

## Colloque secteur URO-DIG

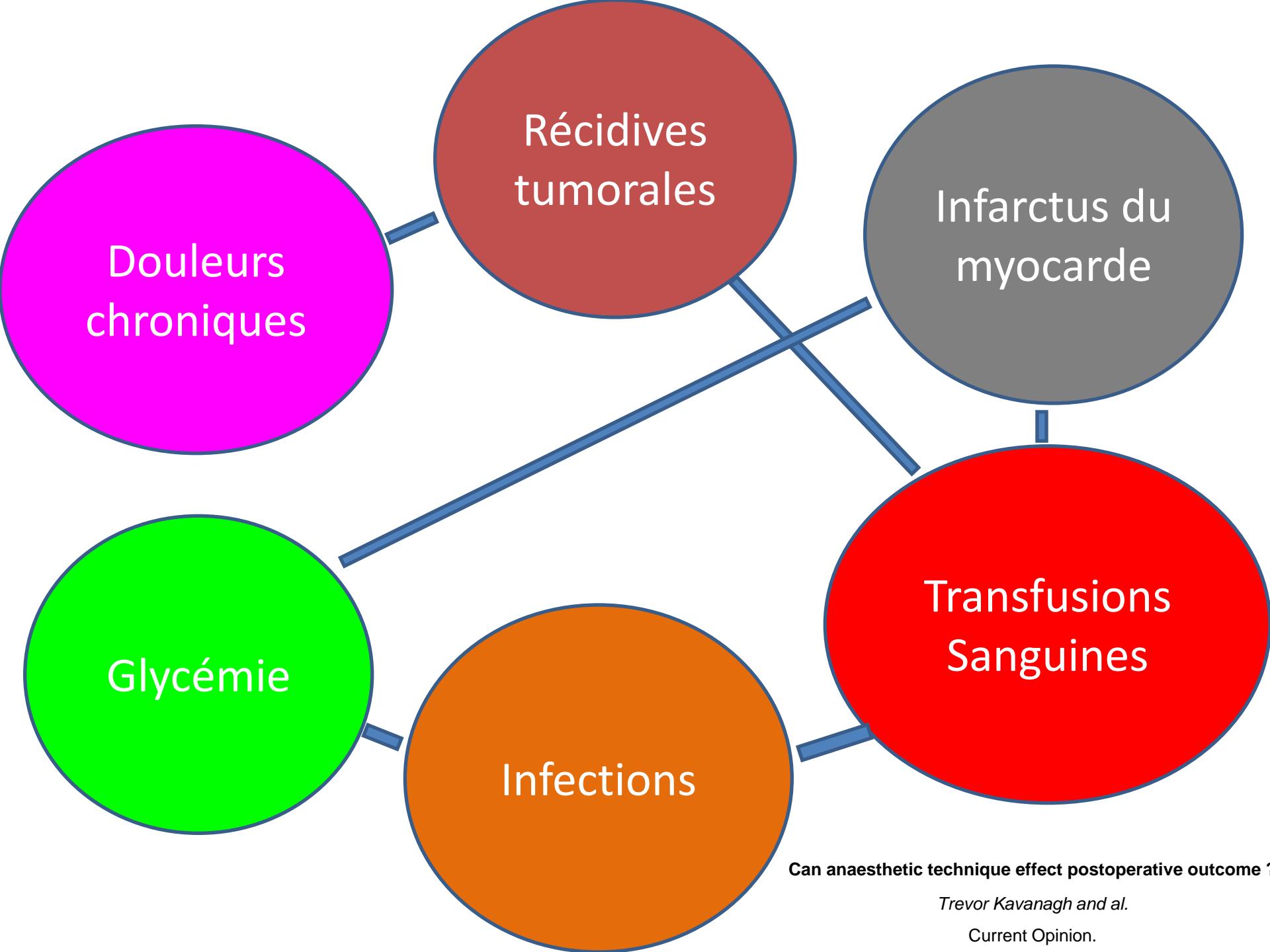
Mardi 04 septembre 2012

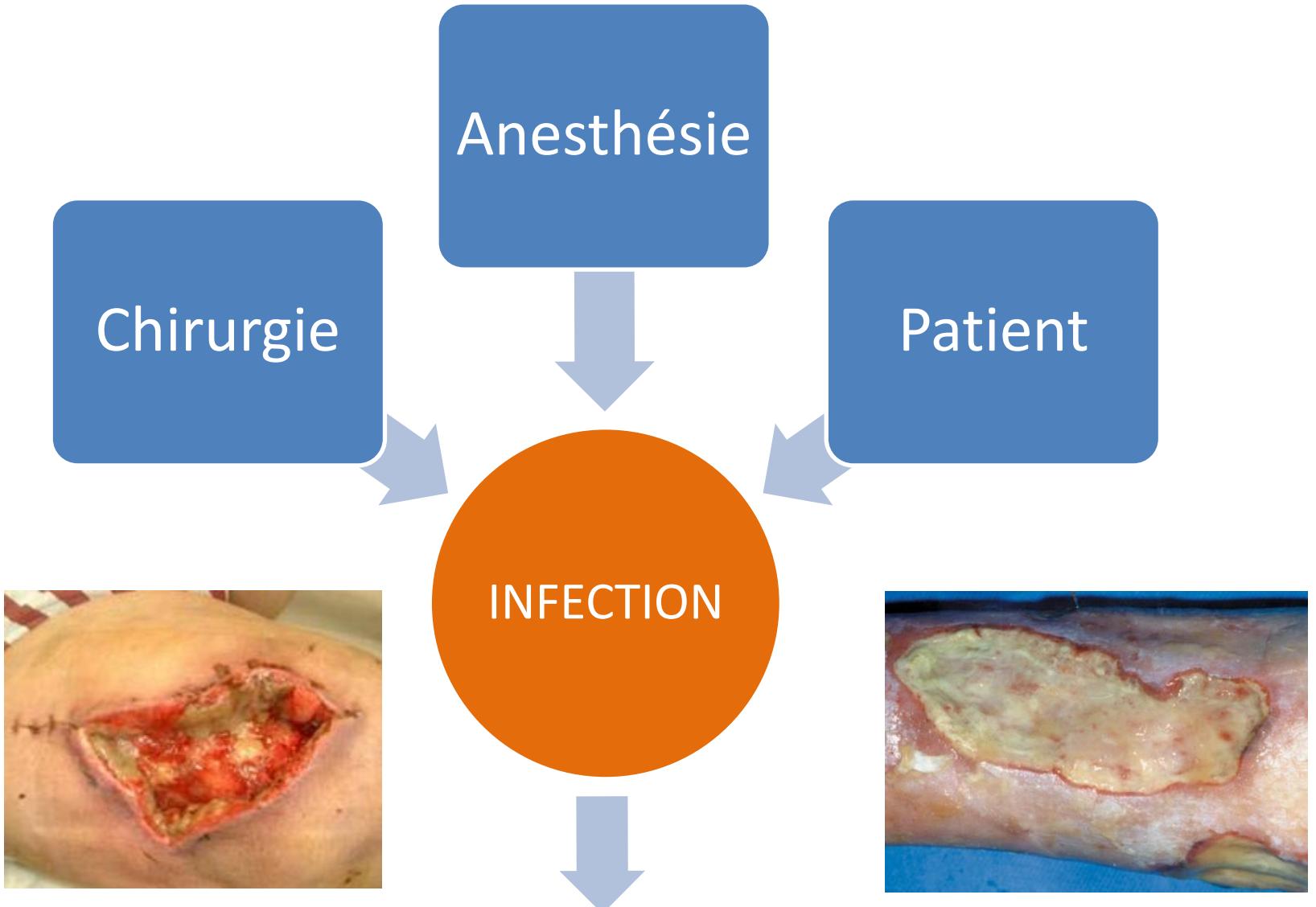


# Les techniques d'anesthésie peuvent-elles modifier le devenir du patient?

*Dr LACROIX Simon  
DES 5<sup>ème</sup> année*





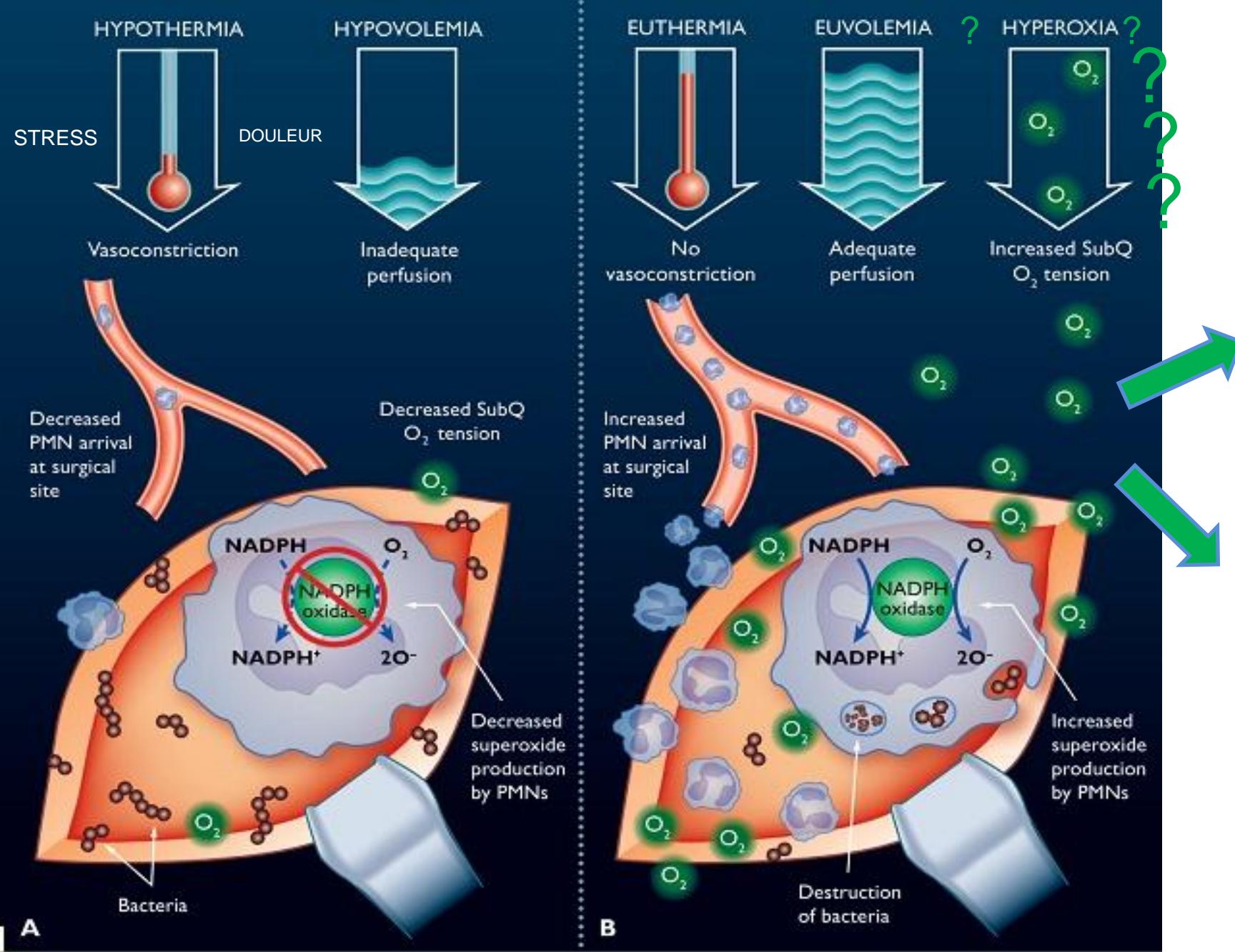


Can anaesthetic technique effect  
postoperative outcome ?  
Trevor Kavanagh and al.  
Current Opinion.

# METABOLISME

# COLLAGENE

I



## The Anesthesiologist's Role in the Prevention of Surgical Site Infections

William J. and al. Anesthesiology 2006

# Effects of peroperative warming on the incidence of wound infection after clean surgery: a randomised controlled trial.

