

Place de la corticothérapie dans les décompensations aiguës des BPCO

Mabrouk Bahloul

Service de Réanimation médicale CHU
Habib Bourguiba. Sfax-Tunisie

DEFINITION

La BPCO est une maladie caractérisée par:

- *limitation des flux aériens, non totalement réversible.**
- *Évolution progressive**
- *Elle s'accompagne d'une réponse inflammatoire des voies aériennes à des toxiques dont le tabac est le plus fréquemment retrouvé.**
- *Les symptômes caractéristiques sont la toux, l'expectoration et la dyspnée.**

VEMS/CV < 70%
VEMS < 80%

EPIDEMIOLOGIE

- **La BPCO est un problème majeur de santé dans le monde**
- **Tunisie: BC: 10 % des hommes adultes**
- **Les exacerbations constituent une source importante de dépenses liées aux soins**
- **La réanimation occupe une place importante dans la prise en charge des EABPCO sévères**

Prise en charge thérapeutique

- Oxygénothérapie $\pm$ Ventilation mécanique
- Béta-2 mimétique
- Traitement étiologique
- **Corticothérapie**

CORTICOIDES

- **La pratique est courante**
50% au moins en médecine générale

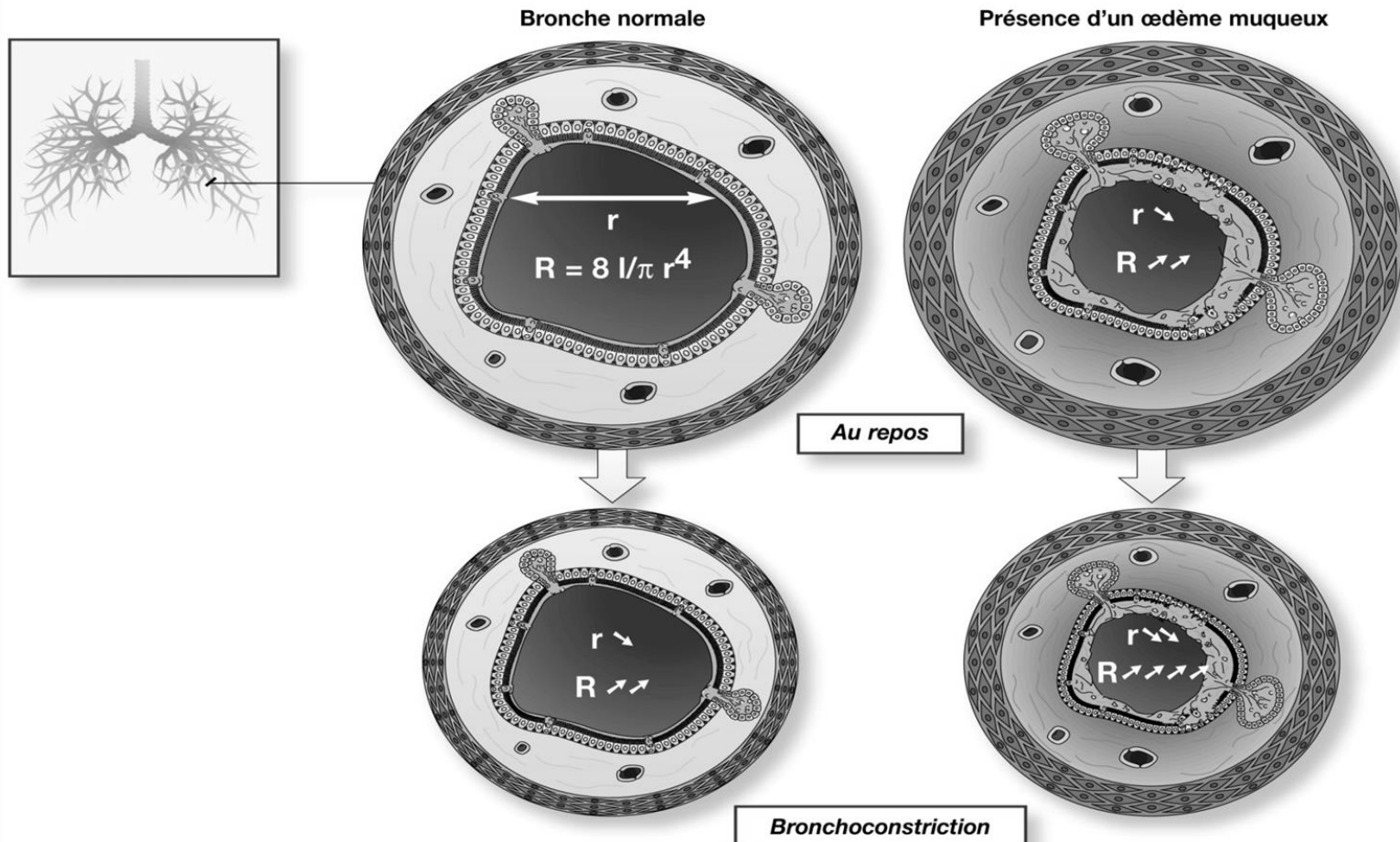
Miravittles et al. Respir Med 1999; 93:173s

- **Mais non consensuelle**

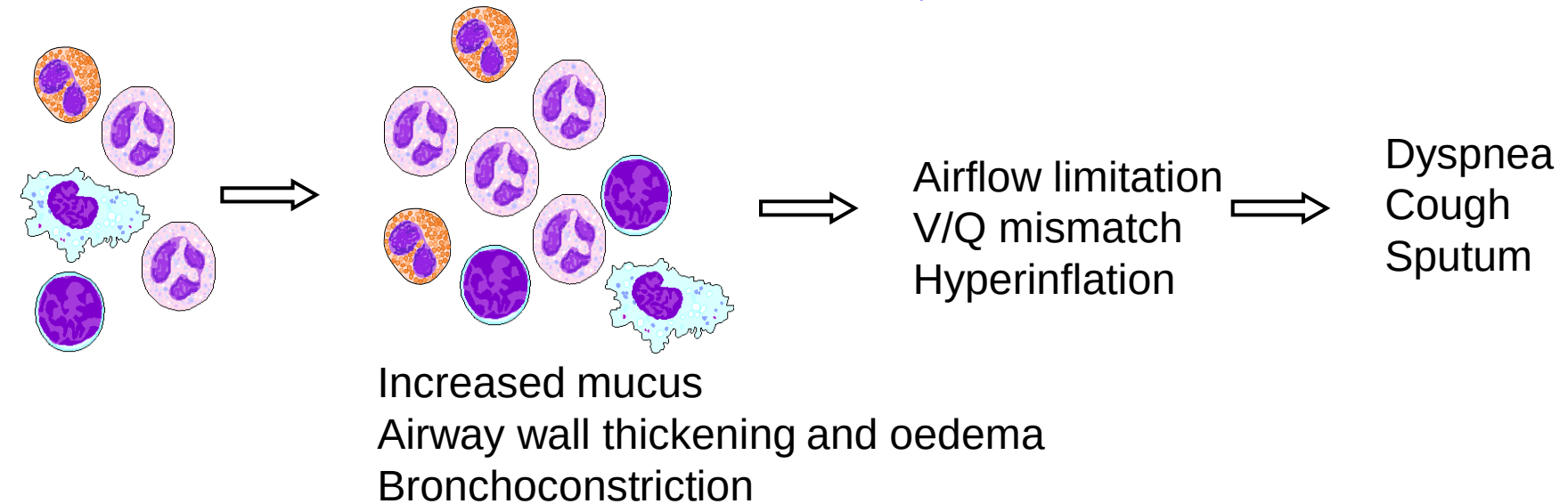
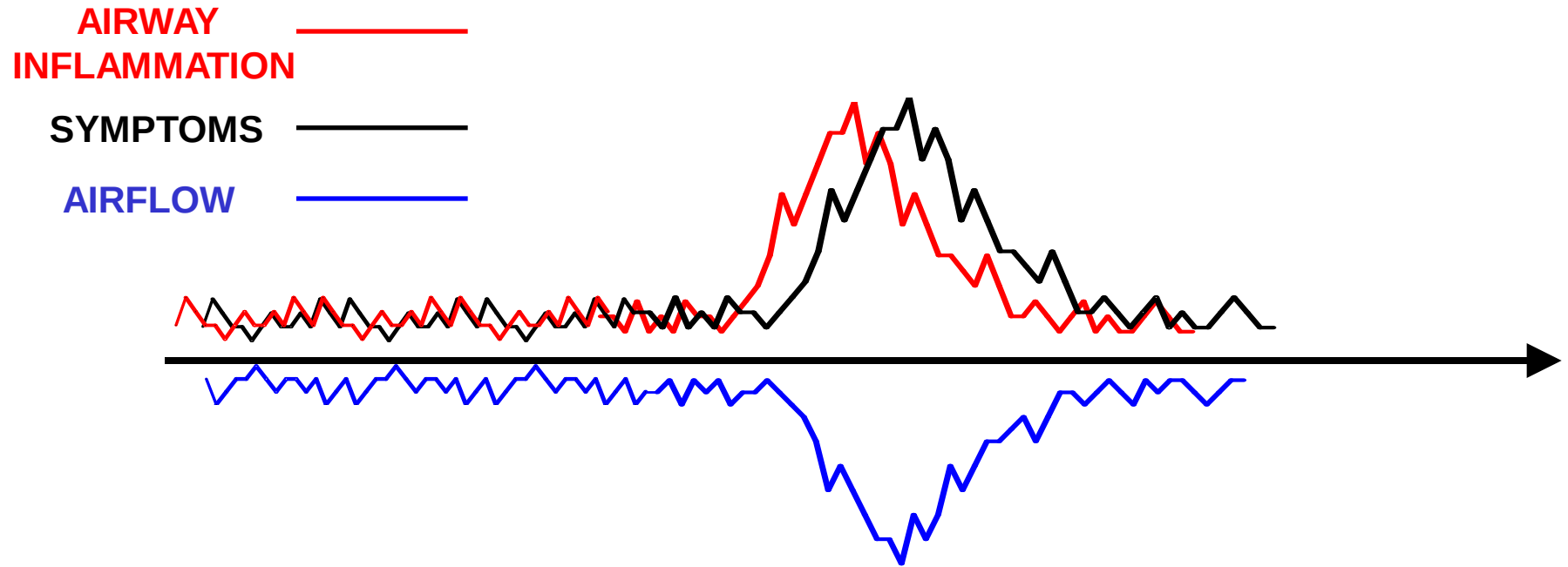
POUR

- **Bases théoriques:**
- **Composante inflammatoire de la BPCO**
- **Exacerbation: recrudescence inflammatoire locale et inflammation systémique**

