	7.1 to 13.2	9.0	5.3 to 14.8	NS
III (≥ 3 points)	17.6	13.4 to 22.8	15.5	9.6 to 23.9	NS



J Clin Oncol 2015

Principes thérapeutiques

TRAITEMENT EMPIRIQUE

- Couvrir les Bacilles à Gram négatif ➔ *Pseudomonas aeruginosa*
- Couvrir les bactéries à Gram positifs ➔ Streptocoques, Staphylocoques sensibles à la méthicilline

Traitement oral

1. Le patient doit pouvoir avaler
   - Pas de nausées/ vomissements
   - Pas de mucite sévère
2. **SI** faible risque de complication

Traitement intraveineux

- Le patient ne peut avaler
- A risque élevé de complication
- Sepsis sévère/choc

Quelle antibiothérapie?

Traitement oral

- Ciprofloxacine (3 x 500 mg/j ou 2 x 750mg/j) + amoxycilline/acide clavulanique (3 x 875 mg/j ou 2 x 1000mg/j)
- Moxifloxacine (400 mg/j)

Oral Antibiotics for Fever in Low-Risk Neutropenic Patients With Cancer: A Double-Blind, Randomized, Multicenter Trial Comparing Single Daily Moxifloxacin With Twice Daily Ciprofloxacin Plus Amoxicillin/Clavulanic Acid Combination Therapy—EORTC Infectious Diseases Group Trial XV

Winfried V. Kern, Oscar Marchetti, Lubos Drgona, Hamdi Akan, Mickel Aoun, Murat Akova, Robrecht de Bock, Marianne Paesmans, Claudio Viscoli, and Thierry Calandra

Traitement IV

- Le choix est fonction de l'épidémiologie hospitalière
- Vu risque létal associé à *Ps. Aeruginosa*
  - β lactame à large spectre
  - Carbapénème
- Patient «instable»: sepsis sévère, choc, …
  - + aminoglycoside

Les recommandations

Management of sepsis in neutropenic patients: 2014 updated guidelines from the Infectious Diseases Working Party of the German Society of Hematology and Medical Oncology (AGIHO)

Table 5 Summary of treatment recommendations given by the Infectious Diseases Working Party of the German Society of Hematology and Medical Oncology (AGIHO)