Andrew C Melling, et al

THE LANCET • Vol 358 • September 15, 2001

Outcome	Local warming	Systemic warming	All warmed patients	Non-warmed patients	p*
<b>Wound Infection</b>	5 (4%)	8 (6%)	13 (5%)	19 (14%)	0·001
<b>ASEPSIS score</b>					
0–10	130 (94%)	129 (93%)	259 (94%)	115 (83%)	
11–20	4 (3%)	4 (3%)	8 (3%)	7 (5%)	
21–30	3 (2%)	3 (2%)	6 (2%)	9 (7%)	
31–40	1 (0·7%)	1 (0·7%)	2 (0·7%)	6 (4%)	
>41	0	2 (1%)	2 (0·7%)	2 (1%)	0·007
<b>Haematoma</b>	4 (3%)	2 (1%)	6 (2%)	5 (4%)	0·26
<b>Seroma</b>	7 (5%)	4 (3%)	11 (4%)	8 (6%)	0·41
<b>Wound aspirated</b>	7 (5%)	4 (3%)	11 (4%)	9 (7%)	0·27
<b>Prescribed postoperative antibiotics</b>	9 (7%)	9 (7%)	18 (7%)	22 (16%)	0·002

\*Calculated by comparing warmed patients with non-warmed patients.

Table 2: Postoperative outcomes



# Solutions



Antibiotique adéquat 30-60 minutes avant incision.

Temps opératoire.

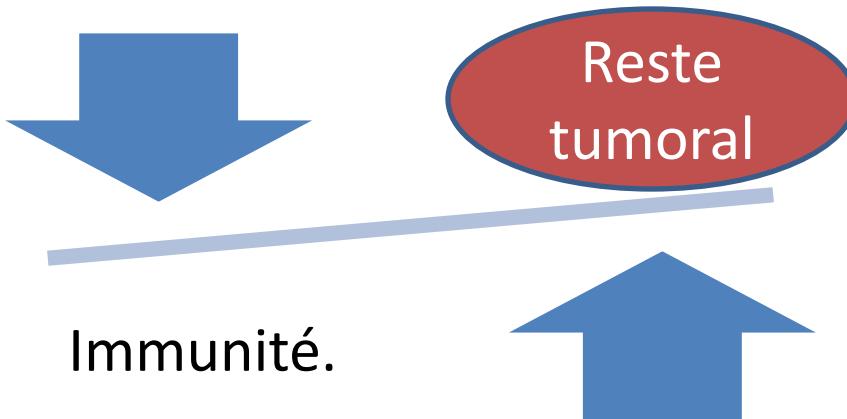
Stérilité (ALR, VC, VP, Bouchons, ... ).

Antidouleurs, ALR (bloque la voie sympathique).

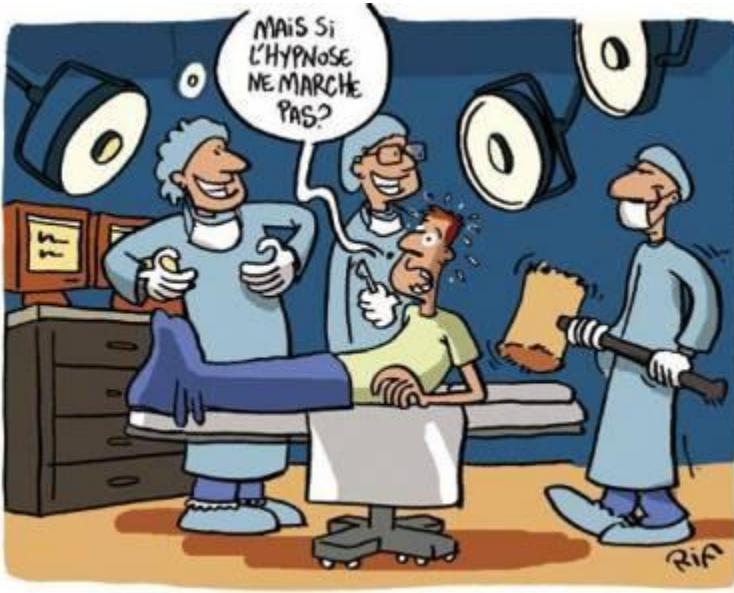
Glycémie.

Réchauffement actif.





- |                          |                                                                                                                                                                                                                                                             |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chirurgie                | <ul style="list-style-type: none"><li>• ↴ immunité.</li><li>• ↴ VEGF, GF</li></ul>                                                                                                                                                                          |
| Anesthésie               | <ul style="list-style-type: none"><li>• ↴ neutrophiles, macrophages,</li><li>• ↴ cellules tueuses naturelles.</li></ul>                                                                                                                                     |
| Douleurs postopératoires | <ul style="list-style-type: none"><li>• Facilitent métastases ?</li></ul>                                                                                                                                                                                   |
| Opioïdes                 | <ul style="list-style-type: none"><li>• Inhibent cellules immunitaires, augmentent angiogenèse,.</li><li>• Favorisent tumeurs seins chez rats.</li><li>• In vitro : morphine facilite migration et prolifération dans cancer du sein via NET1. ).</li></ul> |



#### Effect of anaesthetic technique and other perioperative factors on cancer recurrence.

Snyder GL and al. Br J Anaesth 2010.

**Table 2** Anaesthetic drugs and host defences

Drug	Potential effect on anti-tumour host defences
Ketamine	Reduced NK cell activity and number in animal models
Thiopental	Reduced NK cell activity and number in animal models
Propofol	Reduced NK cell number in animal models
Volatile agents	Inhibits interferon stimulation of NK cell cytotoxicity in animal models Reduces NK cell number in humans; associated with worse outcome when compared with local anaesthesia for melanoma excision
Nitrous oxide	Associated with acceleration in development of lung and liver metastases in animal models No effect on cancer outcome after surgery for colorectal carcinoma in humans Inhibits formation of haematopoietic cells that may be important for tumour cells
Local anaesthetic drugs	Lidocaine inhibits EGF receptor and tumour cell proliferation <i>in vitro</i> ; ropivacaine inhibits growth of cancer cells
Morphine	Inhibits cellular immunity including NK cell activity in animal models Inhibits NK cell activity in humans
Fentanyl	Inhibits NK cell activity in humans
Tramadol	Stimulates NK cell activity in animal models
COX-2 inhibitors	Stimulates NK cell activity in humans Display anti-angiogenesis and anti-tumour effects in animal models

# Solution ?



# Solution ?



Opioïde.

Anesthésiques locaux.

Péridurale.

Intra-veineux.

Intra-veineux.

Associé aux anesthésiques locaux.

Infiltration continue.