PHYSIOPATHOLOGIE-1



Physiopathologie de la BPCO Décompensée



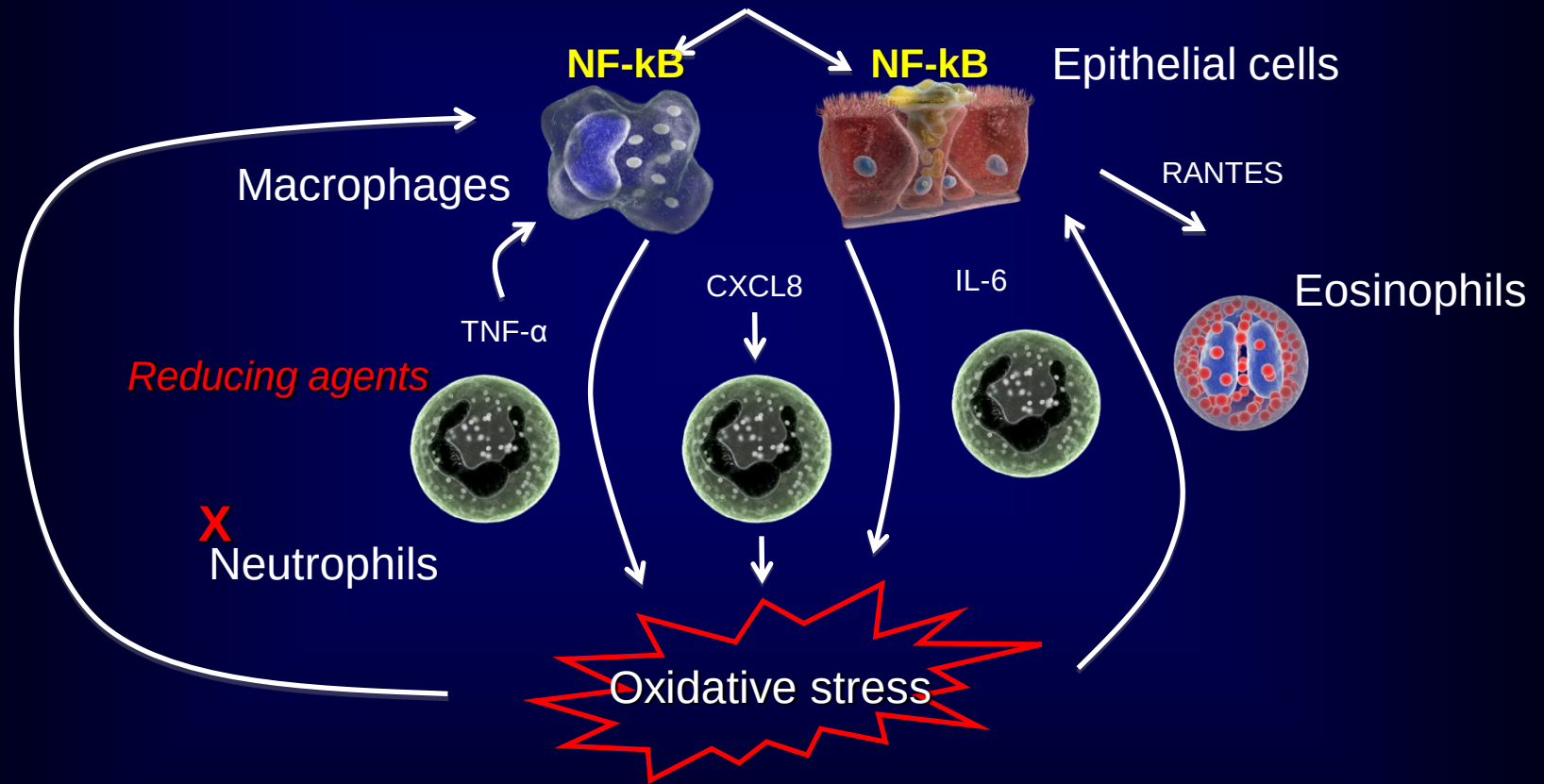
Bacteria



Viruses



Noninfective





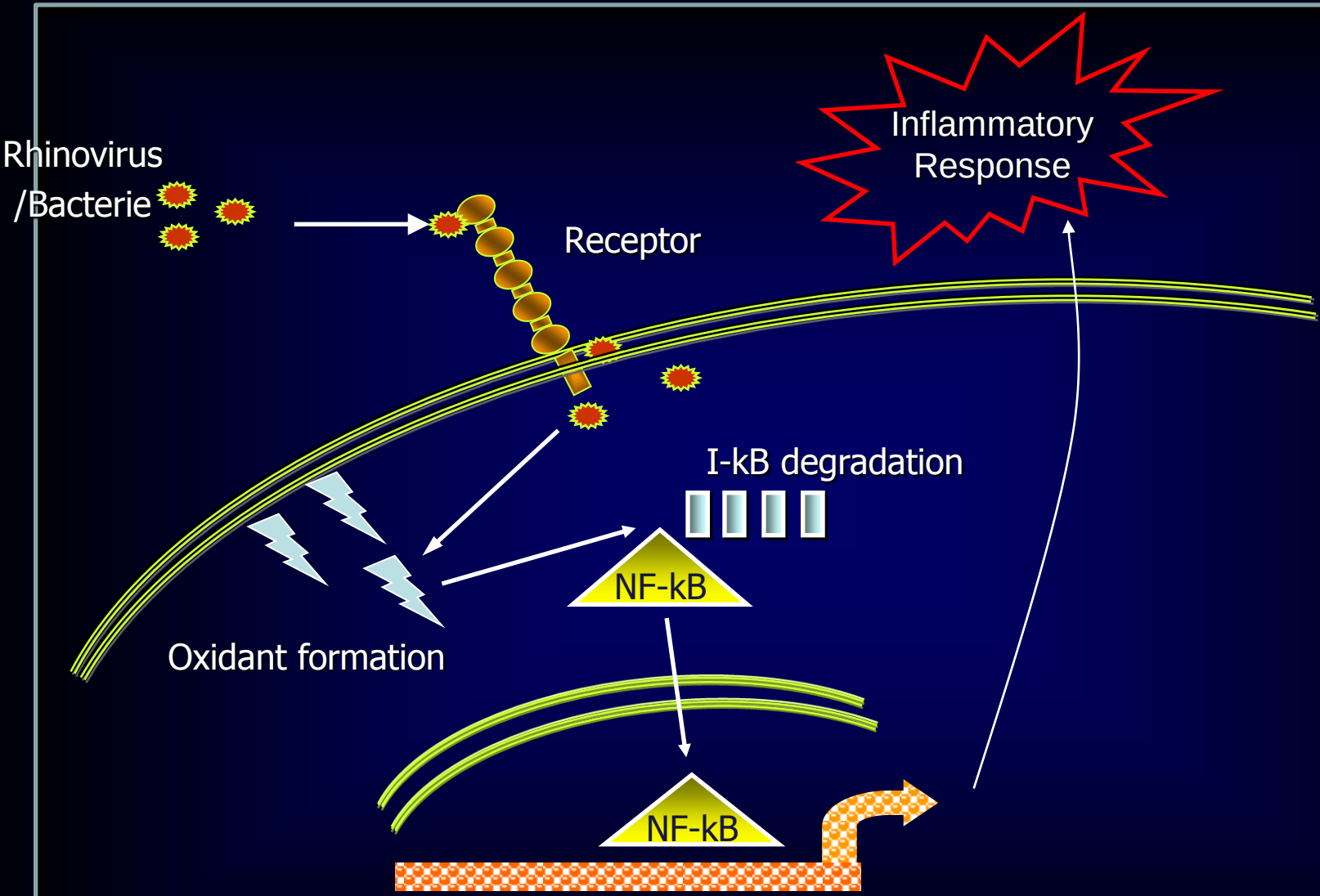
Rôle de l'inflammation

	Increased
TCC	4,6,7
Neutrophils	3,4,5
Eosinophils	4
Lymphocytes	4,8
IL-8	4, 9 – 11
IL-6	2,8,12
NE	4,5
TNF-a	9

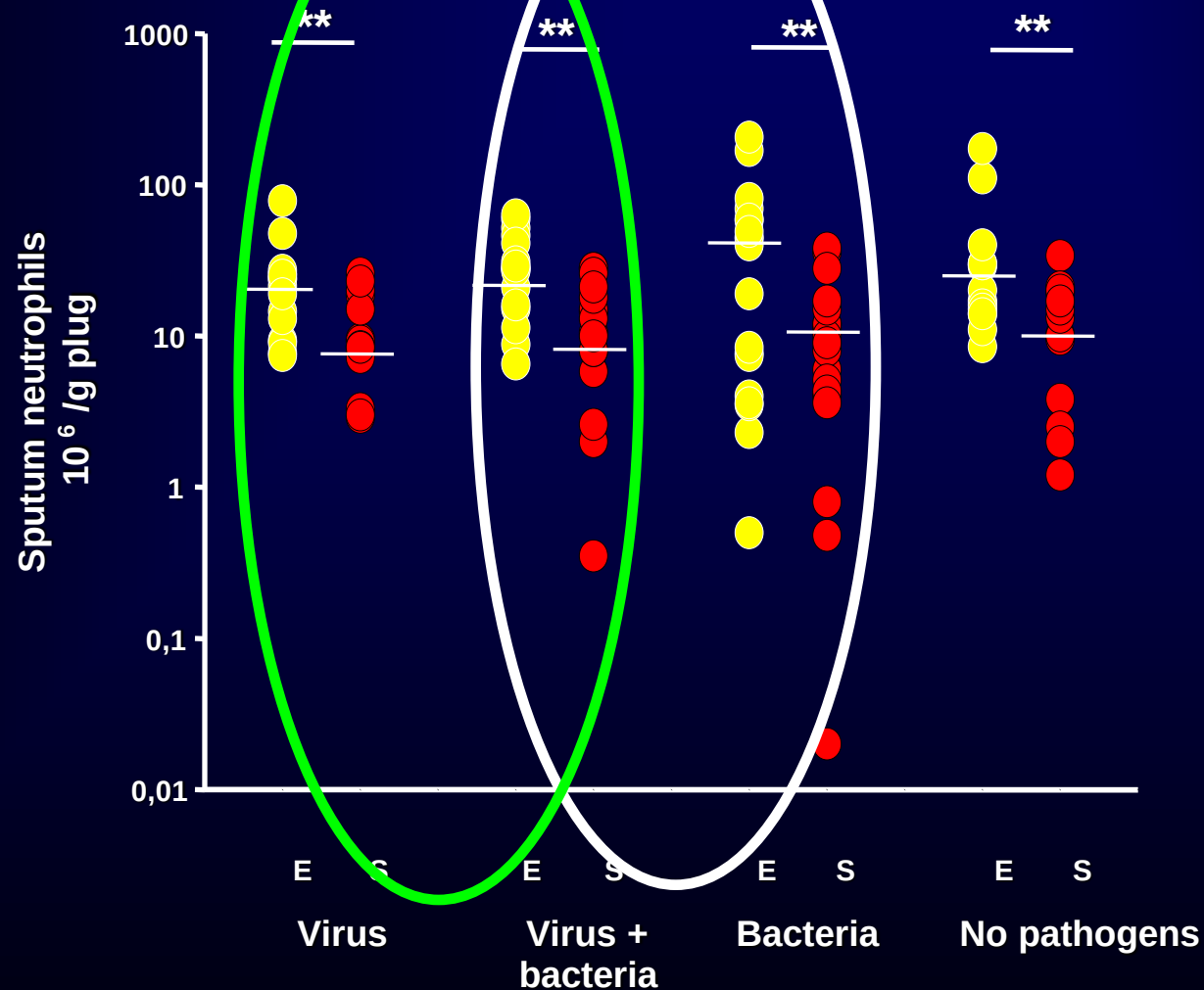
- 1) Roland et al. Thorax 2001
- 2) Bhowmik et al. Thorax 2000
- 3) Tsoumakidou et al. Resp Med. 2005
- 4) Fujimoto et al. ERJ 2005
- 5) Papi et al. AJRCCM 2006
- 6) Caramori et al. Thorax 2003

- 7) Hurst et al. AJRCCM 2006
- 8) Seemungal et al. ERJ 2000
- 9) Aaron et al. AJRCCM 2001
- 10) Wilkinson et al. Chest 2006
- 11) Drost et al. Thorax 2005
- 12) Perera et al. ERJ 2007

