

# Les nouveaux blocs du membre inférieur...

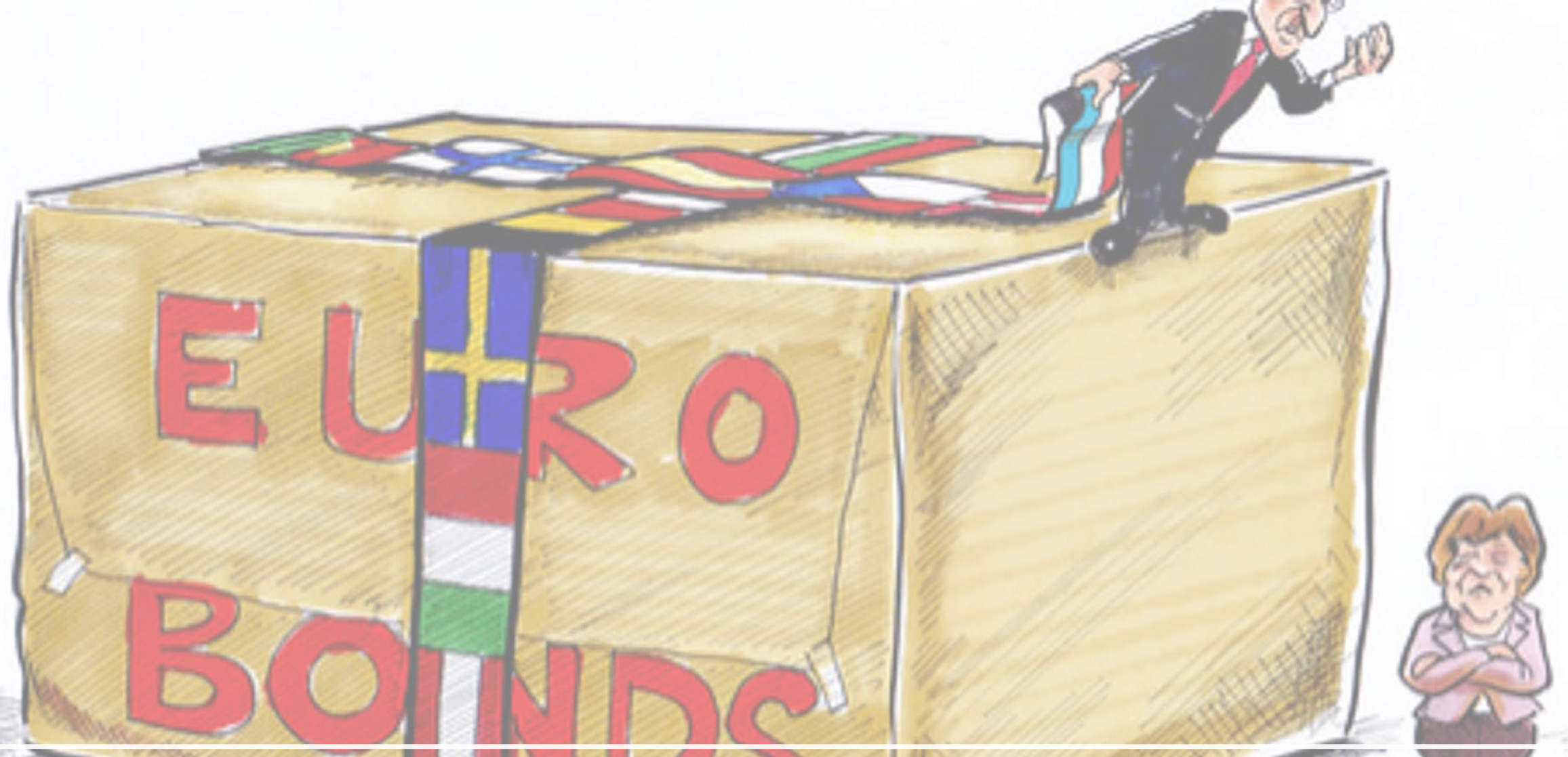
Sont-ils sur la sellette?

SFAR 2021

[f-swisser@chu-montpellier.fr](mailto:f-swisser@chu-montpellier.fr)







La crise... le temps de l'épargne!