**Can anaesthetic technique effect postoperative outcome ?**

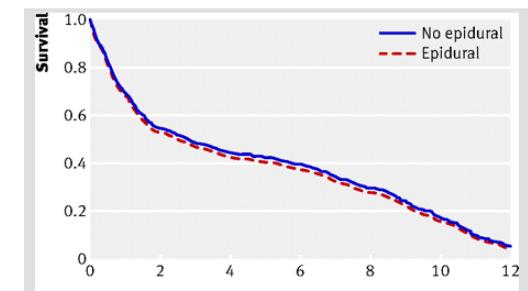
Trevor Kavanagh and al.  
Current Opinion.

Ethics, economics and outcome

**Table 2. Retrospective analyses of anaesthesia/analgesia techniques and cancer recurrence rates**

Type cancer	Authors	Journal, year	Anaesthesia/analgesia technique	Reduced cancer recurrence
Colorectal	Gupta et al. [19]	BJA, 2011	Epidural	Rectal CA – Yes Colon CA – No
Breast	Forget et al. [29]	Anesth Analg, 2010	Intraoperative ketorolac	Yes
Breast	Exadaktylos et al. [31]	Anesthesiology, 2006	Paravertebral analgesia	Yes
Prostate	Biki et al. [32]	Anesthesiology, 2008	Epidural	Yes
Colorectal	Gottschalk et al. [33]	Anesthesiology, 2010	Epidural	No
Prostate	Tsui et al. [34]	Can J Anesth, 2010	Epidural	No
Mixed intra-abdominal cancers	Myles et al. [35 <sup>a</sup> ]	BMJ, 2011 <sup>a</sup>	Epidural	No

<sup>a</sup>Follow-up analysis of previous randomized controlled (MASTER) trial.



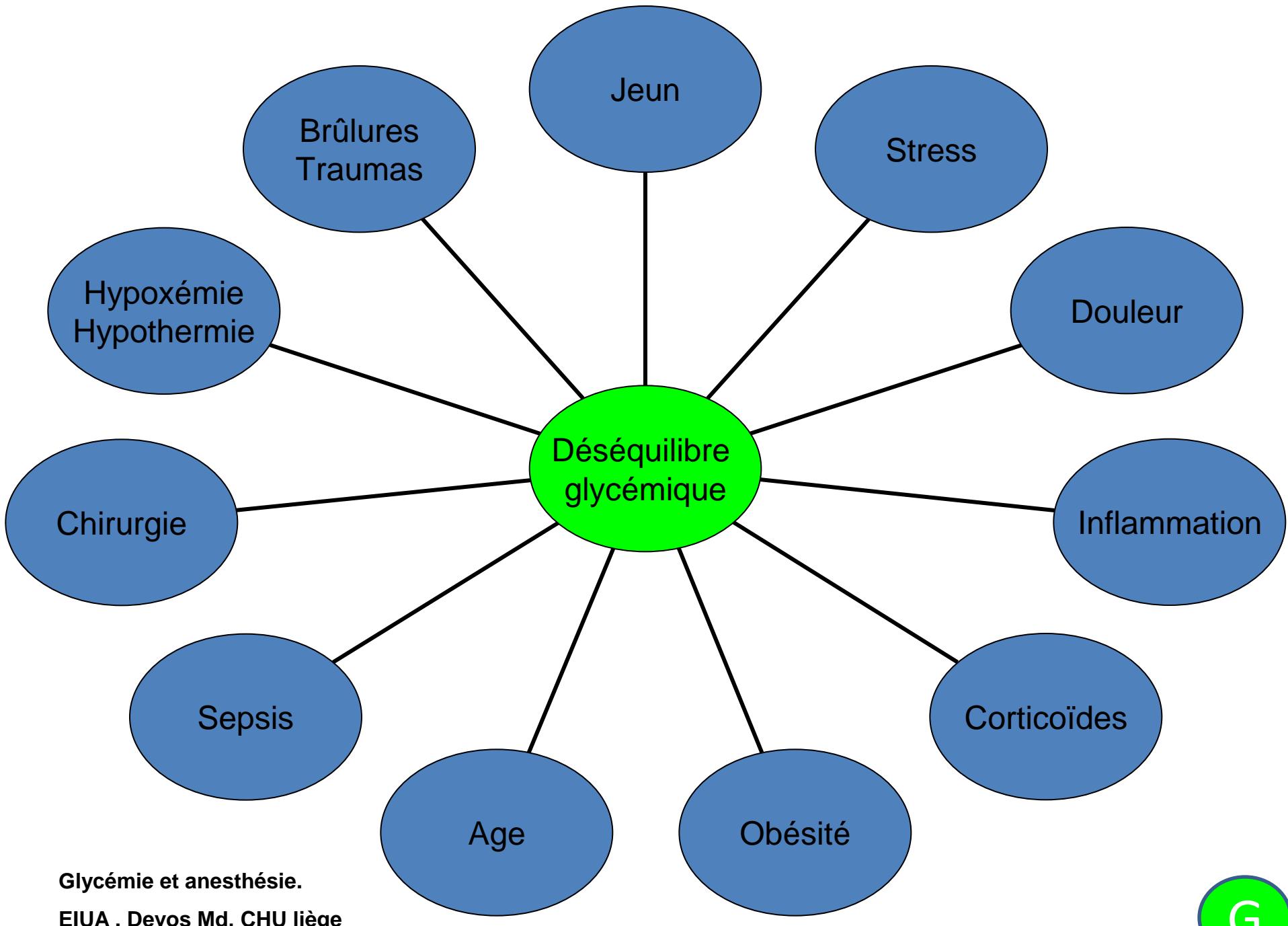
[View larger version:](#) [In a new window](#) [Download as PowerPoint Slide](#)

Fig 2 Recurrence-free survival after cancer surgery by group (log rank P=0.61)