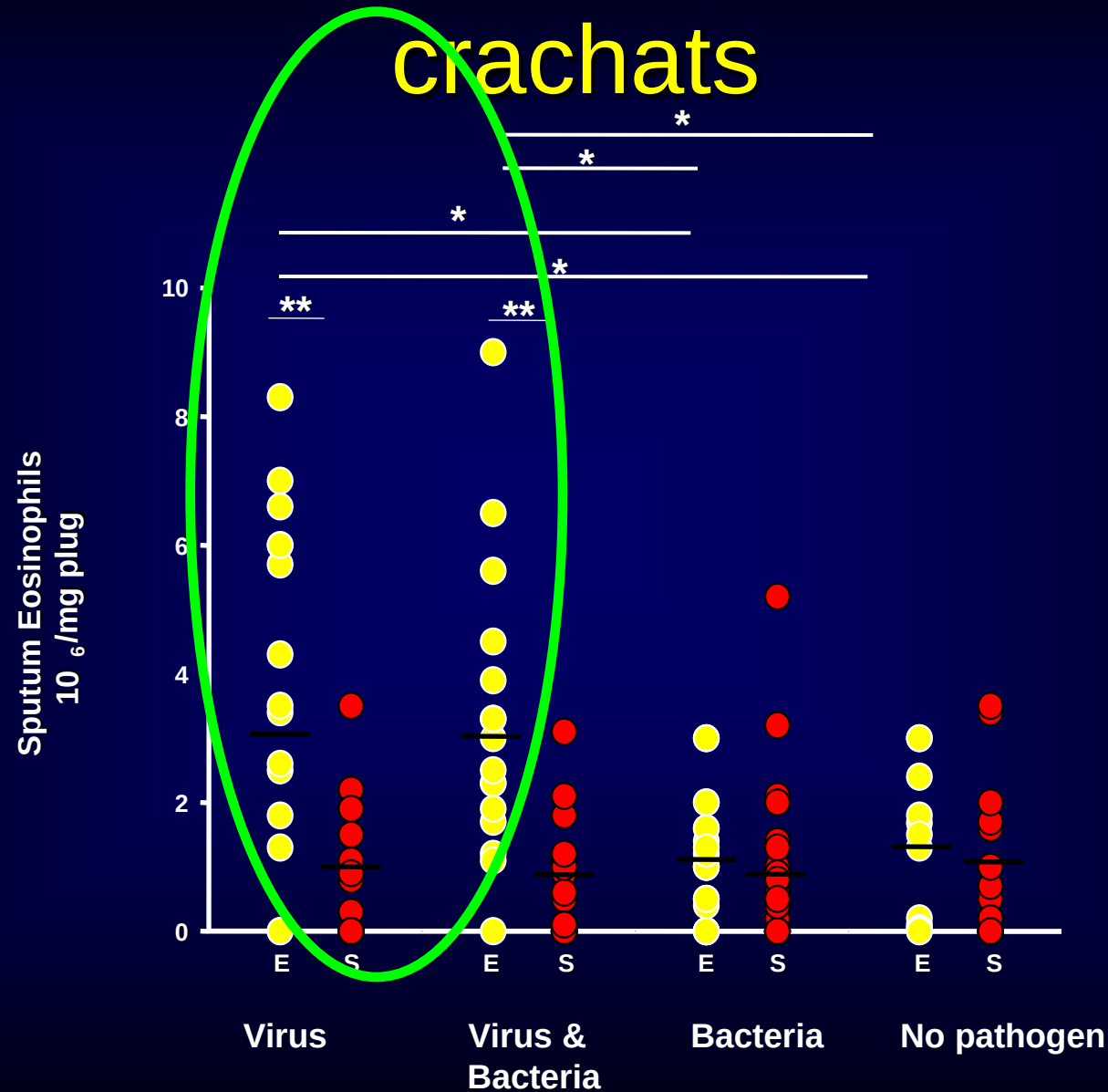
Rhinovirus
/Bacterie



EBPCO et PNN dans les crachats

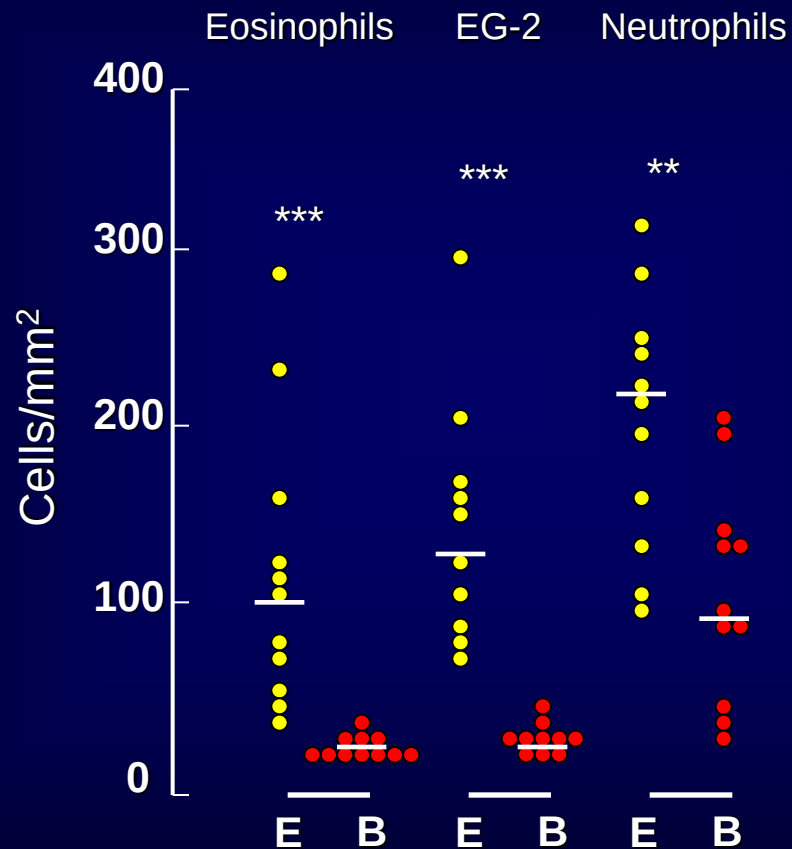


EBPCO et eosinophiles dans les crachats



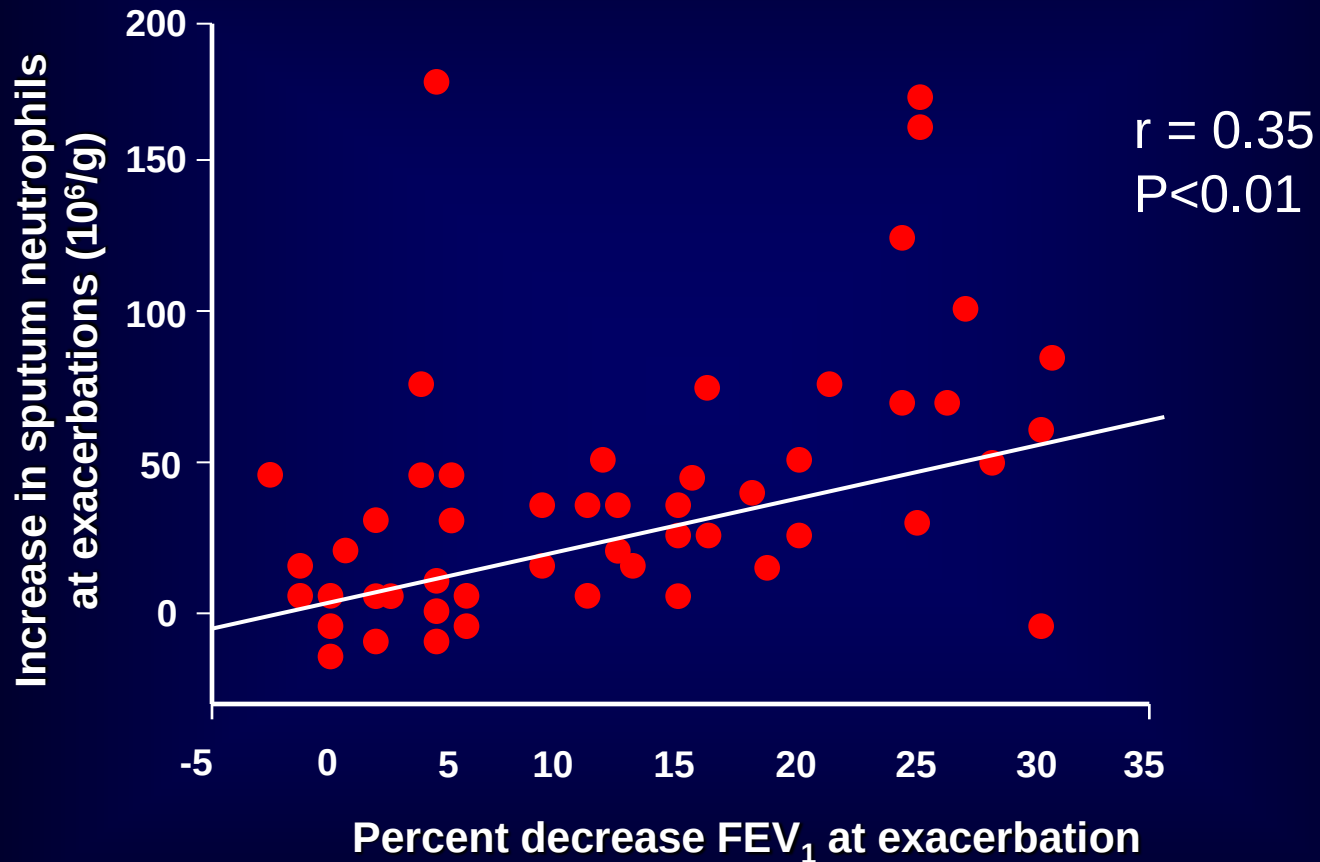
Inflammation et exacerbation de BPCO.

Biopsie bronchique

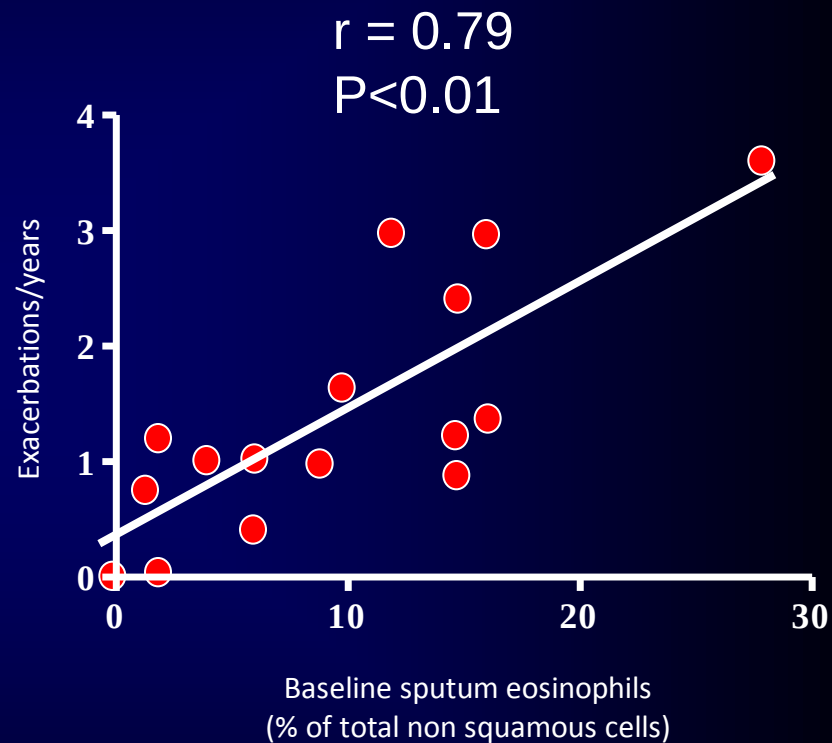
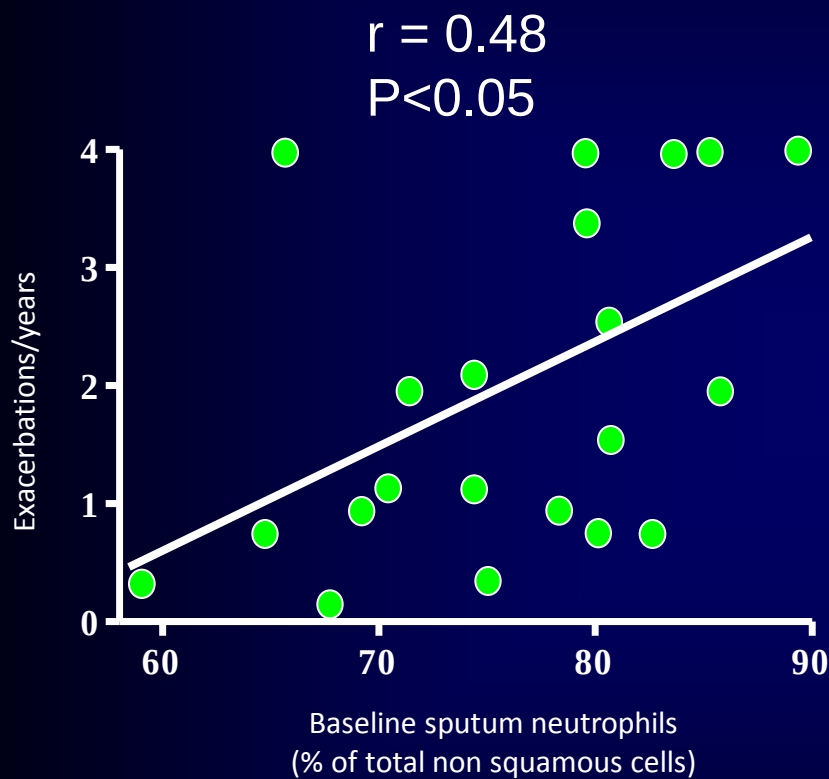


(Saetta et al 1994)

Corrélation PNN dans les crachats et VEMS



Corrélation PNN/Eosinophile dans les crachats et Nombre d'exacerbation par an



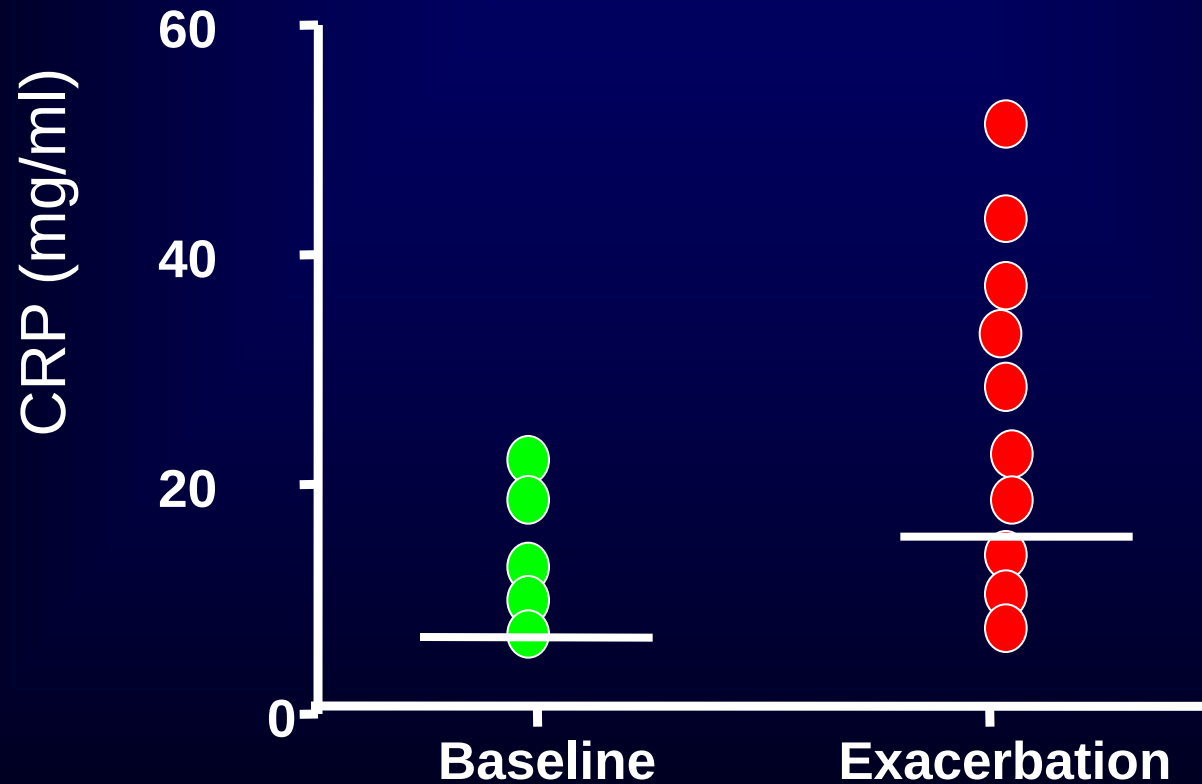
Contoli, Saetta, Fabbri, & Papi et al. JACI 2010