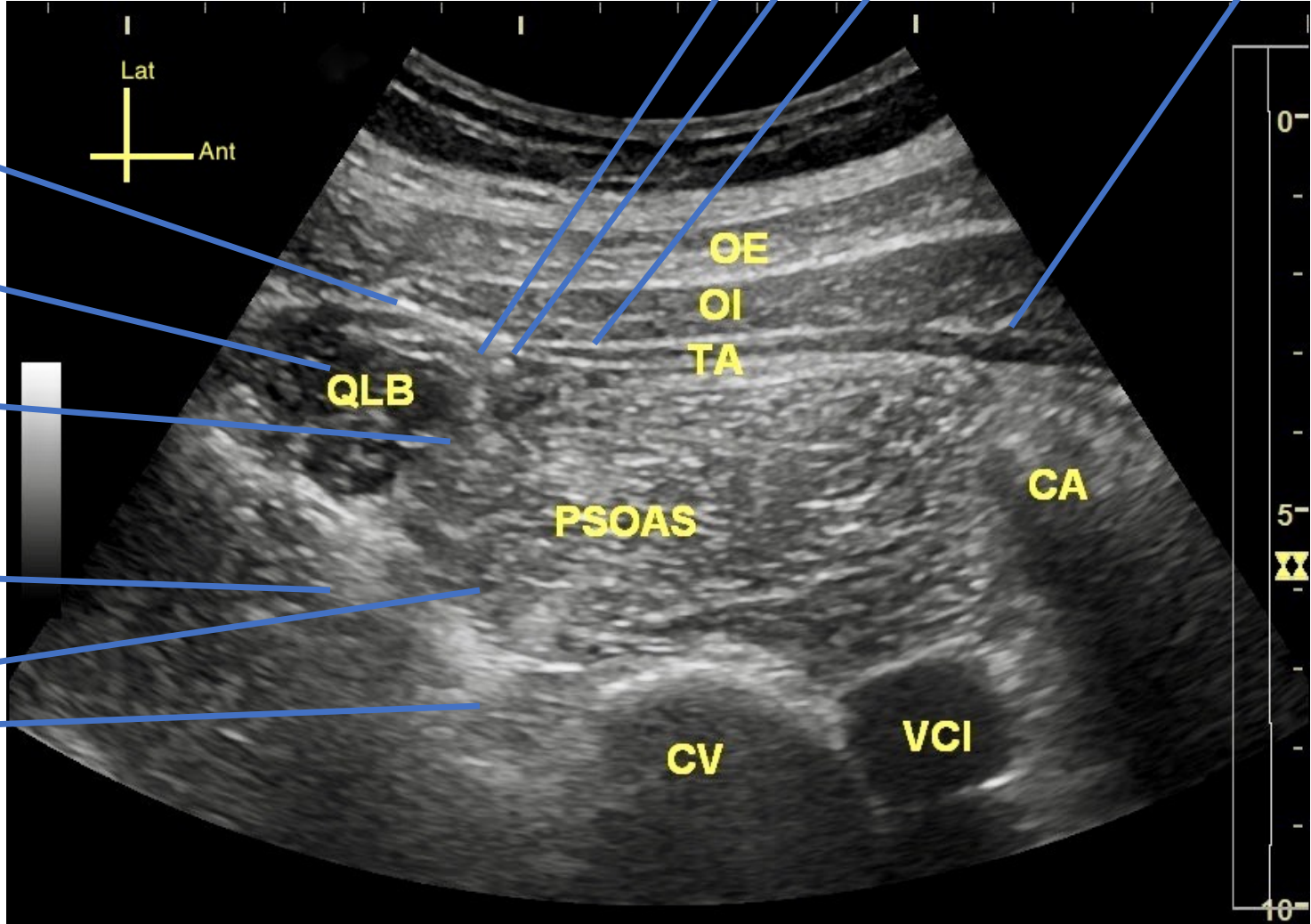
## Association Between Use of Enhanced Recovery After Surgery Protocol and Postoperative Complications in Total Hip and Knee Arthroplasty in the Postoperative Outcomes Within Enhanced Recovery After Surgery Protocol in Elective Total Hip and Knee Arthroplasty Study (POWER2)

ated with improved outcomes. Early mobilization in the first 24 hours after THA or TKA had been shown to be effective in reducing LOS, although it had not been associated with a decrease in complications.<sup>37</sup> Nevertheless, in POWER2, early mobilization was associated with fewer complications and shorter LOS. Conversely, epidural anesthesia was associated with a greater than 1-day increase in hospital LOS.