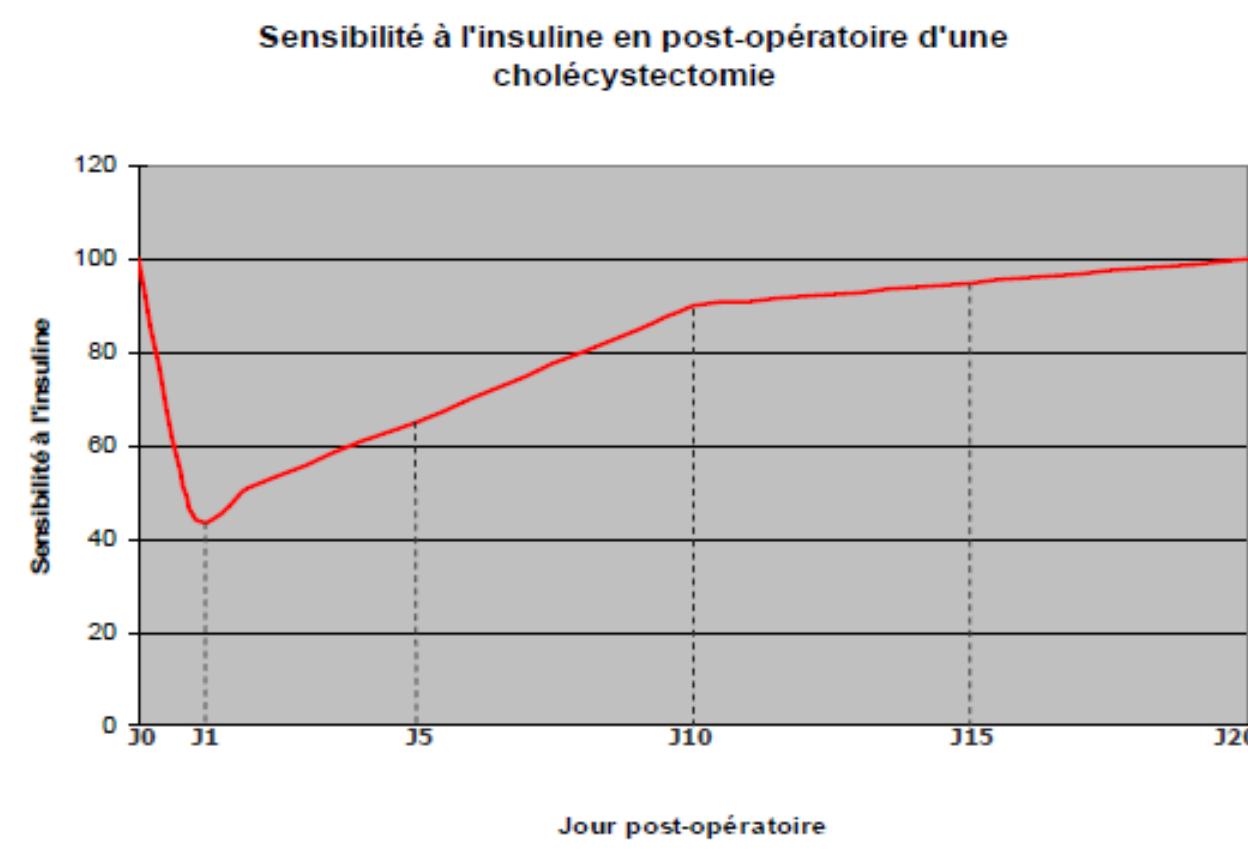
**Perioperative epidural analgesia for major abdominal surgery for cancer and recurrence-free survival: randomised trial.**