Plasma Biomarkers at exacerbation of COPD

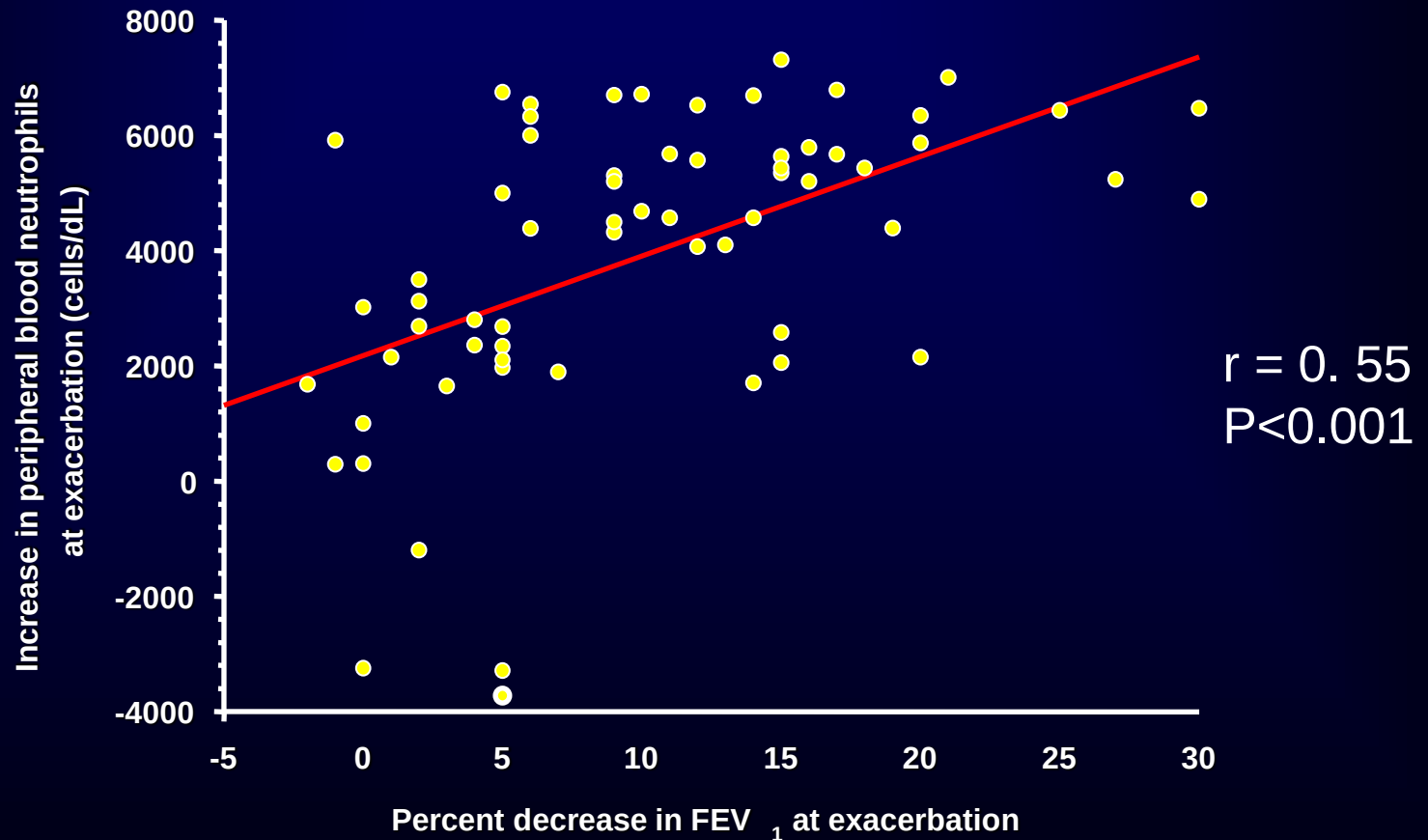
Differences in plasma markers between baseline and exacerbations

Marker	Units	Baseline median (IQR)	Exacerbation median(IQR)	Median (% change)	P value
CRP	mg/L	4.0 (2.0-12.0)	15.6 (4.5-74.0)	+ 185	<0.001
IL-6	pg/ml	1.55 (0.94-3.07)	3.25 (1.48-6.12)	+66	<0.001
TNF- α	pg/ml	734 (574-944)	901 (72-1237)	+18	<0.001
PARC	pg/ml	1.1 (0.8-1.5) $\times 10^5$	1.3 (0.9-1.7) $\times 10^5$	+10	0.002
ACRP-30	pg/ml	1.5 (0.9-2.3) $\times 10^7$	1.6 (1.1 -2.6) $\times 10^7$	+11	0.001
S-ICAM-1	pg/ml	4.8 (3.7-5.9) $\times 10^5$	5.0 (4.1-6.4) $\times 10^5$	+6	0.003

CRP et exacerbation



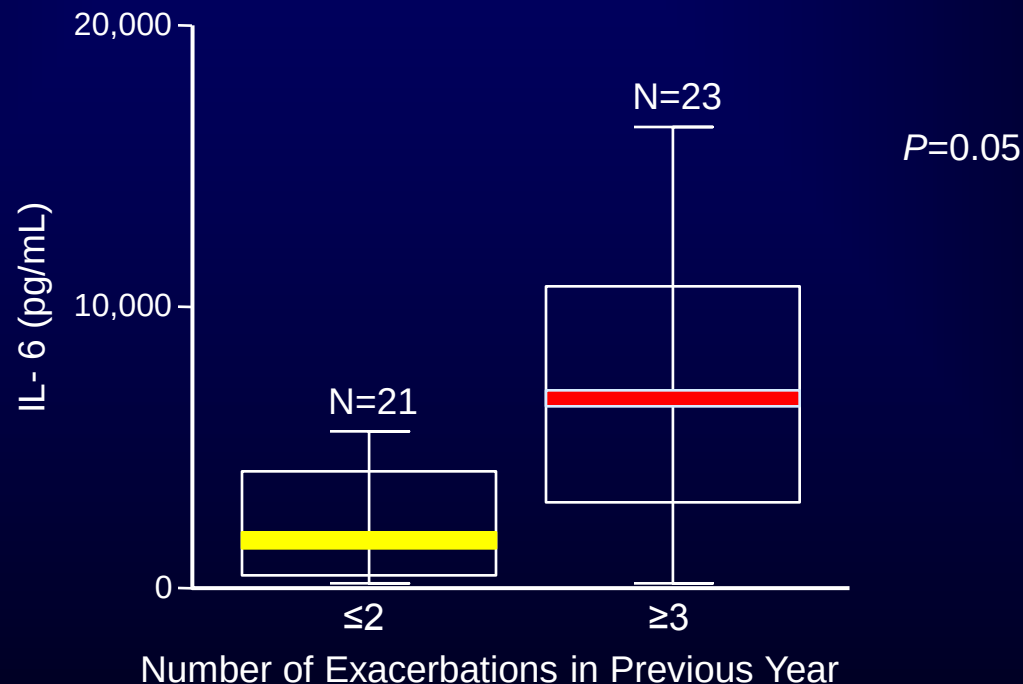
Corrélation PNN dans les Sang et VEMS



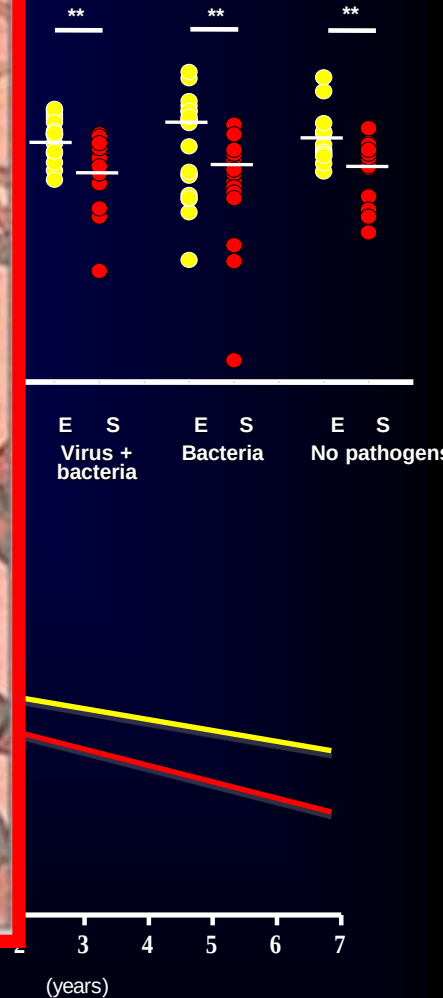
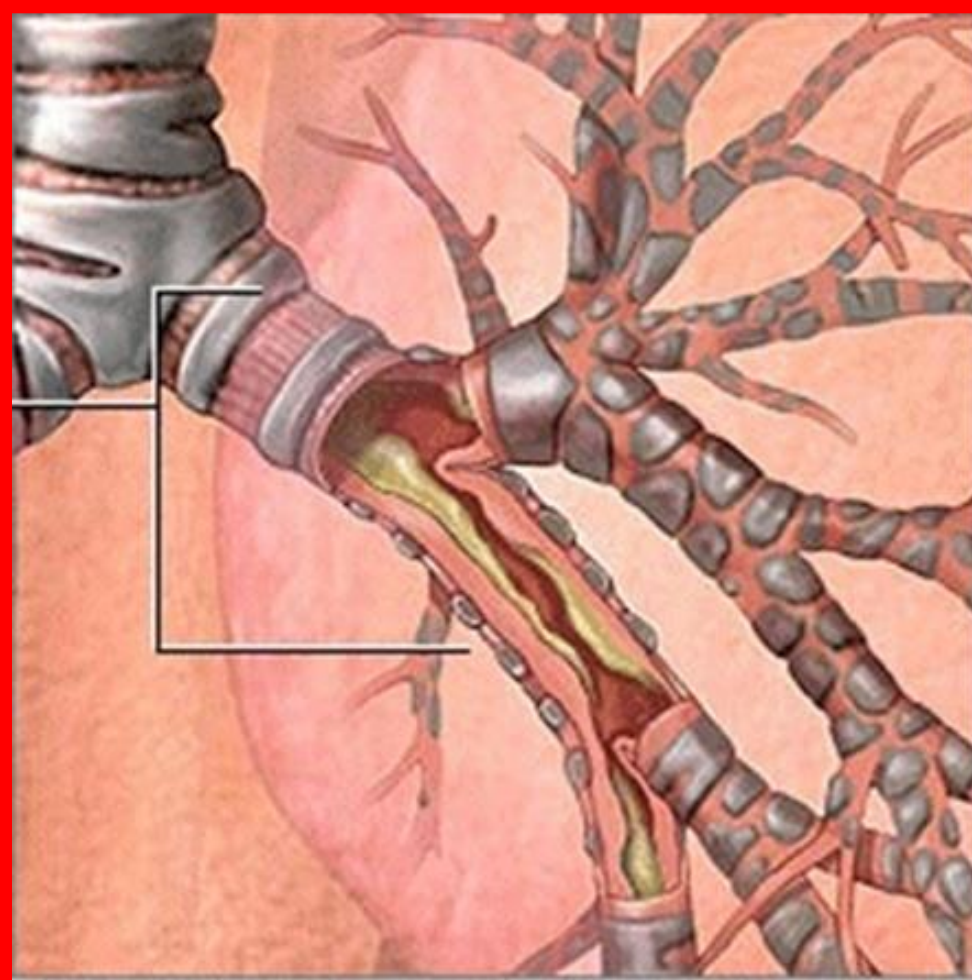
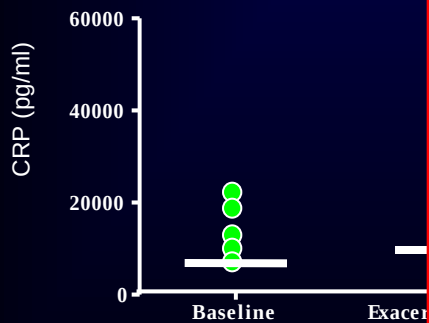
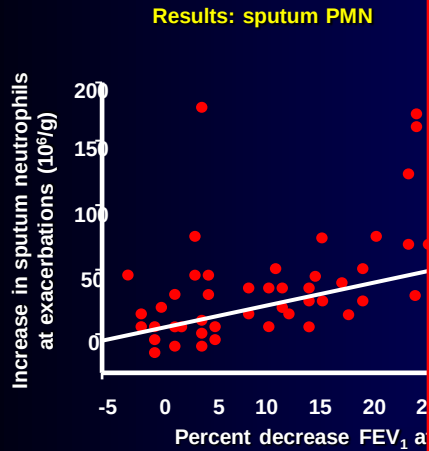
IL-6 et nombre d'exacerbation