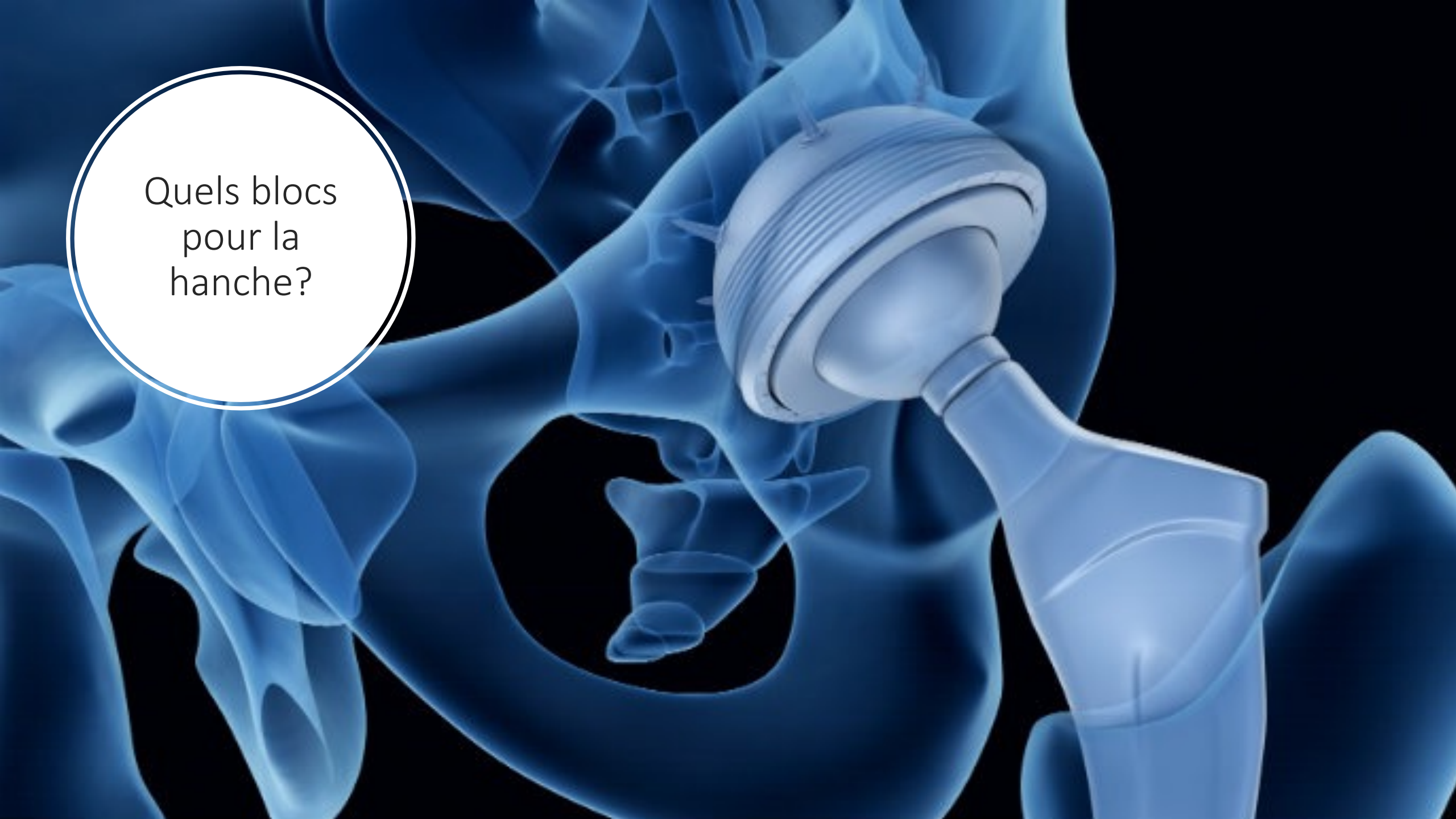
ciated with reduced odds for numerous serious complications with critical impact on perioperative patient health in THA and TKA. The strongest effects were found in reduced odds for respiratory failure and cognitive dysfunction. The confidence in a beneficial impact of PNB use is strengthened by the large consistency of significantly reduced complication, independently observed among THA and TKA patients. Furthermore, the quality of evidence is strengthened considering the potential presence of two factors that would likely decrease the observed PNB effect. First, NA as the primary anesthetic would be expected to obscure an independent PNB effect based on similarities in basic

# The TAP game...

2007



2021



Quels blocs  
pour la  
hanche?