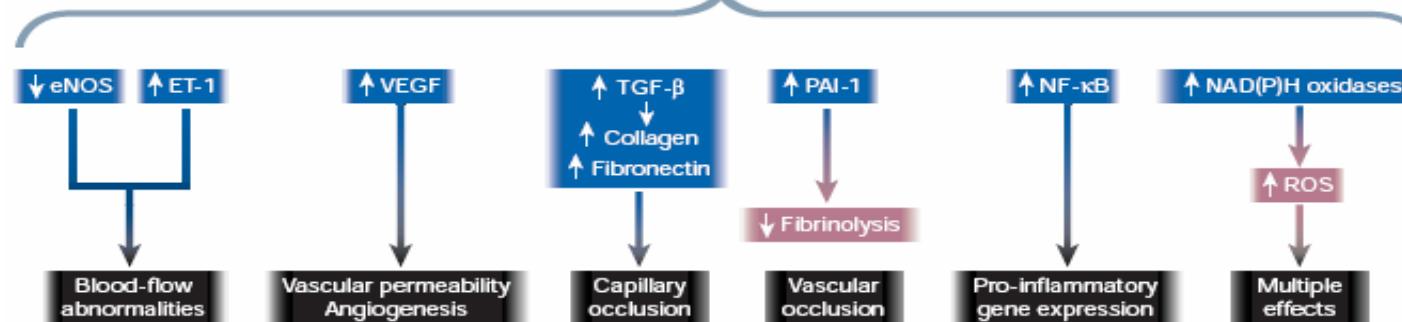
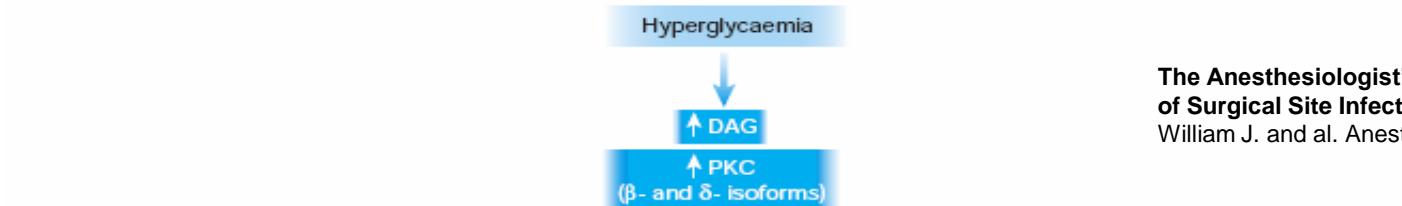
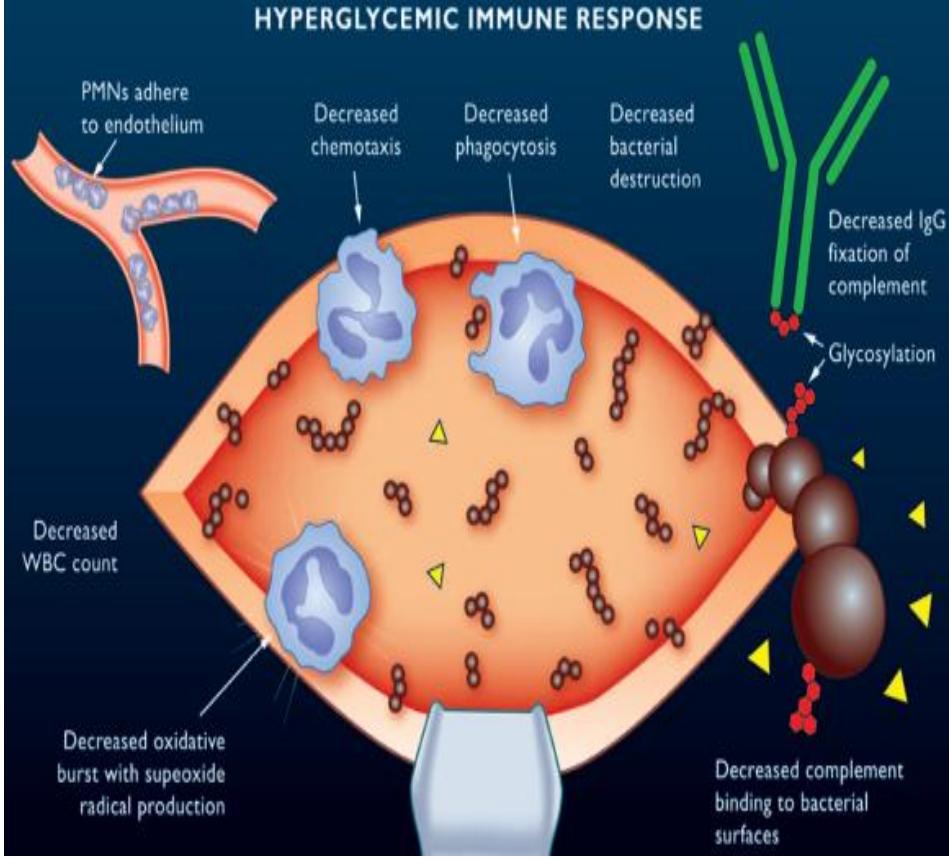
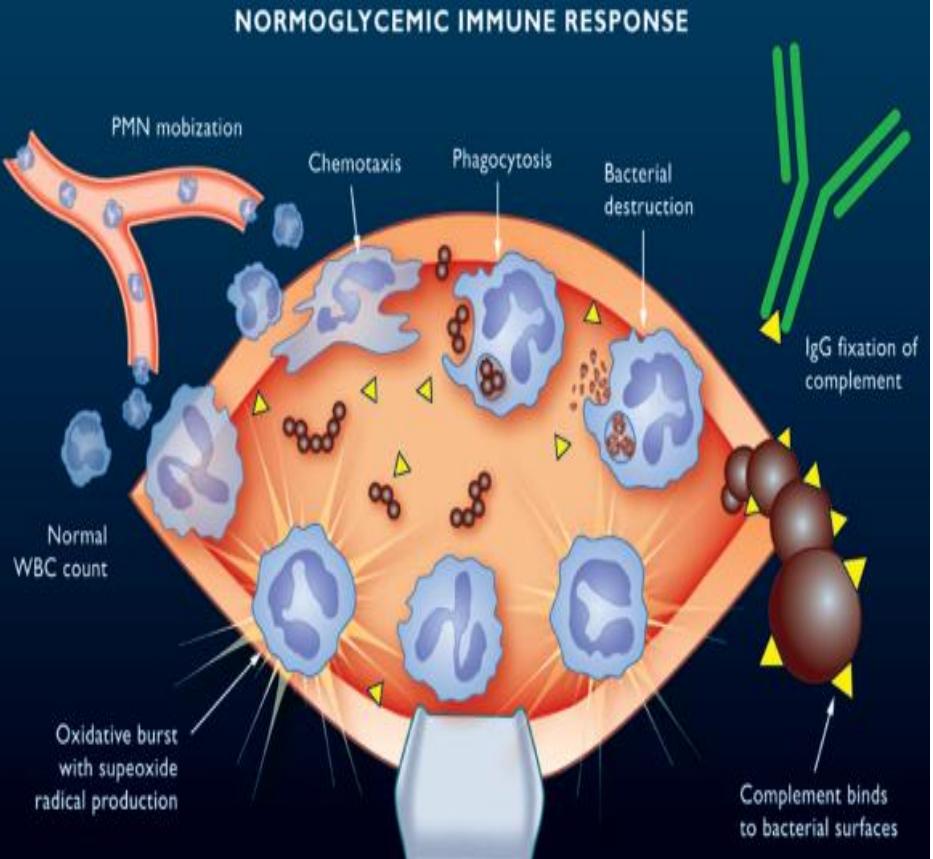
Myles and al. BMJ 2011; 342:d1491.

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# Résistance à l'insuline post-opératoire.

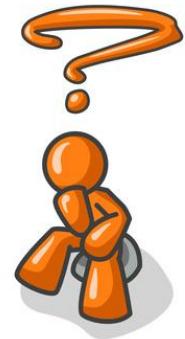




**The Anesthesiologist's Role in the Prevention of Surgical Site Infections**  
William J. and al. Anesthesiology 2006

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# Solutions



Eviter hyper/hypo-glycémie  
(accepter valeurs légèrement haute ).

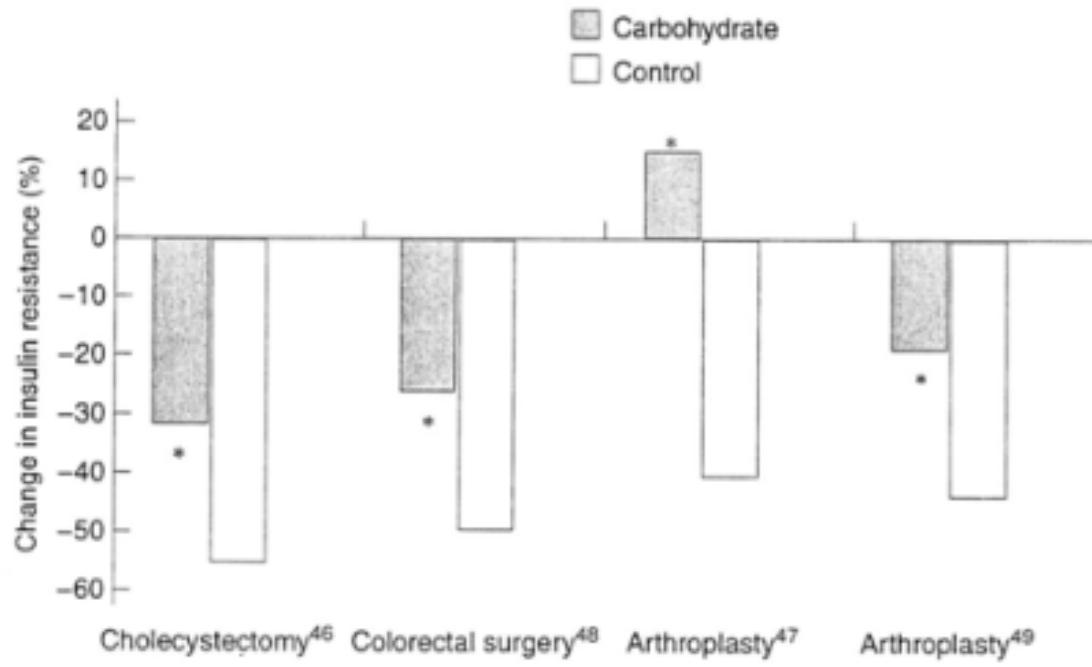
Insuline en continu  
(éviter variations).