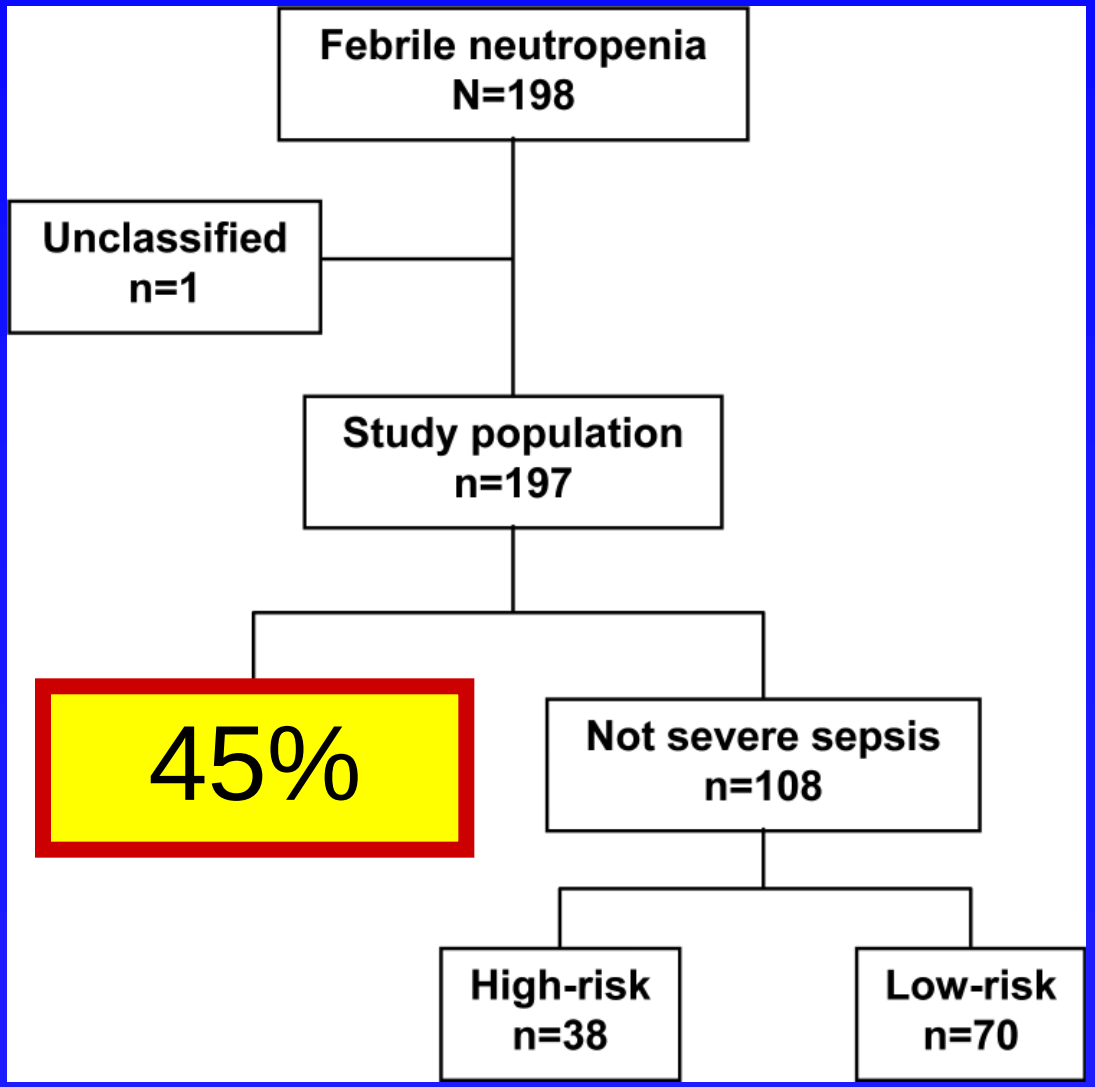
Recommendation	Evidence level
Antimicrobial treatment	
Initial treatment with meropenem or with imipenem/cilastatin or with piperacillin/tazobactam	AIII
A combination treatment with an aminoglycoside in neutropenic patients with septic shock and severe sepsis may be considered	BIII
Cardiovascular insufficiency	
Albumin-containing solutions may be used in patients with sepsis and septic shock	CII
The drug of choice to elevate the vasotonus is norepinephrine	BII
In case of sepsis-related myocardial depression leading to low cardiac output despite adequate volume substitution, vasopressor treatment with dobutamine should be instituted	AII
Treatment of pulmonary failure	
Non-invasive positive pressure ventilation (CPAP or bilevel positive airway pressure) should be preferred if possible in patients without hypotension or altered mental status	AII
An early start of non-invasive ventilation, prior to development of severe hypoxaemia, is favourable	BII
Management of renal dysfunction	
Intermittent haemodialysis and continuous renal replacement therapies are equivalent	BI
No firm recommendations can be given for the use of increased doses of renal replacement therapy	CI
Low-dose dopamine for protection of renal function is not recommended	EI
Nutrition and control of metabolic functions	
Enteral nutrition is preferred over parenteral nutrition	BII
During initial phase of sepsis, energy supply should not exceed 20–25 kcal/kg ideal bodyweight (IBW)	DIII
During recovery, 25–30 kcal/kg IBW should be provided	BIII
We do not recommend general use of arginine, omega-3 fatty acids and combined formulations in patients with severe sepsis and septic shock	DII