QLB III

Psoas compartment block

Fascia iliaca compartment block

Erector spinae plane block



Block

Fascia Transversalis plane block

Lumbar plexus block

QLB II

Ilio Psoas plane block

QLBim

QLB I

Femoral nerve block

Obturator nerve block





QLB III

~~Psoas compartment block~~

~~Fascia iliaca  
compartment block~~

Erector spinae plane block

PENG Block

Fascia Transversalis plane block

~~Lumbar plexus block~~

QLB II

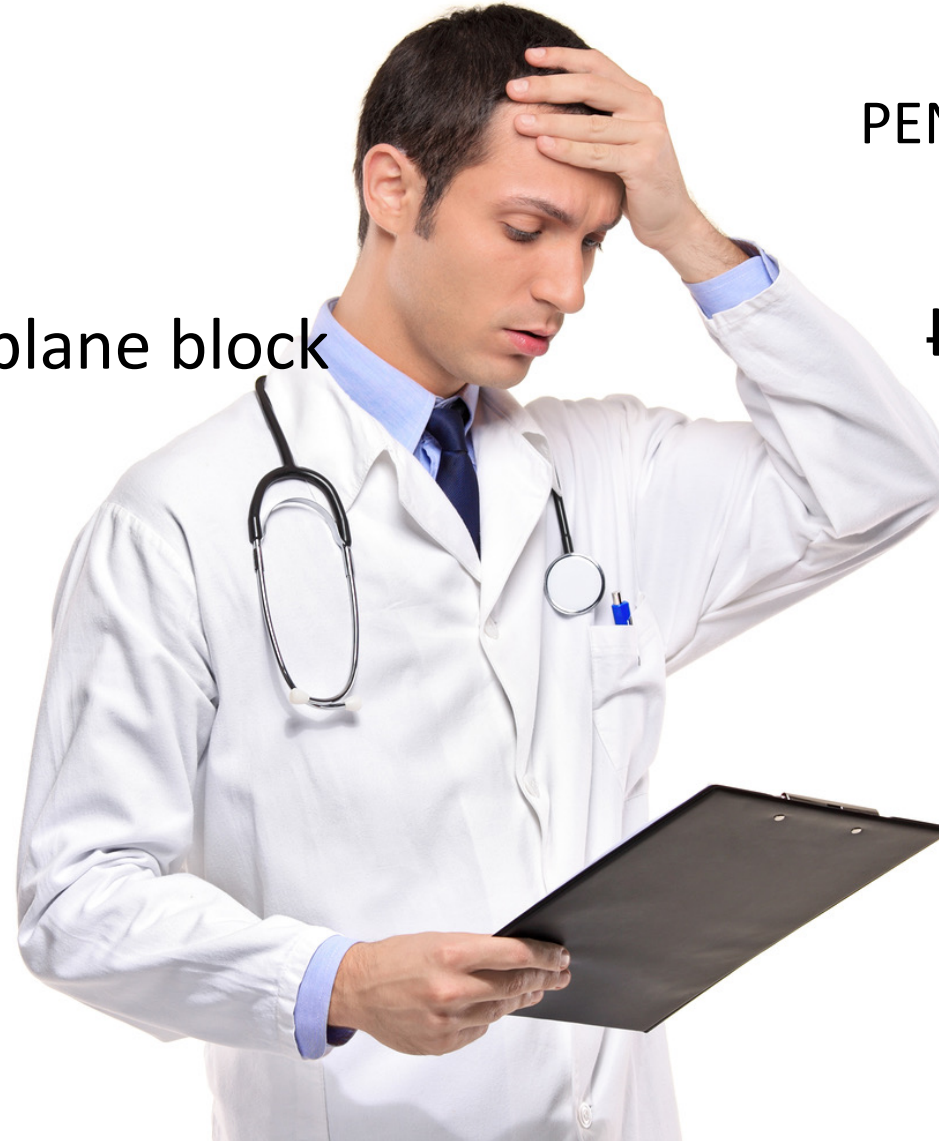
Ilio Psoas plane block