■ > 2.58 exac/year

■ < 2.58 exac/year

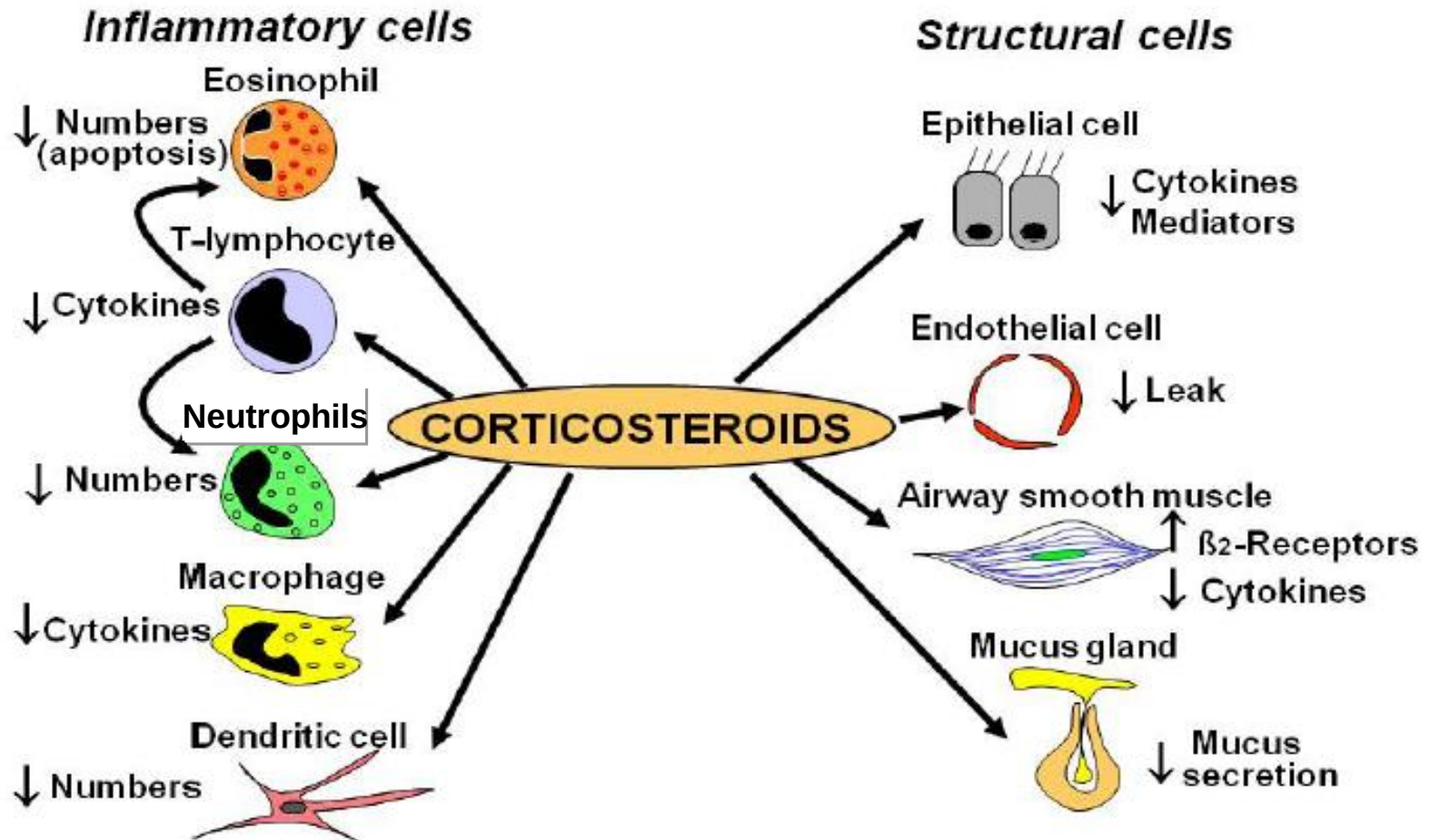


Au total: EBPCO= Inflammation

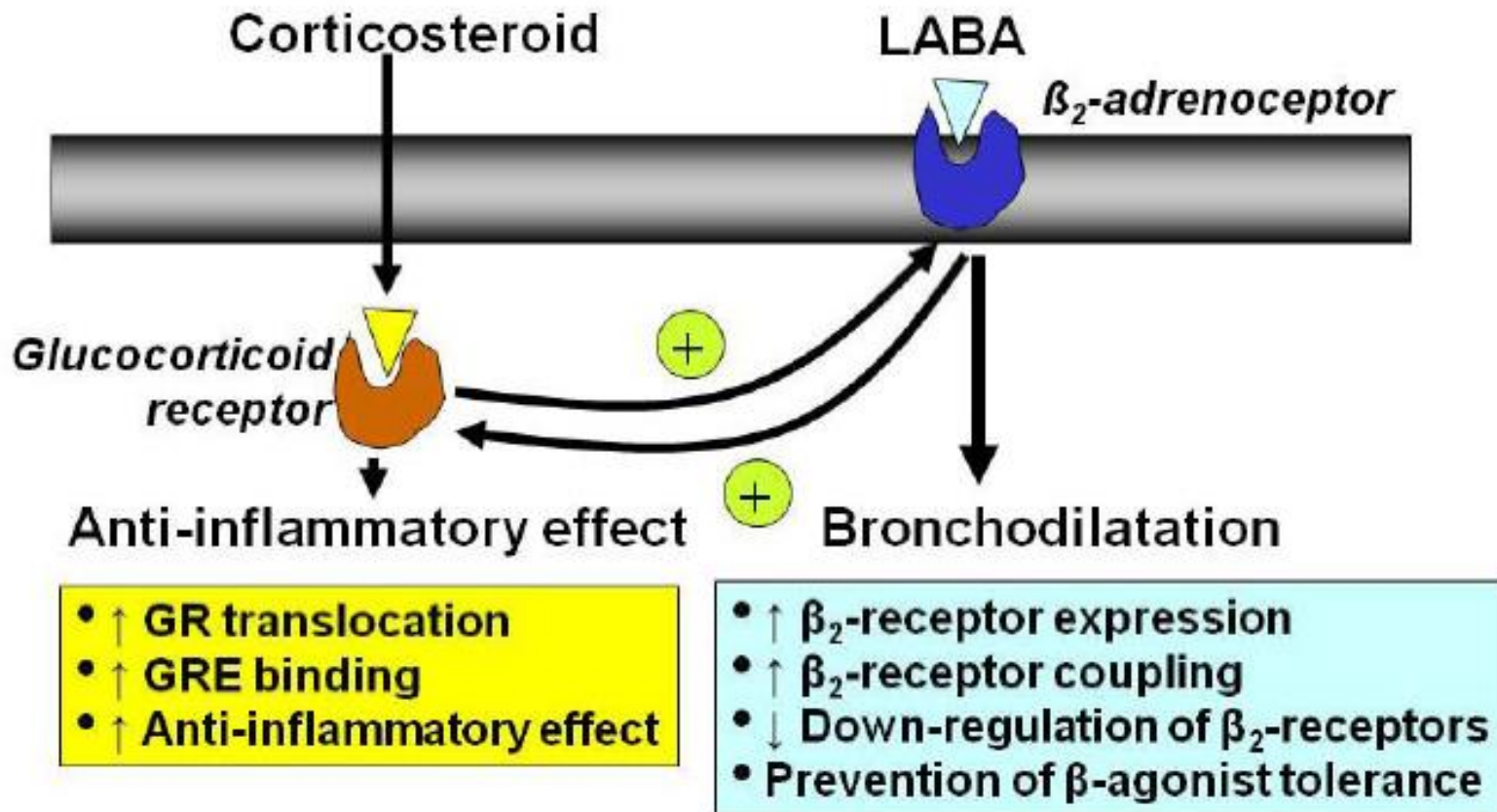


Effets des corticoïdes

Figure 1. Cellular effect of corticosteroids.



Effets des corticoïdes



Donc...

- **Corticothérapie:**

- ★ Diminue l'inflammation Bronchique
- ★ Diminue l'hypersécrétion Bronchique
- ★ Diminue le bronchospasme
- ★ Effet sur les fibroblastes
- ★ Augmente la sensibilité aux beta-2 mimétique
- ★ Augmente le nombre de récepteur beta-2

CONTRE

- Bases théoriques
 - *Efficacité médiocre sur l'inflammation particulière des BPCO
 - *Les corticoïdes ont un effet délétères sur la fonction musculaire

Les études...

Voie systémique ?

Aux Urgences

Aaron SD, Vandemheen KL, Hevert P, et al. Outpatient oral prednisone after emergency treatment of chronic obstructive pulmonary disease. *N Engl J Med*. 2003;348:2618–2625.

- Dans cette étude les patient étaient randomisé en 2 groupe :
 - 74 patients ont reçu du prednisone per os
 - 73 patients ont reçu du placebo
- Les 2 groupes avaient reçu le même tt adjuvent
- Les patient étaient évalués à j3 , j10, j30

Aux Urgences

- Comparativement au placebo le prednisone
 - *Réduit significativement le taux de rechute à j30 (27% /43% $\rightarrow p=0.05$),
 - *Améliore la dyspnée, le VEMS (34% vs 15% $\rightarrow p=0,007$)
 - *Il n'y avait pas de différence significative dans le taux de ré hospitalisation entre les 2 groupes (21% vs 11%)

En intra-hospitalier

Les revues de la littérature

« Short courses of systemic corticosteroids for acute exacerbations of COPD have been shown to improve **spirometric outcomes** (or **clinical outcomes**) »

« For acute

US

Réanimation (2014) 23:54-64
DOI 10.1007/s13546-013-0732-5
MISE AU POINT / UPDATE

Corticothérapie systémique et antibiothérapie lors des exacerbations aiguës d'une bronchopneumopathie chronique obstructive nécessitant une assistance ventilatoire
Systemic corticosteroid and antibiotic therapy during acute exacerbations of chronic obstructive pulmonary disease requiring ventilatory support
L. Ouanes · Z. Hammouda · S. Ben Abdallah · F. Dachraoui · L. Ouanes-Besbes · F. Abrong

« Il ne faut pas se priver de
une cure courte de
hospitalisé pour

et il y a d'autres...

Les études

« Positives »

Niewoehner et al. NEJM 1999

Albert et al. Ann Intern Med 1980

Thompson et al. Am J Respir Crit Care Med 1996

Bullard et al. Am J Emerg Med 1996

Murata et al. Chest 1990

Davies et al. Lancet 1999

« Négatives »

Emerman et al. Chest 1989

« 2 doses »

Saymer et al. Chest 2001

Willaert et al. Eur Respir J 2002

Niewoehner et al., 1999

- équipe connue
- méthodologie pré-publiée
- prospectif
- contrôlé
- double aveugle
- répartition aléatoire
- multicentrique (25 centres)

Niewoehner et al., 1999

- tirage au sort dans les 12 h après hospitalisation.
- — placebo, n = 111
- — corticoïdes 2 semaines, n = 80
- — corticoïdes 8 semaines, n = 80
- méthylprednisolone 125 mg X 4 iv, 72h
- puis per os, 60 mg, décroissance sur 2 ou 8 semaines
- **critère principal : échec du traitement++**
- **suivi : 6 mois**

Niewoehner et al., 1999

échecs

à 30 j

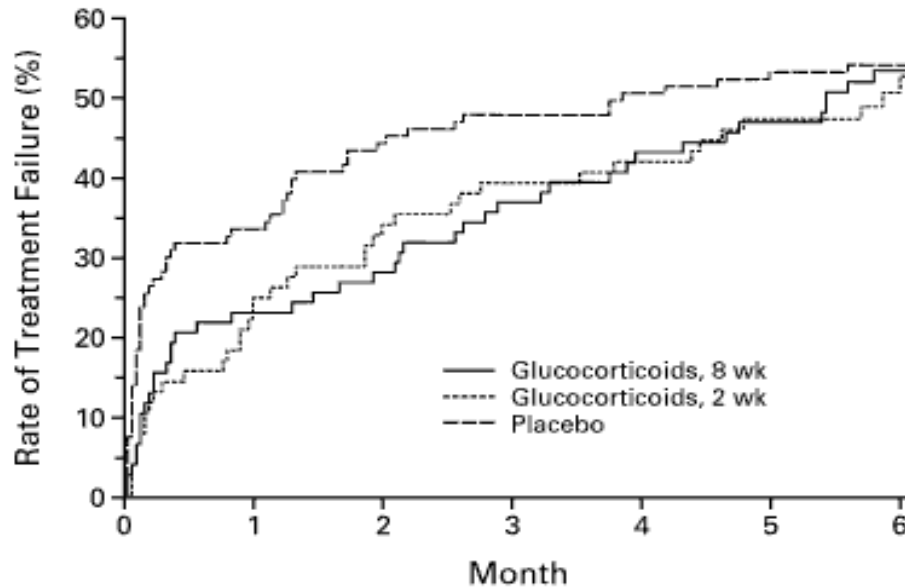
23vs 33% (0.04)

à 90 j

37vs 48 (0.04)

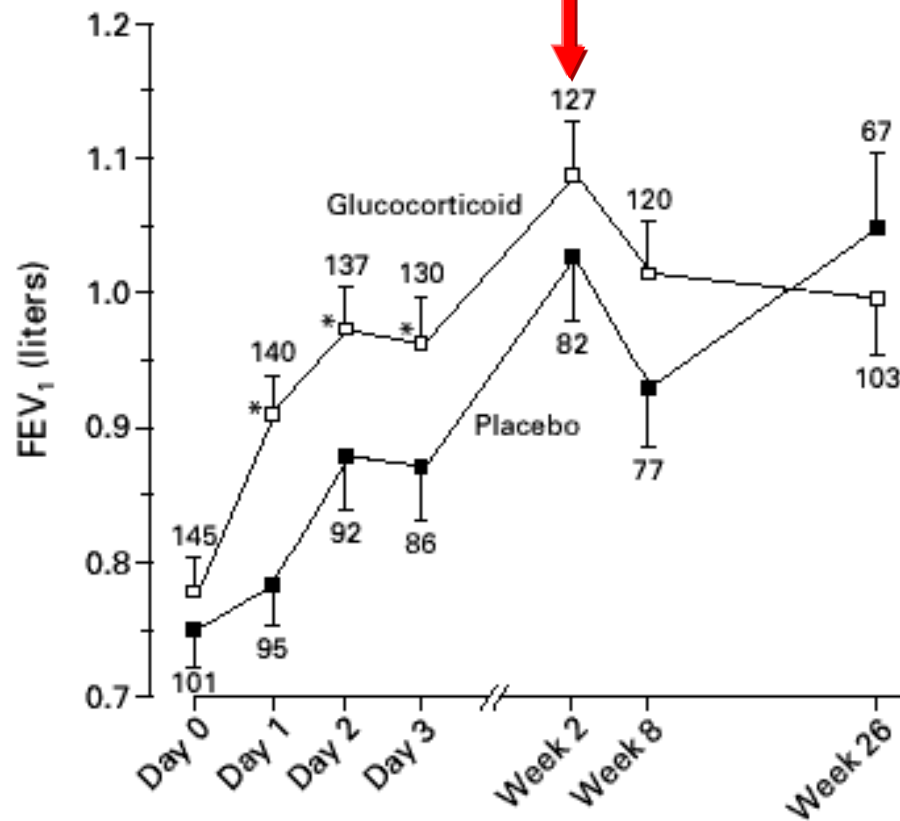
à 6 mois

51vs 54 (NS)



durée hospitalisation pour BPCO
initial 9.7 vs 8.5 (0.03)

Niewoehner et al., 1999



VEMS

augmente + vite (3j)

pas différent à J 15

Niewoehner et al., 1999

	<i>placebo</i> 111	<i>CTC</i> 160
J30		
décès	3 (3%)	4 (2.5%)
intubation	3 (3%)	3 (2%)
réadmission	5 (5%)	6 (4%)
intensification	26 (23%)	26 (16%)
J90		
décès	4 (4%)	4 (2.5%)
intubation	3 (3%)	4 (2.5%)
réadmission	13 (12%)	14 (9%)
intensification	33 (30%)	37 (23%)

échecs

à 30 j 23vs 33% (0.04)

à 90 j 37vs 48% (0.04)

à 6 m 51vs 54% (NS)

mortalité à 6 mois

8 vs 10% (NS)

This Provisional PDF corresponds to the article as it appeared upon acceptance. Fully formatted PDF and full text (HTML) versions will be made available soon.