Ingérer 50-100 g d'hydrate de carbone en liquide 2 heures pré-opératoire.

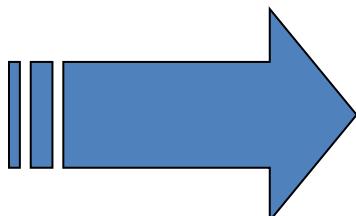
Antalgie adéquate.

Laparoscopie ?

# Ingestion hydrate de carbone pré-opératoire.

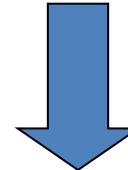


Scoop and al. Am J  
Physiol endocrino  
métab 2001

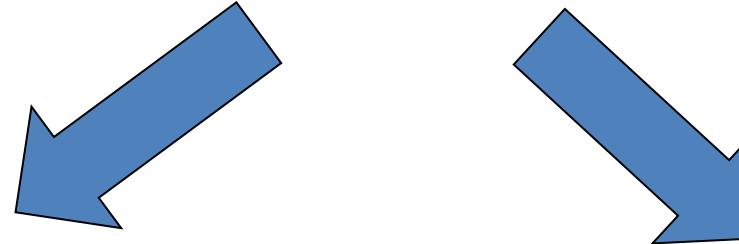


Diminue la faim, l'anxiété et la soif.  
Diminue NVPO ? Douleurs ?

Transfusions  
Sanguines



Immunomodulation.



Infections.

Réurrence cancers.

(Surtout si culots plus de 9 jours)

# Duration of Red-Cell Storage and Complications after Cardiac Surgery

*Colleen Gorman Koch, et al.*

N Engl J Med 2008

	Culots ~ 20 jours (n=2872)	Culots ~11 jours (n=3130)	
Mortalité hospitalière	2,8 %	1,7%	P = 0,004
Insuffisance rénale	2,7%	1,6%	P = 0,003
Sepsis	4,0%	2,8%	P=0,01
Mortalité à 1 an	11%	7,4%	p<0,001

# Surgical Outcomes and Transfusion of Minimal Amounts of Blood in the Operating Room

Victor A. Ferraris, and al

Arch Surg. 2012;147(1):49-55

Table 3. Outcome Comparisons Between Propensity-Matched Groups

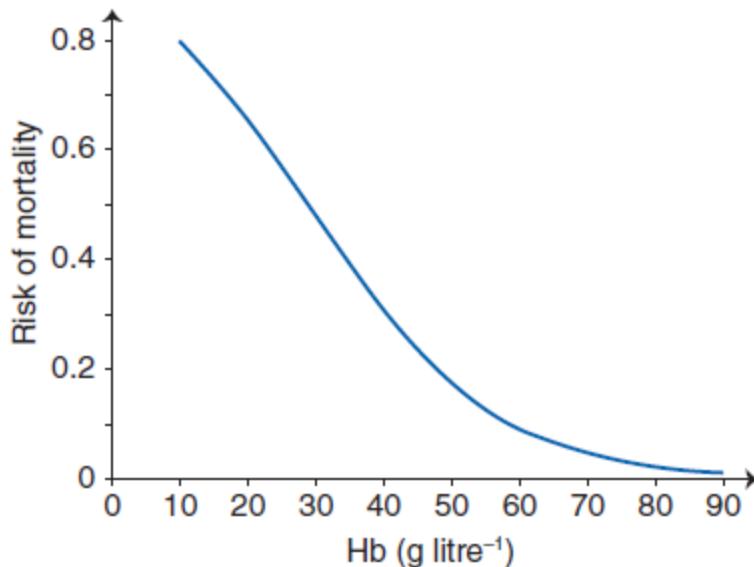
Postoperative Complication	Propensity-Adjusted Rate		
	No Transfusion (n=11 855)	Transfusion <sup>a</sup> (n=11 855)	P Value <sup>c</sup>
Mortality, %	5.2	6.1	.005
Wound problems, %	9.7	11.4	<.001
Pulmonary, %	11.7	15.3	<.001
Renal, %	5.5	6.8	<.001
CNS, %	1.3	1.3	.91
Cardiac, %	2.0	2.4	.06
Sepsis, %	8.2	10.6	<.001
Return to OR, %	11.4	12.1	.09
Composite morbidity, %	30.1	34.2	<.001
Postoperative length of stay, mean (SD), d	10.3 (14.3)	11.8 (14.7)	<.001



# What is really dangerous: anaemia or transfusion?

A. Shander<sup>1,2,3,4\*</sup>, M. Javidroozi<sup>1</sup>, S. Ozawa<sup>5</sup> and G. M. T. Hare<sup>6,7</sup>

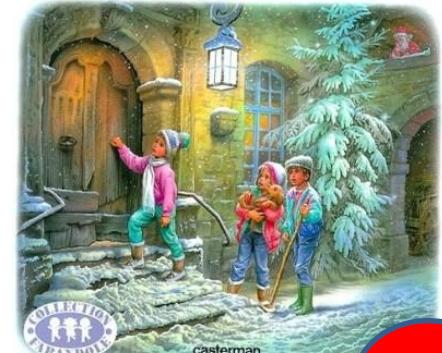
British Journal of Anaesthesia 107 (S1): i41–i59 (2011)



**Fig 2** Estimated risk of death at various Hb concentrations. Data are based on a subset of patients ( $n=19$ ) who could not be transfused, and had agreed to receive an Hb-based oxygen carrier because or in anticipation of severe anaemia, but did not receive the product for various reasons.<sup>67</sup> Risk of mortality for each Hb concentration was calculated using an equation obtained from running a logistic regression model with final status (dead/alive) as the dependent and Hb as the independent variables.