QLBim

QLB I

~~Femoral nerve block~~

Obturator nerve block



# The QLB's... a magic bullet?

Chirurgie  
orthopédique

Gynécologie/obstétrique



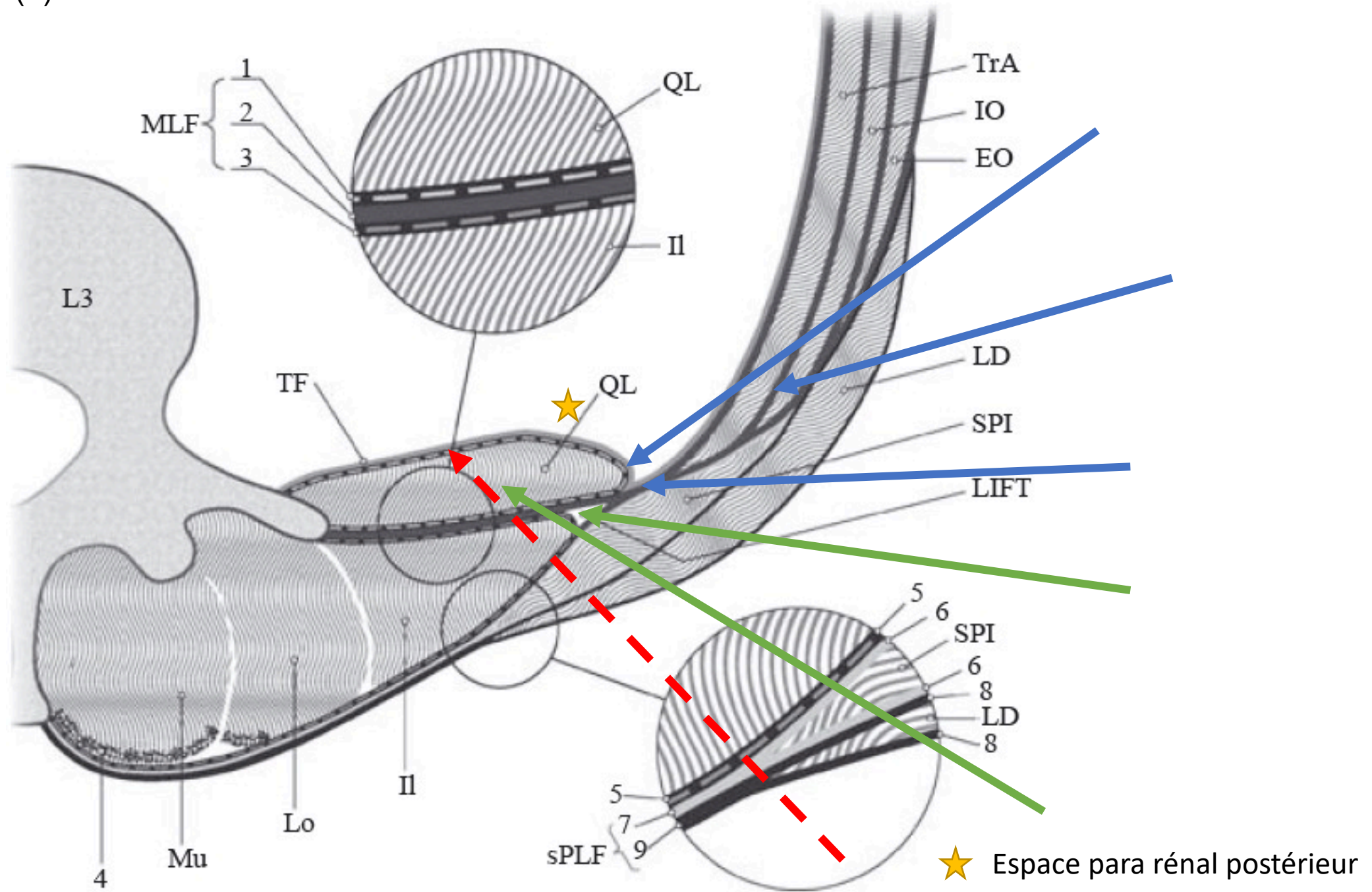
Urologie

Chirurgie digestive

Algologie

Chirurgie herniaire abdominale

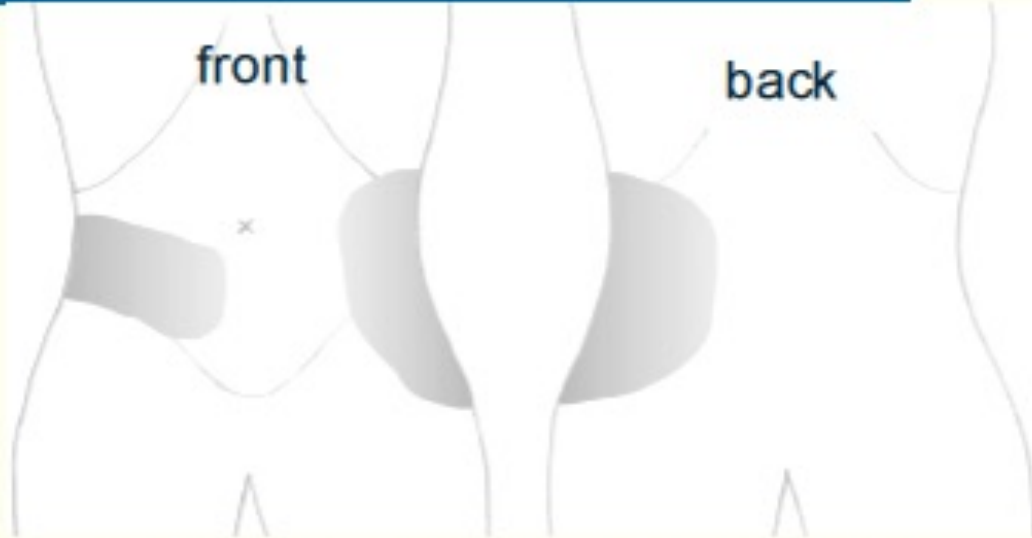




## Ultrasound-guided Quadratus Lumborum Type 2 Block Without Dissemination Into the Paravertebral Space

Takahiro Tamura, M.D., Kana Kitamura, M.D., Yasuyuki Shibata, M.D., Ph.D., Syuichi Yokota, M.