Systemic corticosteroids in acute exacerbation of COPD: a meta-analysis of controlled studies with emphasis on ICU patients

Annals of Intensive Care 2014, **4**:32 doi:10.1186/s13613-014-0032-x

Fekri Abroug (f.abroug@rns.tn)

Islem Ouane (islam.ouane@rns.tn)

Sarra Abroug (s_abroug@yahoo.fr)

Fahmi Dachraoui (fahmi.dachraoui@rns.tn)

Saoussen Ben Abdallah (benabdallahsaoussen82@gmail.com)

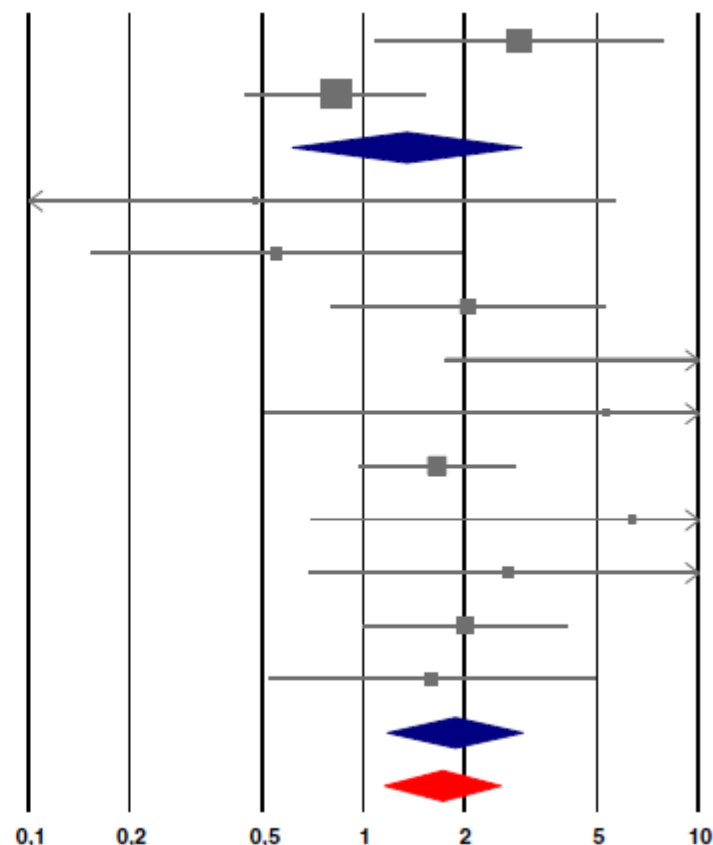
Zeineb Hammouda (zanoubia83@hotmail.com)

Lamia Ouane-Besbes (lamia.besbes@rns.tn)

Published online: 26 October 2014

Succès thérapeutique

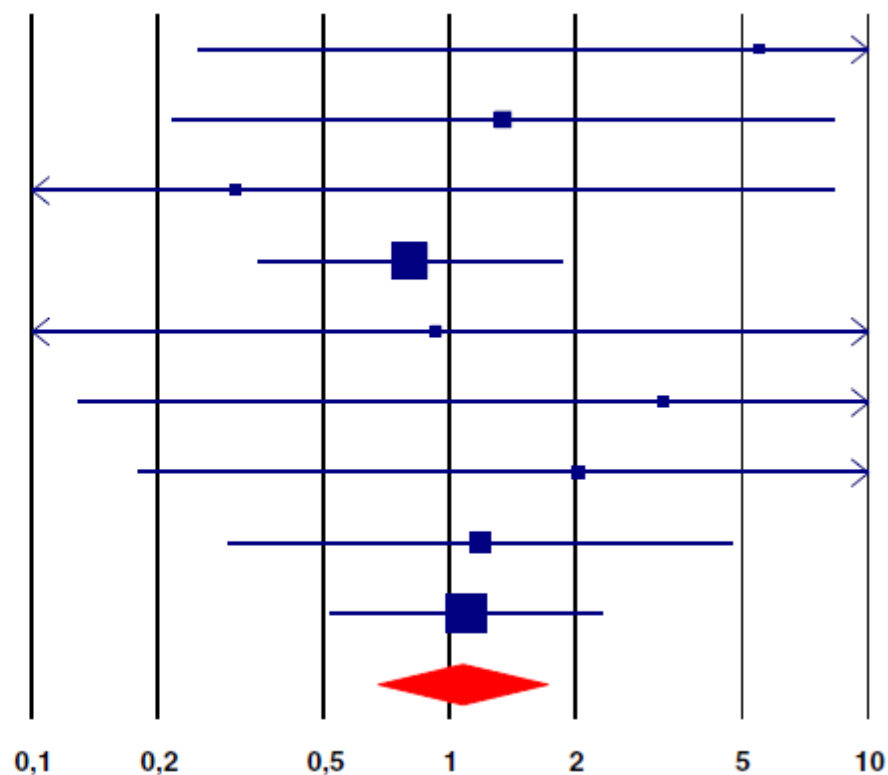
Group by Type of patients	Study name	Statistics for each study				Success / Total		Odds ratio and 95% CI
		Odds ratio	Lower limit	Upper limit	p-Value	SCS	Control	
ICU	Alia_2011	2,92	1,08	7,89	0,03	35 / 43	24 / 40	
ICU	Abroug_2013	0,83	0,44	1,54	0,55	82 / 111	82 / 106	
ICU Studies		1,34	0,61	2,95	0,46			
Non-ICU	Albert_1980	0,48	0,04	5,67	0,56	20 / 22	21 / 22	
Non-ICU	Emerman_1989	0,55	0,15	1,97	0,36	44 / 52	40 / 44	
Non-ICU	Bullard_1996	2,05	0,80	5,26	0,14	16 / 60	8 / 53	
Non-ICU	Thompson_1996	35,31	1,75	710,40	0,02	13 / 13	6 / 14	
Non-ICU	Wood-Baker_1997	5,33	0,51	56,24	0,16	12 / 13	9 / 13	
Non-ICU	Niewoehner_1999	1,66	0,97	2,85	0,06	123 / 160	74 / 111	
Non-ICU	Davies_1999	6,36	0,69	58,50	0,10	28 / 29	22 / 27	
Non-ICU	Maltais_2002	2,71	0,69	10,73	0,16	59 / 62	58 / 66	
Non-ICU	Aaron_2003	2,01	0,99	4,09	0,05	51 / 70	40 / 70	
Non-ICU	Chen_2008	1,60	0,52	4,95	0,41	79 / 87	37 / 43	
Non ICU Studies		1,87	1,18	2,99	0,01			
Overall		1,72	1,15	2,57	0,01			



Favours Control Favours Steroids

Mortalité

Study name	Statistics for each study				Dead / Total		Odds ratio and 95% CI
	Odds ratio	Lower limit	Upper limit	p-Value	SCS	Control	
Albert_1980	5,49	0,25	121,18	0,28	2 / 22	0 / 22	
Bullard_1996	1,34	0,22	8,36	0,75	3 / 60	2 / 53	
Wood-Baker_1997	0,31	0,01	8,30	0,48	0 / 13	1 / 13	
Niewoehner_1999	0,80	0,35	1,87	0,61	13 / 160	11 / 111	
Davies_1999	0,93	0,06	15,62	0,96	1 / 29	1 / 27	
Maltais_2002	3,24	0,13	81,13	0,47	1 / 62	0 / 66	
Aaron_2003	2,03	0,18	22,91	0,57	2 / 70	1 / 70	
Alia_2011	1,18	0,29	4,76	0,81	5 / 43	4 / 40	
Abroug_2013	1,10	0,52	2,33	0,81	17 / 111	15 / 106	
	1,07	0,67	1,71	0,77			

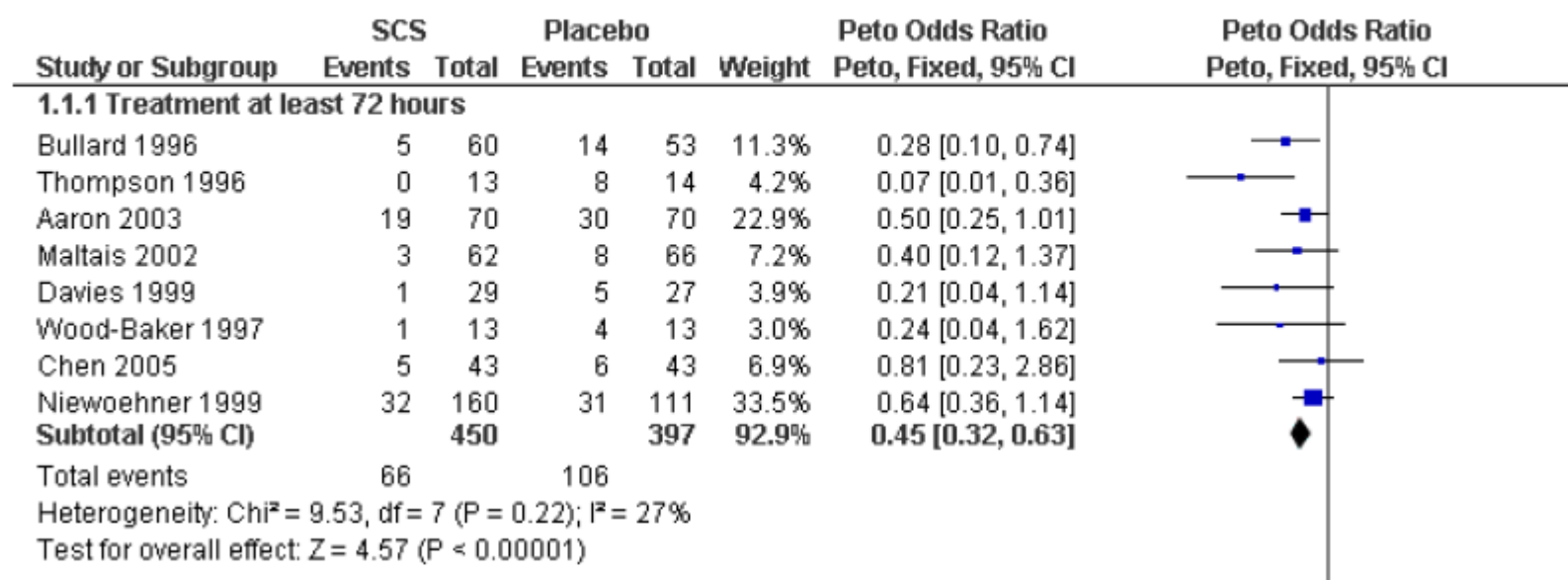


Control Higher Steroid Higher

Systemic corticosteroids for acute exacerbations of chronic obstructive pulmonary disease (Review)

Walters JAE, Gibson PG, Wood-Baker R, Hannay M, Walters EH

Figure 2. Forest plot of comparison: 1 Systemic Corticosteroid (SCS) vs Placebo, outcome: 1.1 Treatment failure.



Systemic corticosteroids for acute exacerbations of chronic obstructive pulmonary disease (Review)

Walters JAE, Gibson PG, Wood-Baker R, Hannay M, Walters EH

- Réduction significative du score de la dyspnée
- Augmentation significative du VEMS
- Amélioration des échanges gazeux
- Diminution de la durée du séjour dans l'hôpital
- **Hyperglycémie+++**

En Réanimation

- 3 études publiées

ORIGINAL INVESTIGATION

Efficacy of Corticosteroid Therapy in Patients With an Acute Exacerbation of Chronic Obstructive Pulmonary Disease Receiving Ventilatory Support

Inmaculada Alía, MD; Miguel A. de la Cal, MD; Andrés Esteban, MD, PhD; Ana Abella, MD; Ricard Ferrer, MD; Francisco J. Molina, MD; Antoni Torres, MD, PhD; Federico Gordo, MD; José J. Elizalde, MD; Raúl de Pablo, MD; Alejandro Huete, MD; Antonio Anzueto, MD, PhD

Efficacy of Corticosteroid Therapy in Severe Decompensation of Chronic Obstructive Pulmonary Disease Requiring Mechanical Ventilation

Mabrouk Bahloul, Anis Chaari, Hassen Dammak, Rania Ammar, Fatma Medhioub, Chokri B. Hamida, Hedi Chelly, and Mounir Bouaziz*

Prednisone in COPD exacerbation requiring ventilatory support: an open-label randomised evaluation

Fekri Abroug^{1,2}, Lamia Ouanes-Besbes^{1,2}, Mohamed Fkih-Hassen^{2,3}, Islem Ouanes^{1,2}, Samia Ayed^{2,3}, Fahmi Dachraoui^{1,2}, Laurent Brochard⁴ and Souheil ElAtrous^{2,3}

Efficacy of Corticosteroid Therapy in Patients With an Acute Exacerbation of Chronic Obstructive Pulmonary Disease Receiving Ventilatory Support

Inmaculada Alía, MD; Miguel A. de la Cal, MD; Andrés Esteban, MD, PhD; Ana Abella, MD; Ricard Ferrer, MD; Francisco J. Molina, MD; Antoni Torres, MD, PhD; Federico Gordo, MD; José J. Elizalde, MD; Raúl de Pablo, MD; Alejandro Huete, MD; Antonio Anzueto, MD, PhD