Glutamine substitution cannot be recommended in patients with severe sepsis and septic shock	EI
Further clinical trials regarding the adequate dosing and treatment duration are needed before treatment with selenium can be recommended	DI
Aiming at strictly normal blood glucose level of 4.4–6.6 mmol/L (80–120 mg/dL) is not recommended	EI
Blood glucose levels should be kept ≤9.9 mmol/L (≤180 mg/dL) in septic neutropenic patients	BIII
A high variability of blood glucose levels in septic patients should be avoided, as this is associated with increased mortality	BIII
Corticosteroids	
High-dose corticosteroids should not be used in neutropenic or non-neutropenic septic patients	EI
The routine use of substitutive doses of hydrocortisone in neutropenic patients with sepsis is not recommended	DI
Low-dose corticoid treatment may be considered in patients with insufficient restoration of blood pressure levels despite adequate fluid resuscitation and vasopressor treatment	BII
Treatment with coagulation inhibitors	
Further trials on the use of low-dose heparin (500 IU/h for 7 days) are needed before recommendations can be made	CI
Routine use of antithrombin is not recommended as treatment of sepsis in neutropenic patients antithrombin may be considered during DIC and sepsis	DI BII
Growth factors and immunoglobulins	
The routine additional use of G-CSF or GM-CSF as standard treatment of sepsis in neutropenia is not recommended	DI
There is moderate degree of evidence to support the use of i.v. immunoglobulins in sepsis	BII
Transfusion management	
The cut-off for substitution of platelets is often set to a higher value (platelets 20,000/μL instead of 10,000/μL during sepsis)	BIII
A transfusion trigger of <9 g/dL haemoglobin during neutropenic sepsis is recommended	BIII