GILBERT DELAHAYE - MARCEL MARLIER  
**martine**  
témoin de jéhovah



# Intra-operative intravenous fluid restriction reduces perioperative red blood cell transfusion in elective cardiac surgery, especially in transfusion-prone patients : a prospective, randomized controlled trial.

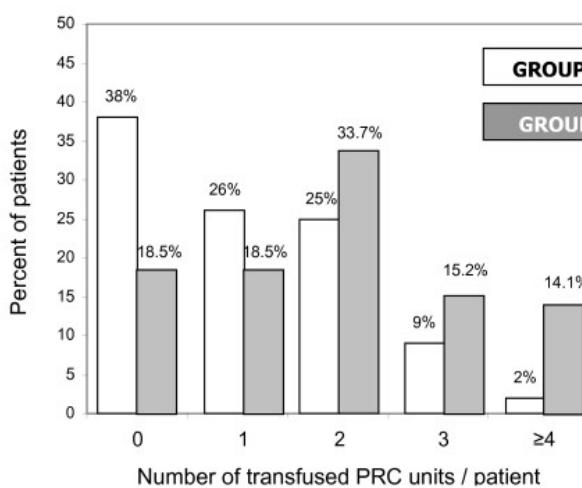
Vretzakis G, et al.

J Cardiothorac Surg 2010 ; 5:7.



Figure 1.

Resolution: standard / [high](#)



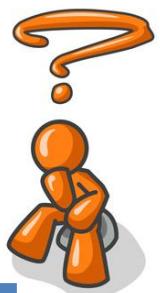
Number of transfused PRC units/patient. Significantly more Group A patients received 0 or 1 PRC unit, whereas significantly more Group B patients received 3, 4, or more PRC units ( $p < 0.0007$ ).

## FLUID BALANCE

IV fluids (ml) to initiation of CPB	$328 \pm 157$	$642 \pm 222 \diamond\lozenge$
urine (ml) to initiation of CPB	$141 \pm 106$	$169 \pm 111$
fluid balance after 1 <sup>st</sup> cardioplegia	$2058 \pm 236$	$2323 \pm 365 \diamond\lozenge$
urine (ml) during CPB	$822 \pm 483$	$838 \pm 378$
total urine production (ml)	$1455 \pm 532$	$1538 \pm 546$
use of filter, n (%)	11 (11.0%)	20 (21.7%)##
Overall fluid balance	$390 \pm 432$	$667 \pm 553 \diamond$

Calculated erythrocyte volume loss  $758 \pm 299$   $903 \pm 303 \# \#$

S



# Solutions



Anémie pré-opératoire → EPO et Fer.

Réchauffement actif.

Remplissage Contrôlé.

Cell-saver.

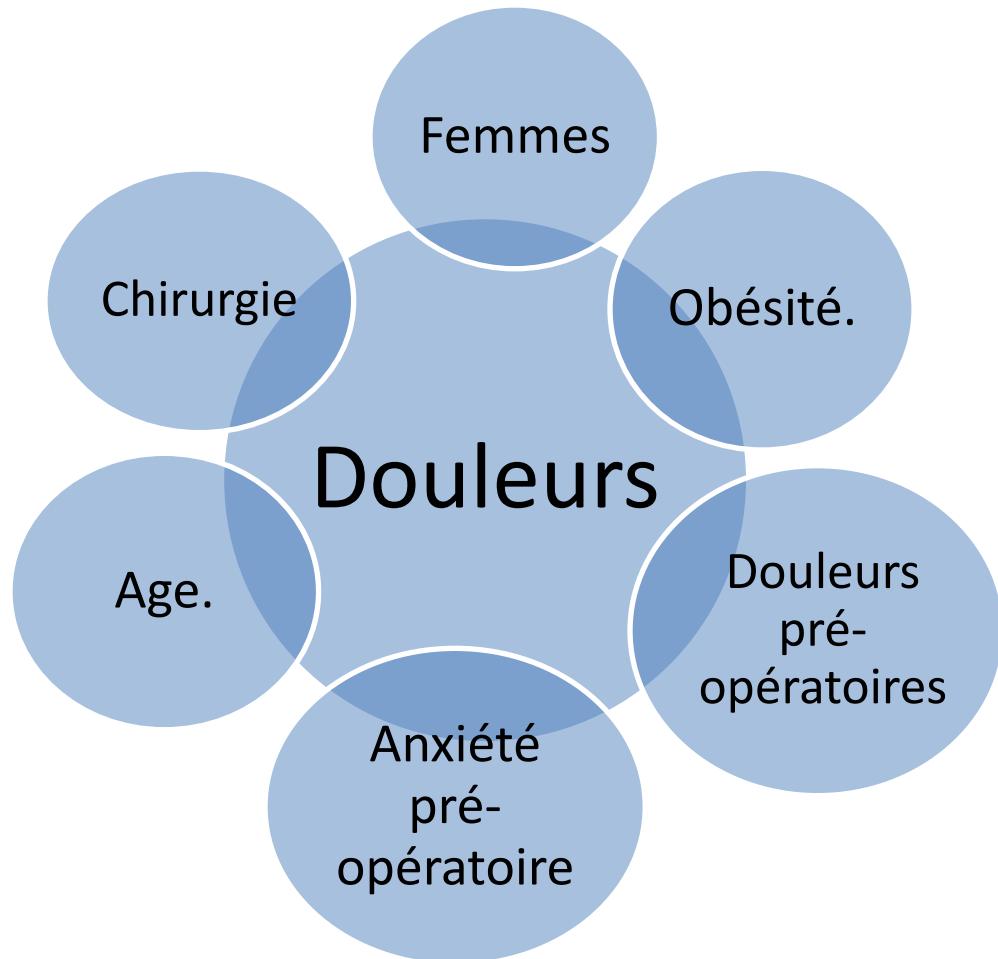
Antifibrinolytique.

Propofol ?

Hypotension contrôlée.



# Facteurs favorisants :





# Solutions

Limité la durée opératoire

Mini-invasif ?

Antalgie adéquate.

Anesthésie loco-régionale.  
Analgésie multimodale.  
Anti-hyperalgésie.

Dysfonction  
cognitive post-  
opératoire.

...

Infarctus  
du  
myocarde.

Développement  
cérébrale.

...