### RESULTS of Sensory block area

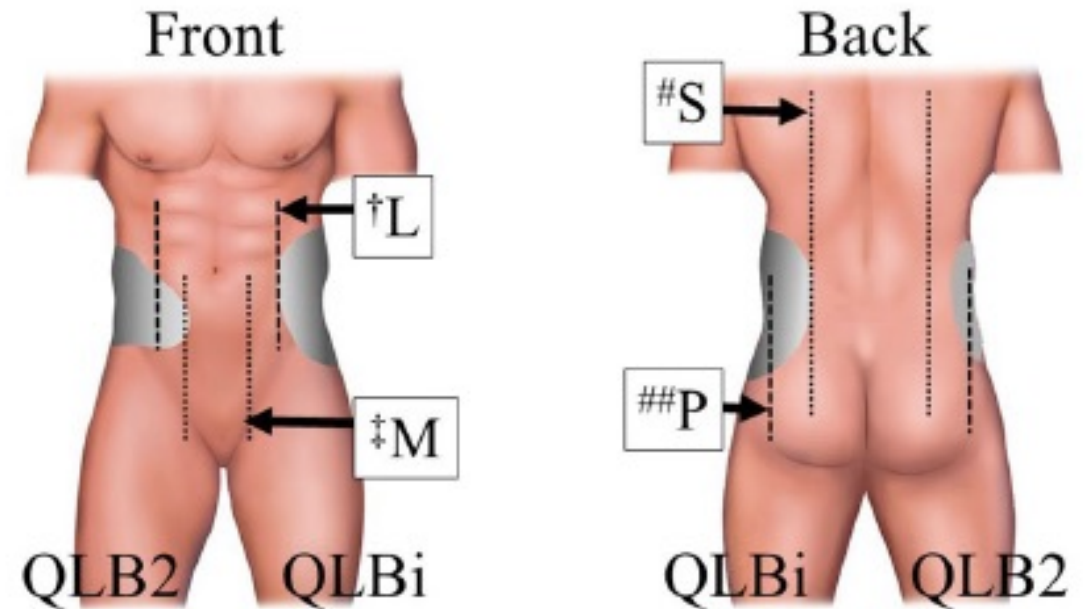


Right side; I-TAPB, Left side; QLB

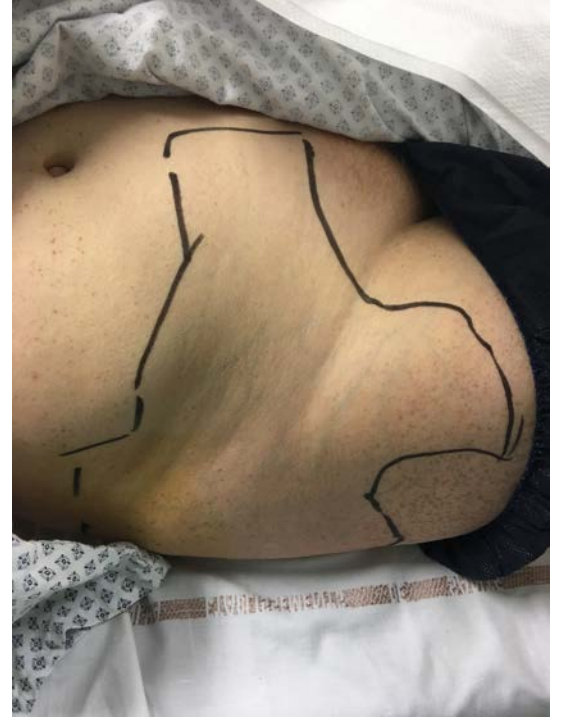
- ◆ Only the widest area are shown above.
- ◆ The affected area of QLB1 were the same as QLB2.
- ◆ There were no sensory block area at near median abdomen in QLB.

## Local anesthetic spread into the paravertebral space with two types of quadratus lumborum blocks: a crossover volunteer study

Takahiro Tamura<sup>1</sup> · Shuichi Yokota<sup>2</sup> · Shigeki Ito<sup>3</sup> · Yasuyuki Shibata<sup>1</sup> · Kimitoshi Nishiwaki<sup>1</sup>