Penack et al, Ann Hematol 2014

Et en pratique?

Situation en France
Neutropénie fébrile aux urgences

Etude prospective
4/02 → 04/08/2008
47 centres
198 NF/ 777,876 visites
➢1/3930 visite



André et al, Crit Care 2010

Principales caractéristiques des patients

	Total	Sepsis sévère	Pas de sepsis sévère	p
N	198	89	108	
Age (moyen)	61	65	57	< 0,001
PS (médiane)	70	70	80	0,06
Tumeur hématologique	45%	44%	45%	0,84
Tumeur solide Poumon Sein	55% 20% 13%	56% 27% 10%	55% 14% 16%	
Metastases ou non contrôlé	67%	78%	58%	0,004
MASCC < 21	53%	75%	35%	< 0,001

André et al, Crit Care 2010

Recommandations proposées

- Implémentation des recommandations pour le traitement de la NF aux urgences durant les 90 1ères minutes:
- Sepsis sévère/choc septique
  - 1ère dose ATB à large spectre
  - Fluid challenge (500 mL) si TAm < 65 mmHg
  - Mesure Lactate
  - Au moins une hémoculture
  - Hospitalisation
- Autres patients
  - Risque élevé selon score MASCC: ATB IV; pas de G-CSF; hospitalisation.
  - Faible risque selon score MASCC : ATB oral; pas de G-CSF; retour à domicile

André et al, Crit Care 2010

Comment ces recommandations sont-elles appliquées ?

Table 6 Characteristics of the management of febrile neutropenia in patients with or without severe sepsis

Management in the ED	Patients with severe sepsis (n = 89)	Patients without severe sepsis	
		High risk (n = 38)	Low risk (n = 70)
Adequate antimicrobial therapy	28 (32)	30 (81)	31 (44)
Supportive treatment			
Fluid challenge	43 (49)	5 (14)	6 (9)
Vasoactive drugs	6 (7)	0 (0)	0 (0)
Laboratory data			
Lactate concentration	29 (33)	1 (3)	11 (16)
Blood cultures	87 (99)	36 (100)	63 (93)
New prescription of G-CSF	12 (14)	4 (11)	12 (17)
Adequate orientation	88 (99)	35 (95)	6 (9)
Global adequate management	6 (7)	26 (68)	1 (1)

André et al, Crit Care 2010

Improving the immediate management of neutropenic sepsis in the UK: lessons from a national audit

Risk stratification

Fifteen per cent of protocols ($n = 8$) advocated classifying patients with potential neutropenic sepsis into low- and high-risk categories. Of these, four protocols recommended prescribing oral, as opposed to intravenous antibiotics to low-risk patients, as defined by the Multinational Association for Supportive Care in Cancer (MASCC) Risk Index (Klastersky *et al*, 2000).