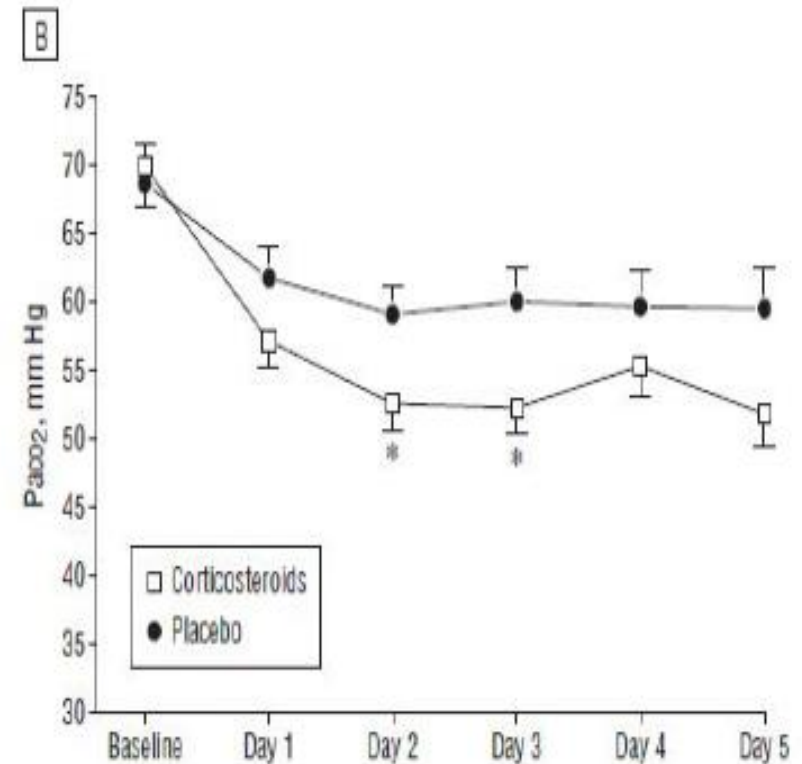
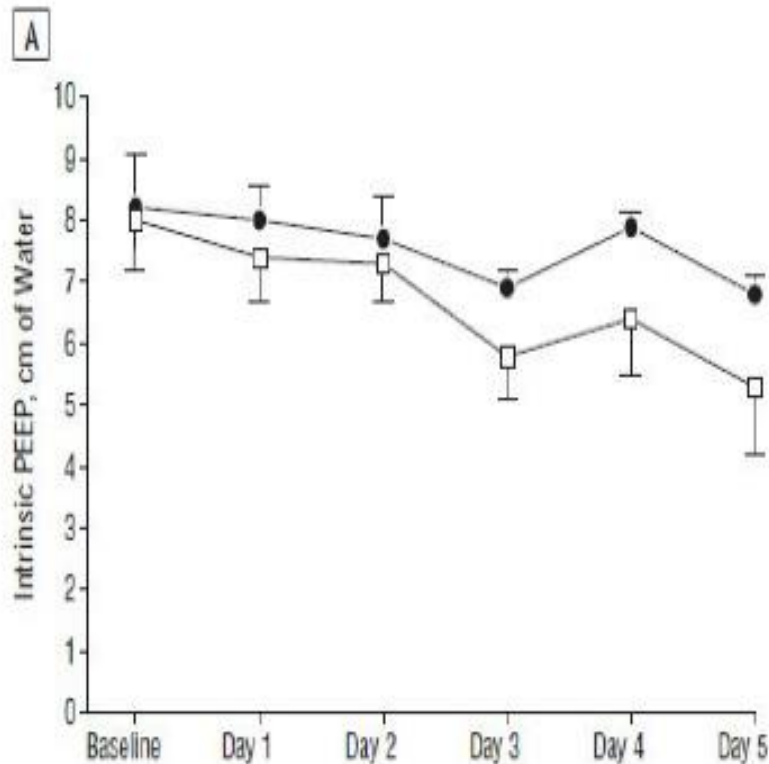
- Étude espagnole multicentrique prospective et randomisée
- Elle a porté sur 83 patients, qui sont tous âgés de plus de 18 ans hospitalisés en unité de soins intensifs nécessitant une ventilation mécanique invasive ou non invasive
- Groupe corticoïdes (+; N= 43) et (-; N=40)

Table 1. Baseline Characteristics of the 83 Patients According to Treatment Assignment

Characteristic	Placebo Group (n=40)	Corticosteroid Group (n=43)	P Value
Age, mean (SD), y	67.6 (10.7)	69.1 (9.7)	.52
Men, No. (%)	34 (85)	32 (74)	.23
SAPS II, mean (SD)	36.3 (10.9)	36.3 (9.8)	.99
Comorbid condition, No. (%)			.07
Diabetes mellitus	9 (22)	15 (35)	
Arterial hypertension	22 (55)	15 (35)	
Neuromuscular disease	1 (2)	1 (2)	
Reason for acute exacerbation of COPD, No. (%)			.72
Respiratory infection	28 (70)	30 (70)	
Cardiac failure	9 (22)	8 (19)	
Sepsis	1 (2)	1 (2)	
Postoperative	1 (2)	0 (0)	
Unidentified cause	0 (0)	4 (9)	
Other	2 (5)	3 (7)	
Initial ventilatory support, No. (%)			.60
Noninvasive	19 (47)	18 (42)	
Conventional	21 (52)	25 (58)	
Blood gases, mean (SD)			
Pao ₂ /Fio ₂ , mm Hg	191.5 (75.9)	197.8 (83.7)	.72
Paco ₂ , mm Hg	68.7 (18.5)	69.9 (19.7)	.78
pH	7.31 (0.10)	7.27 (0.11)	.12
Blood glucose, mean (SD), mg/dL	158.7 (65.7)	193.3 (60.6)	.02
White blood cell count, mean (SD), / μ L	10 515 (3645)	12 166 (5268)	.10

Efficacy of Corticosteroid Therapy in Patients With an Acute Exacerbation of Chronic Obstructive Pulmonary Disease Receiving Ventilatory Support

Inmaculada Alia, MD; Miguel A. de la Cal, MD; Andrés Esteban, MD, PhD; Ana Abella, MD; Ricard Ferrer, MD; Francisco J. Molina, MD; Antoni Torres, MD, PhD; Federico Gordo, MD; José J. Elizalde, MD; Raúl de Pablo, MD; Alejandro Huete, MD; Antonio Anzueto, MD, PhD



Efficacy of Corticosteroid Therapy in Patients With an Acute Exacerbation of Chronic Obstructive Pulmonary Disease Receiving Ventilatory Support

Inmaculada Alía, MD; Miguel A. de la Cal, MD; Andrés Esteban, MD, PhD; Ana Abella, MD; Ricard Ferrer, MD; Francisco J. Molina, MD; Antoni Torres, MD, PhD; Federico Gordo, MD; José J. Elizalde, MD; Raúl de Pablo, MD; Alejandro Huete, MD; Antonio Anzueto, MD, PhD

Table 2. Outcome Measures

Outcome ^a	Placebo Group (n=40)	Corticosteroid Group (n=43)	P Value
Duration of mechanical ventilation, d	4 (3-7)	3 (2-6)	.04
NIMV	4 (2-5)	2 (2-3)	.008
CMV	7 (4-11)	5 (3-7)	.09
Length of ICU stay, d	7 (5-12)	6 (4-10)	.09
NIMV	5 (4-9)	4 (3-5)	.04
CMV	10 (7-18)	9 (6-12)	.18
Length of hospital stay, d	15 (11-21)	13 (8-21)	.30
NIMV	15 (9-20)	14 (8-19)	.99
CMV	17 (12-31)	13 (8-22)	.07
In-ICU mortality, No. (%)	4 (10)	5 (12)	.81
NIMV	1/19 (5)	0/18 (0)	>.99
CMV	3/21 (14)	5/25 (20)	.71
Failure of NIMV, No. (%)	7/19 (37)	0/18 (0)	.004
Reintubation within 48 h, ^b No. (%)	5/26 (19)	3/22 (14)	.71

Efficacy of Corticosteroid Therapy in Patients With an Acute Exacerbation of Chronic Obstructive Pulmonary Disease Receiving Ventilatory Support

Inmaculada Alía, MD; Miguel A. de la Cal, MD; Andrés Esteban, MD, PhD; Ana Abella, MD; Ricard Ferrer, MD; Francisco J. Molina, MD; Antoni Torres, MD, PhD; Federico Gordo, MD; José J. Elízalde, MD; Raúl de Pablo, MD; Alejandro Huete, MD; Antonio Anzueto, MD, PhD

Table 3. Frequency of Adverse Events

Event	No. (%)		<i>P</i> Value
	Placebo Group (n=40)	Corticosteroid Group (n=43)	
Superinfection	6 (15)	5 (12)	.65
Gastrointestinal bleeding	2 (5)	2 (5)	.60
Arterial hypertension	4 (10)	2 (5)	.42
Hyperglycemia	10 (25)	20 (46)	.04
Ventilator-associated pneumonia	3 (7)	4 (9)	.77
Delirium	3 (7)	1 (2)	.35
ICU-acquired paresis	0	0	...

Abbreviation: ICU, intensive care unit.

Efficacy of Corticosteroid Therapy in Severe Decompensation of Chronic Obstructive Pulmonary Disease Requiring Mechanical Ventilation

Mabrouk Bahloul,* Anis Chaari, Hassen Dammak, Rania Ammar, Fatma Medhioub, Chokri B. Hamida, Hedi Chelly, and Mounir Bouaziz

- étude observationnelle de type cas-témoin.
- L'appariement des patients a été fait selon l'âge, le SAPSII et le rapport PaO₂/FiO₂ a l'admission
- Trente quatre patients ont fait l'objet de ce travail

Efficacy of Corticosteroid Therapy in Severe Decompensation of Chronic Obstructive Pulmonary Disease Requiring Mechanical Ventilation

Mabrouk Bahloul,* Anis Chaari, Hassen Dammak, Rania Ammar, Fatma Medhioub, Chokri B. Hamida, Hedi Chelly, and Mounir Bouaziz

Table 2. Comparison between 2 groups on ICU admission.

Parameters	Steroids (+) (N = 17)	Steroids (-) (N = 17)	P
Age (years)	70 ± 7.2	70 ± 11	0.95
Sex (male/female)	15/2	12/4	0.20
Smoking (pack-year)	46 ± 37	38 ± 30	0.53
History of heart failure	4	6	0.45
History of arterial hypertension	3	9	0.03
History of diabetes	2	2	1
SAPSII	35.8 ± 11.7	35 ± 11	0.82
Body temperature (°C)	36.7 ± 0.6	37 ± 0.86	0.44
Systolic blood pressure (mm Hg)	112 ± 23	107 ± 24	0.56
Shock	11	12	0.71
Use of invasive mechanical ventilation	14	13	0.67
Use of noninvasive mechanical ventilation	3	4	0.70
pH on ICU admission	7.31 ± 0.13	7.35 ± 0.10	0.28
PaO ₂ /FiO ₂ ratio (mm Hg)	255 ± 91	272 ± 121	0.67
PaCO ₂ (mm Hg)	56.3 ± 19.5	51 ± 20	0.45
HCO ₃ (mmol/L)	27.6 ± 7	28.2 ± 8.9	0.84
Leucocytes counts (cells/mm ³)	16500 ± 3942	14748 ± 6625	0.36
Blood urea (mmol/L)	14 ± 8.6	15.9 ± 11.8	0.60
Blood sugar (mmol/L)	11 ± 6.9	11.1 ± 6.8	0.99
Blood Creatinine (μmol/L)	160 ± 118	160 ± 85	0.98

Efficacy of Corticosteroid Therapy in Severe Decompensation of Chronic Obstructive Pulmonary Disease Requiring Mechanical Ventilation

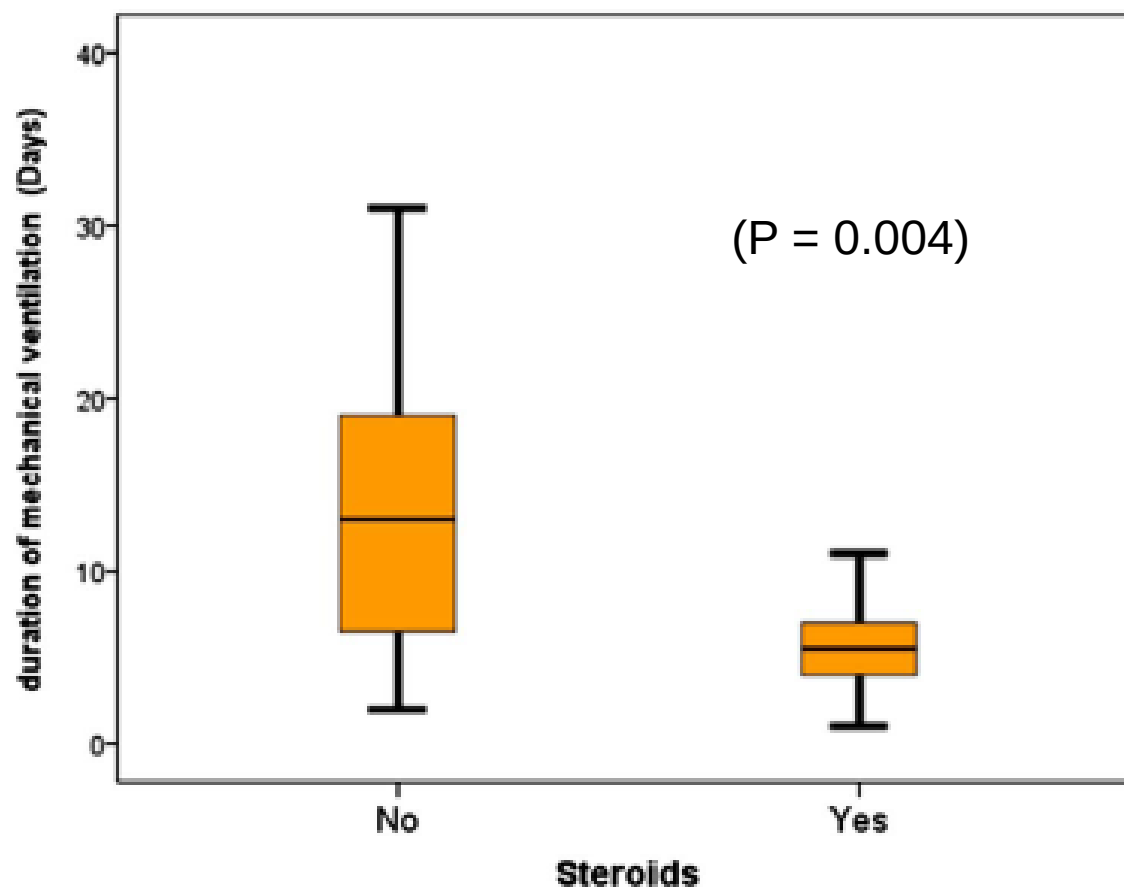
Mabrouk Bahloul,* Anis Chaari, Hassen Dammak, Rania Ammar, Fatma Medhioub, Chokri B. Hamida, Hedi Chelly, and Mounir Bouaziz

Table 3. Therapies used in association with steroids and complications observed in 2 groups.