Journal of Anesthesia (2019) 33:26–32



**SAME... BUT DIFFERENT...**



**BUT STILL SAME**

# ANESTHESIOLOGY

## Posterior Quadratus Lumborum Block in Total Hip Arthroplasty

A Randomized Controlled Trial

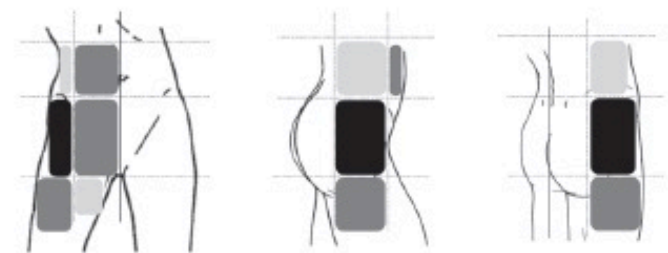
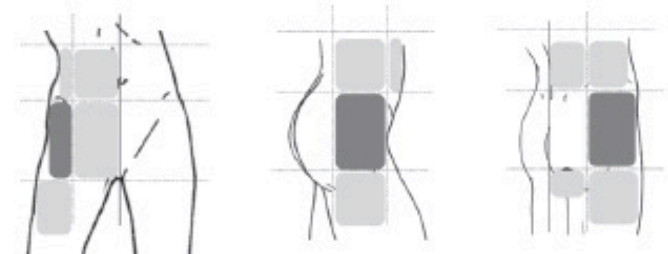
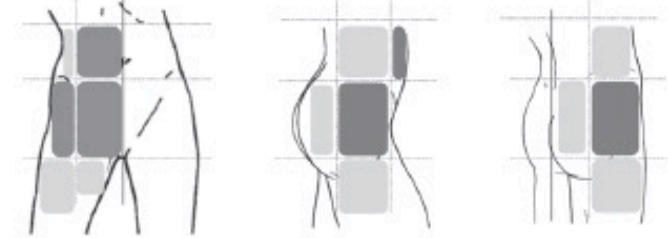
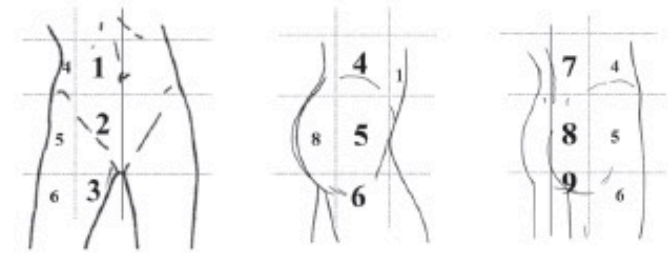
Sophia Margareta Brixel, M.D., Philippe Biboulet, M.D.,  
Fabien Swisser, M.D., Olivier Choquet, M.D.,  
Yassir Aarab, M.D., Helen Nguyen, M.D.,  
Sophie Bringuier, Pharm.D., Ph.D.,  
Xavier Capdevila, M.D., Ph.D.