First-line empirical antibiotics

Eighty-seven per cent of protocols ($n = 48$) recommended intravenous Tazocin and gentamicin as their first-line empirical antibiotics for patients thought to be neutropenic and septic. The remainder advocated Tazocin, meropenem or imipenem alone, or Tazocin plus gentamicin when specific conditions were met (for example, when the patient demonstrated clinical features of septic shock).

Clarke et al, BMJ 2011

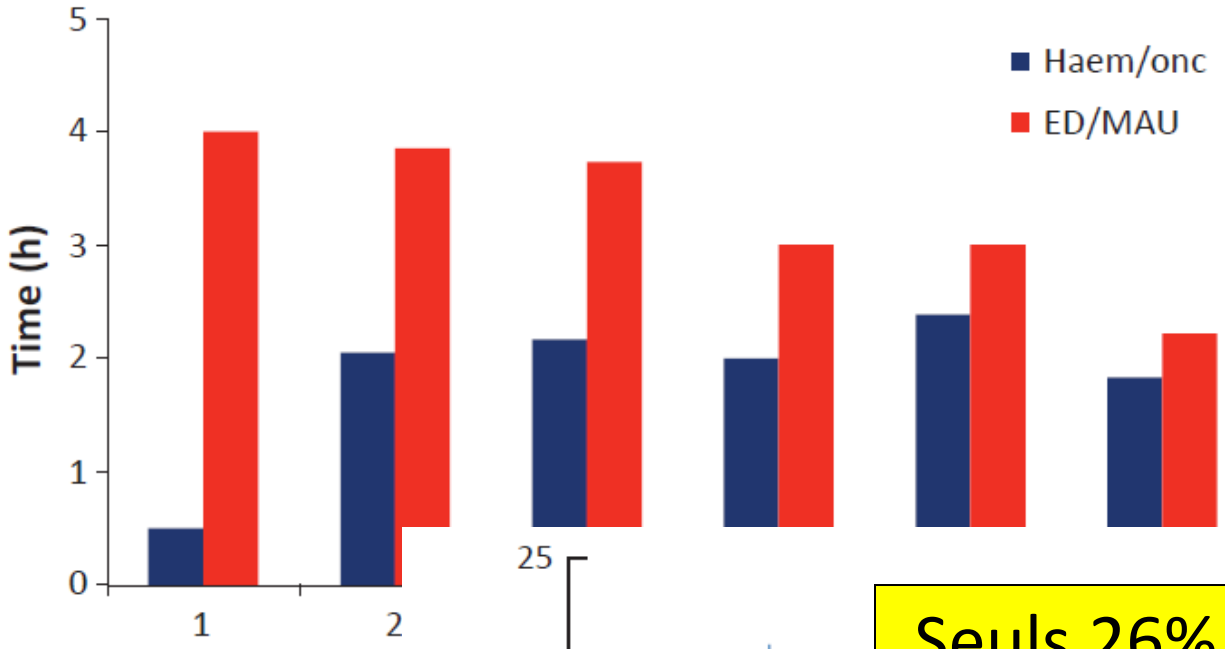
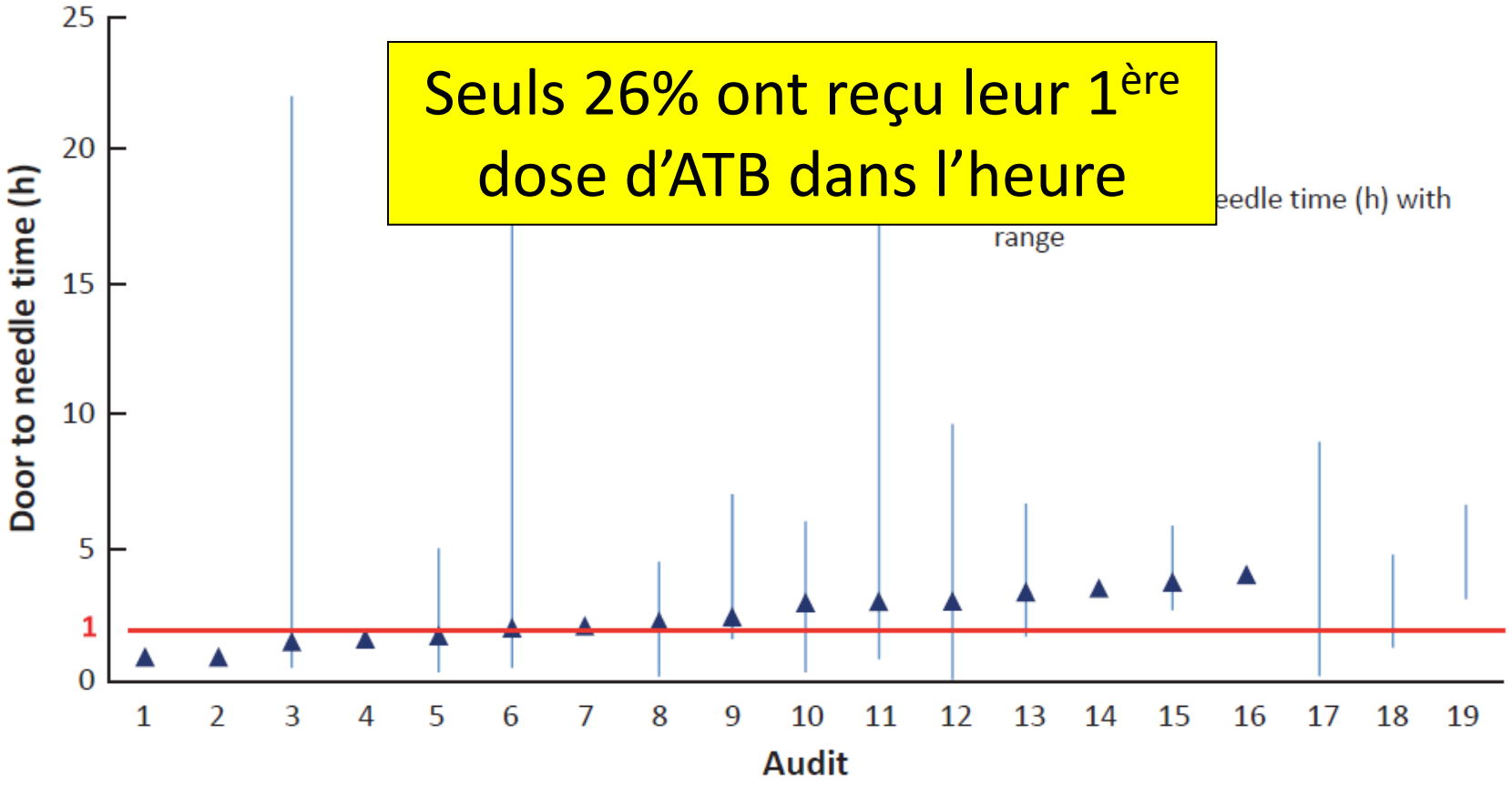