Used therapies	Steroids (+) (N = 17)	Steroids (-) (N = 17)	P
Use of invasive mechanical ventilation	14	11	0.24
Use of noninvasive mechanical ventilation	3	6	0.24
Previous maintenance therapy			
Aminophylline	3	2	0.61
Inhaled β 2-agonists	8	8	1
Inhaled steroids	2	3	0.61
Home oxygen	2	1	0.43
Concomitant drugs			
Aminophylline	0	0	—
Nebulized β 2-agonists	17	17	1
Inhaled steroids	2	3	0.61
Tracheotomy	0	7	0.005
Antibiotics	15	13	0.36
Observed complications			
Pressure ulcer	1	3	0.25
Nosocomial pneumonia	3	6	0.22
Acute renal failure	11	8	0.93
Hyperglycemia (≥ 8 mmol/L)	14	12	0.41
Liver cytolysis	4	6	0.18

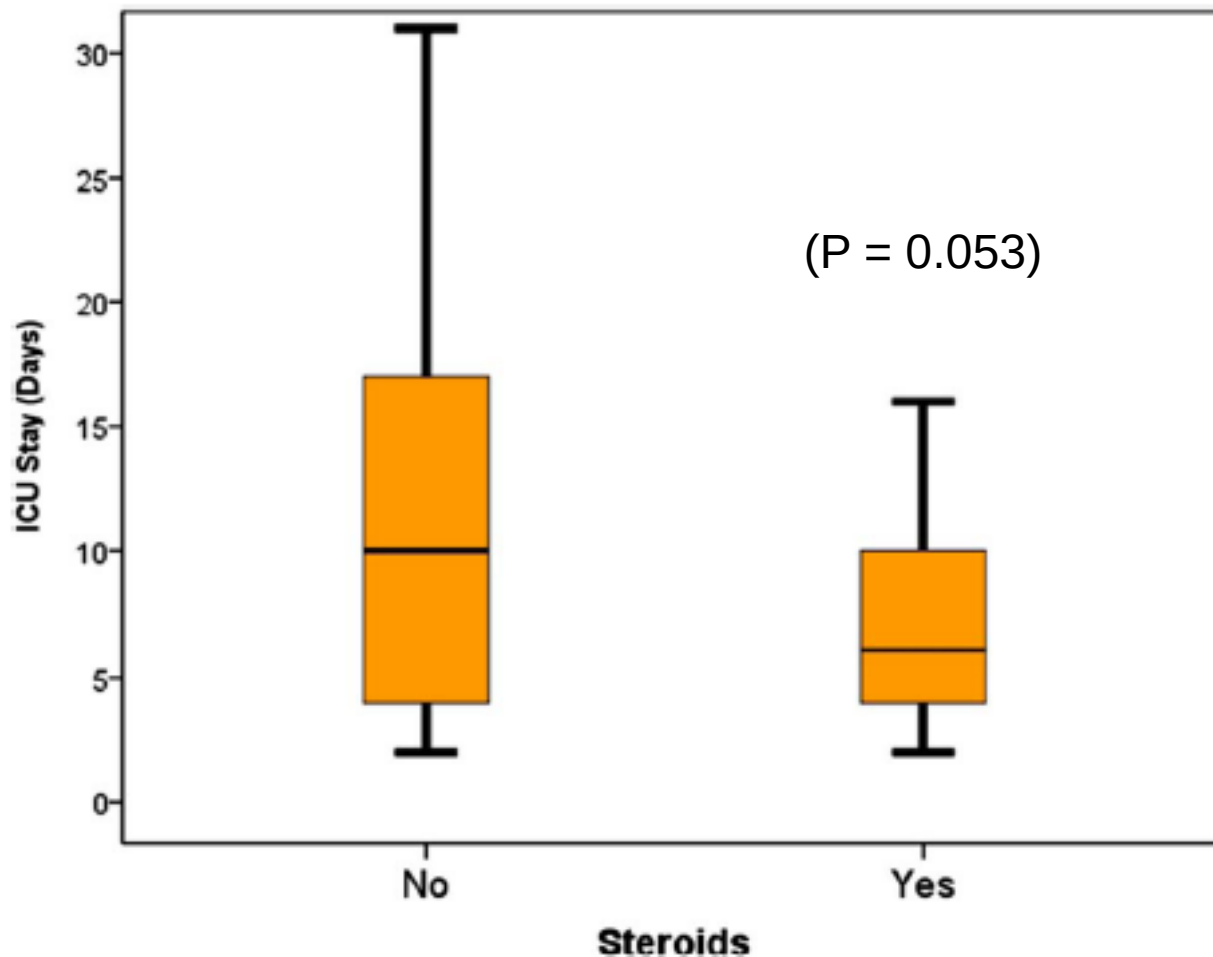
Efficacy of Corticosteroid Therapy in Severe Decompensation of Chronic Obstructive Pulmonary Disease Requiring Mechanical Ventilation

Mabrouk Bahloul,* Anis Chaari, Hassen Dammak, Rania Ammar, Fatma Medhioub, Chokri B. Hamida, Hedi Chelly, and Mounir Bouaziz



Efficacy of Corticosteroid Therapy in Severe Decompensation of Chronic Obstructive Pulmonary Disease Requiring Mechanical Ventilation

Mabrouk Bahloul,* Anis Chaari, Hassen Dammak, Rania Ammar, Fatma Medhioub, Chokri B. Hamida, Hedi Chelly, and Mounir Bouaziz



Prednisone in COPD exacerbation requiring ventilatory support: an open-label randomised evaluation

Fekri Abroug^{1,2}, Lamia Ouanes-Besbes^{1,2}, Mohamed Fkih-Hassen^{2,3}, Islem Ouanes^{1,2}, Samia Ayed^{2,3}, Fahmi Dachraoui^{1,2}, Laurent Brochard⁴ and Souheil ElAtrous^{2,3}

- Étude prospective et randomisée
- Elle a porté sur 217 patients, qui sont tous âgés de plus de 18 ans hospitalisés en unité de soins intensifs nécessitant une ventilation mécanique invasive ou non invasive
- Groupe corticoïdes (+; 106) et (-; 111)

Prednisone in COPD exacerbation requiring ventilatory support: an open-label randomised evaluation

Fekri Abroug^{1,2}, Lamia Ouanes-Besbes^{1,2}, Mohamed Fkih-Hassen^{2,3}, Islem Ouanes^{1,2}, Samia Ayed^{2,3}, Fahmi Dachraoui^{1,2}, Laurent Brochard⁴ and Souheil ElAtrous^{2,3}

TABLE 1 Baseline characteristics of the study patients

	Prednisone	Control
Subjects	111	106
Age years	70 (63–75)	68 (63–75)
Males	99 (89)	92 (87)
Baseline FEV₁ mL·s⁻¹	820 (590–1120)	750 (565–950)
COPD duration years	10 (5–12)	8 (5–12.5)
Home oxygen therapy	80 (72)	71 (67)
Comorbidities		
History of diabetes	17 (15)	13 (12)
History of hypertension	9 (8)	7 (7)
History of heart failure	14 (13)	13 (12)
GOLD stage		
III	33 (30)	29 (27)
IV	78 (70)	77 (73)
Cause of AECOPD		
Respiratory tract infection	50 (45)	46 (43)
Heart dysfunction	34 (31)	32 (30)
Unidentified	27 (24)	28 (27)
SAPS II score	29 (24–35)	27 (20–35)
Respiratory rate breaths·min⁻¹	30 (25–34)	29 (24–34)
Arterial blood gases		
pH	7.28 (7.25–7.32)	7.29 (7.25–7.32)
PaCO ₂ mmHg	78 (62–85)	80 (62–87)
SaO ₂ %	90 (84–94)	89 (83–94)
CRP mg·L ⁻¹	24 (12–57)	37 (12–66)
Initial ventilatory support		
NIV	84 (76)	80 (76)
Conventional	27 (24)	26 (24)

Prednisone in COPD exacerbation requiring ventilatory support: an open-label randomised evaluation

Fekri Abroug^{1,2}, Lamia Ouane-Besbes^{1,2}, Mohamed Fkih-Hassen^{2,3}, Islem Ouane^{1,2}, Samia Ayed^{2,3}, Fahmi Dachraoui^{1,2}, Laurent Brochard⁴ and Souheil ElAtrous^{2,3}

TABLE 2 Efficacy and safety end-points

	Prednisone	Control	Relative risk (95% CI)	p-value
Primary efficacy end-point				
ICU mortality	17/111 (15.3)	15/106 (14.2)	1.08 (0.6–2.05)	0.81
ICU mortality in patients ventilated with NIV	8/76 (10.5)	8/71 (11.3)	0.93 (0.37–2.35)	0.88
ICU mortality in patients ventilated conventionally	9/35 (25.7)	7/35 (20.0)	1.28 (0.54–3)	0.57
Secondary end-points				
NIV failure	12/76 (15.7)	9/71 (12.7)	1.25 (0.56–2.8)	0.59
Mechanical ventilation duration days	6 (4–12)	6 (3.8–12)		0.87
ICU length of stay days	9 (6–14)	8 (6–14)		0.88
Safety end-point				
Hyperglycaemic episodes requiring initiation or alteration of insulin therapy	55/111 (49.5)	35/106 (33.0)	1.5 (1.08–2.08)	0.015

Data are presented as n/N (%) or median (interquartile range), unless otherwise stated. ICU: intensive care unit, NIV: noninvasive ventilation.

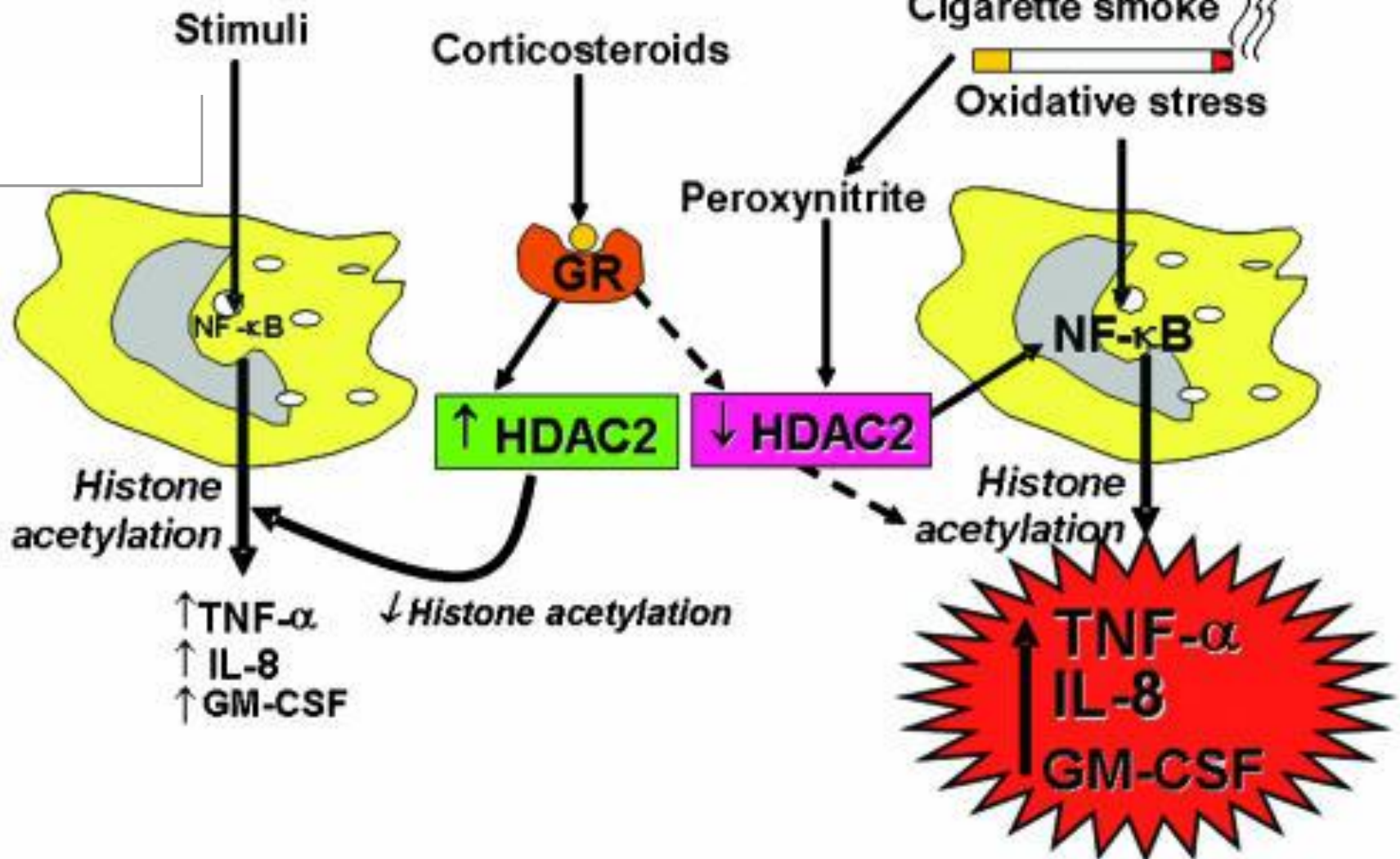
NORMAL ASTHMA

COPD

Smoking asthma
Severe asthma

Cigarette smoke

Oxidative stress



Au Total, La Corticothérapie:

- ★ Diminue l'inflammation Bronchique
- ★ Diminue la dyspnée
- ★ Améliore significativement le VEMS
- ★ Améliore les échange gazeux
- ★ Améliore l'efficacité de la VNI et des Béta-2 mimétique
- ★ Réduit significativement la durée de la VM
- ★ Réduit significativement la durée de séjour

Conclusion.(1).

- Oui pour la corticothérapie lors de l'exacerbation grave des BPCO
- American Thoracic Society
- European Respiratory Society
- GOLD 2013

Conclusion.(2).

★ Non pour la corticothérapie lors:

★ Insuffisance cardiaque gauche,
troubles du rythme

★ Embolie pulmonaire, Pneumothorax

★ Apport d'oxygène inadapté, ...

Conclusion.(3).

- Exacerbation Grave en réanimation: 3 études publiées dont 2 Tunisiennes.