Fig 2. The effect of loc
needle time.

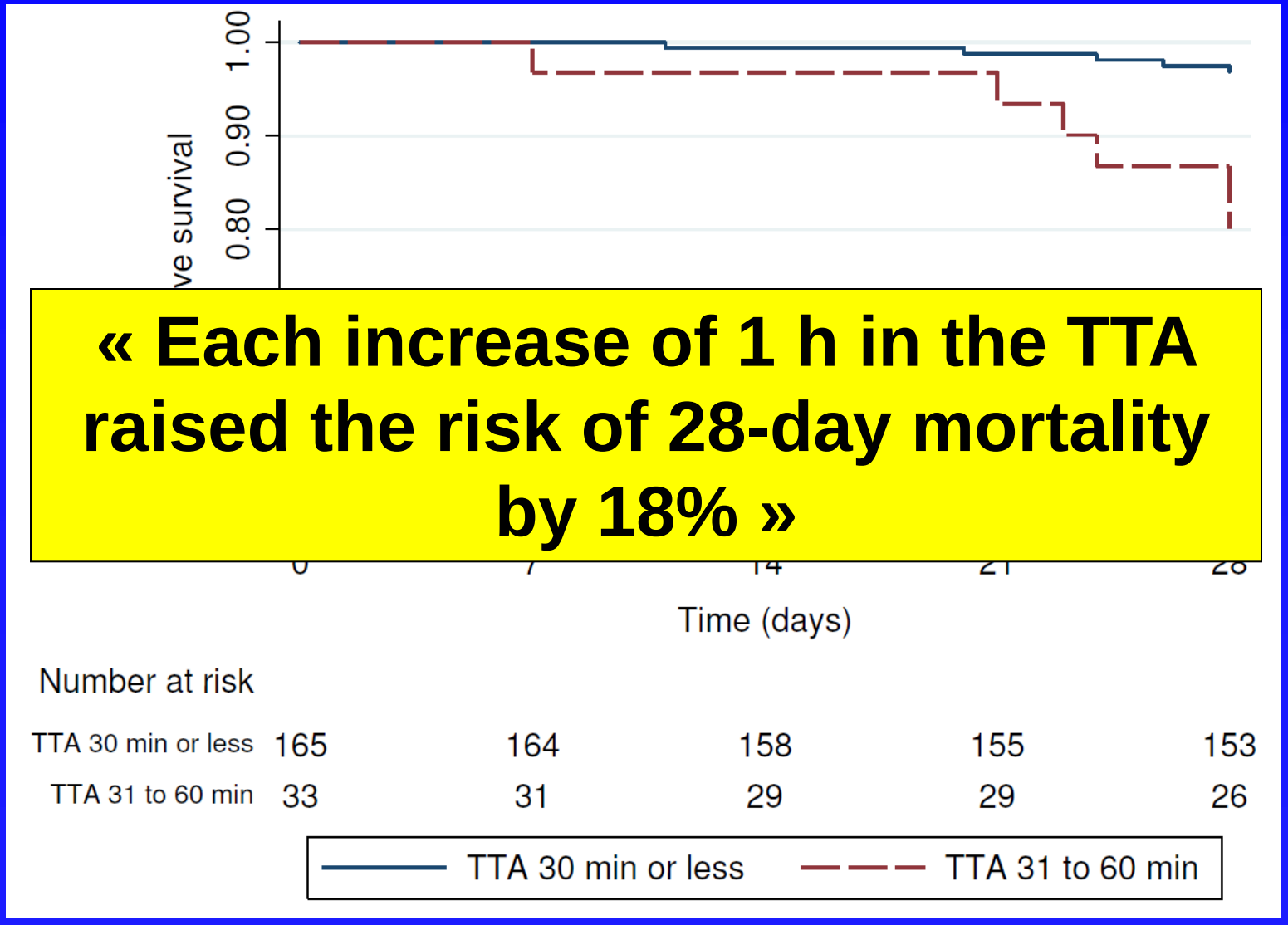
Seuls 26% ont reçu leur 1ère dose d'ATB dans l'heure



Clarke et al

BMJ 2011

Impact of time to antibiotic administration on mortality in patients with febrile neutropenia: a cohort study



Rosa et al Antimicrob Agen,ts Chemother 2014

Deviations From Guideline-Based Therapy for Febrile Neutropenia in Cancer Patients and Their Effect on Outcomes

- 25 231 patients avec NF
- Guideline-based ATB: 79%
- Plus de chance de suivre guidelines
  - High FN-volume hospitals (odds ratio [OR], 1.56; 95% CI, 1.34-1.81)
  - High FN-volume physicians (OR, 1.19; 95% CI, 1.03-1.38)
  - Patients pris en charge par médecins hospitaliers (OR, 1.49; 95% CI, 1.18-1.88)
- NF à faible risque, initiation rapide d'ATB selon guidelines réduit
  - Transfert vers hôpital (OR, 0.77; 95% CI, 0.65-0.92)
  - Décès (OR, 0.63; 95% CI, 0.42-0.95).

Wright et al, JAM Intern Med 2013

Conclusions

- La neutropénie fébrile est une complication fréquente et mortelle des traitements anticancéreux
- Elle nécessite une reconnaissance et une prise en charge rapide
- Le suivi des RCP et le début précoce d'une antibiothérapie empirique permettent une réduction drastique de la morbidité et de la mortalité de cette pathologie