*Anesthesiology* 2021; 134:722–33

Quadratus lumborum block 2  
N = 18

Quadratus lumborum block 2+1  
N = 18

Quadratus lumborum block 2+1+3  
N = 10

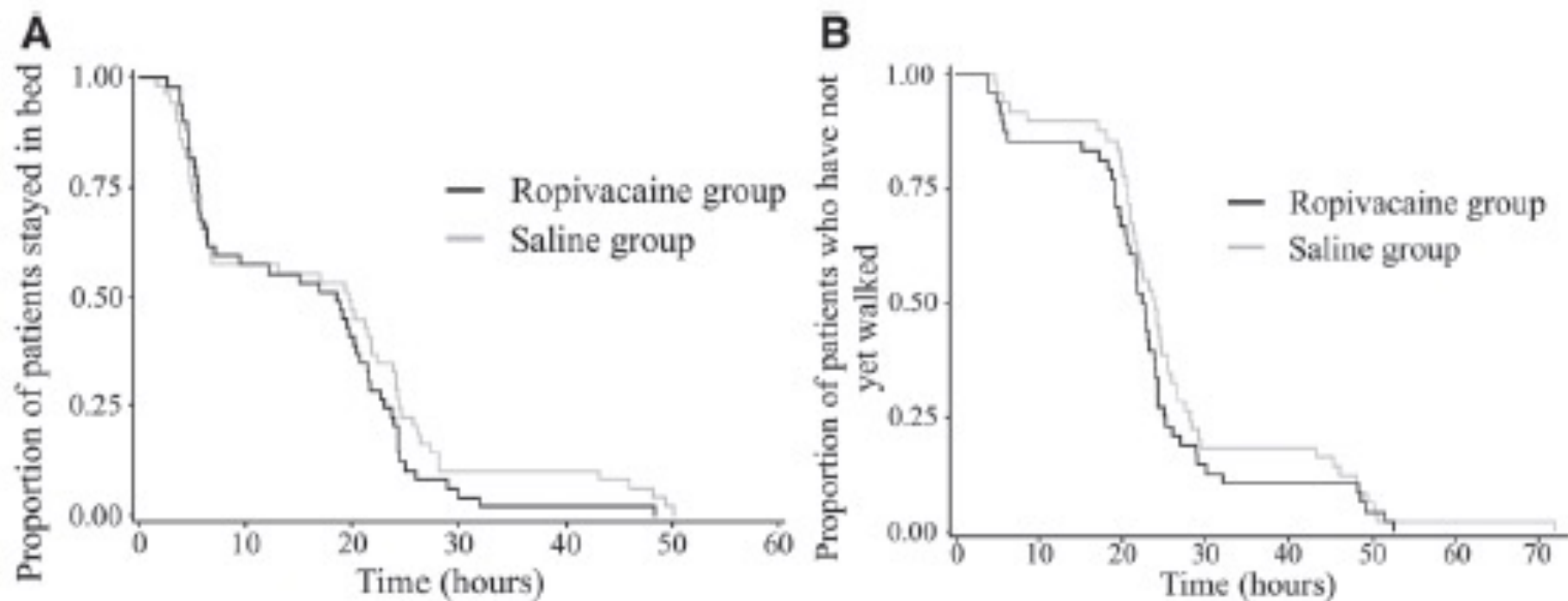


Percentage of patients with cutaneous sensory loss:

- < 40%
- 40-80%
- > 80%

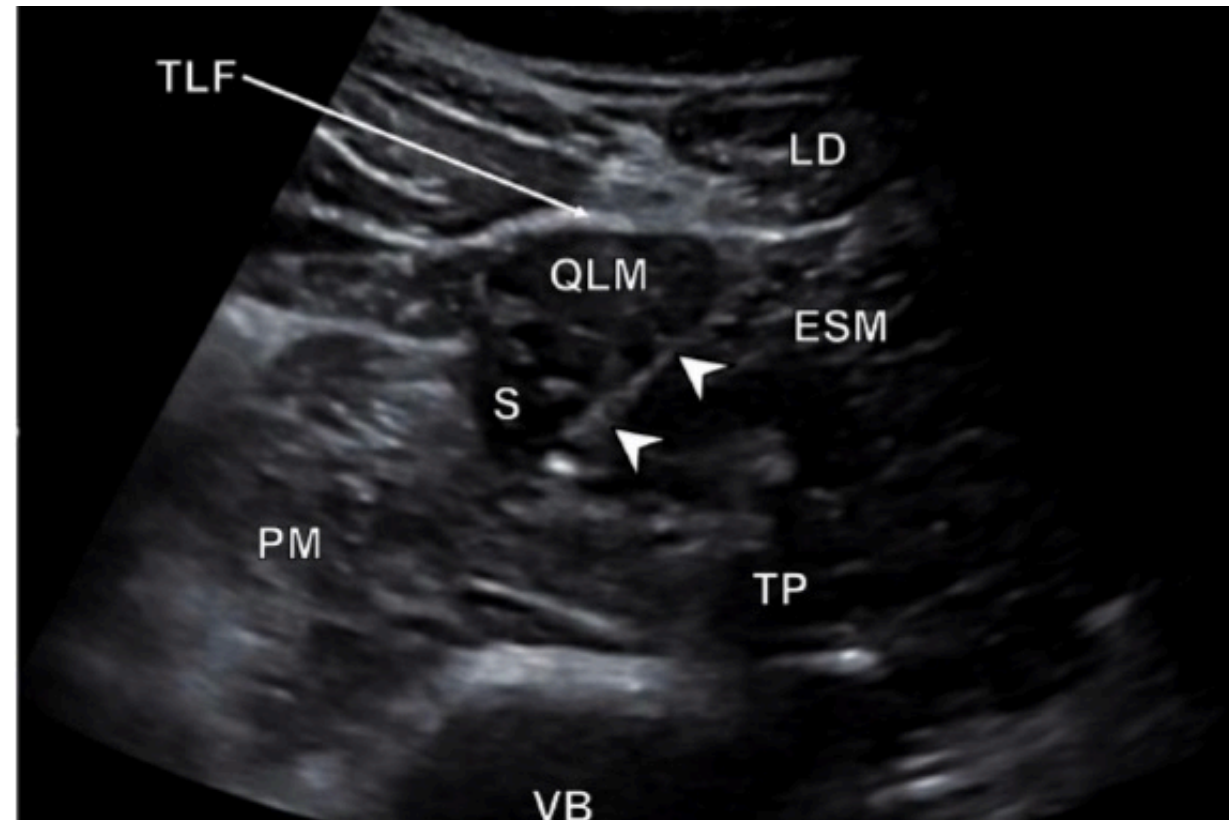
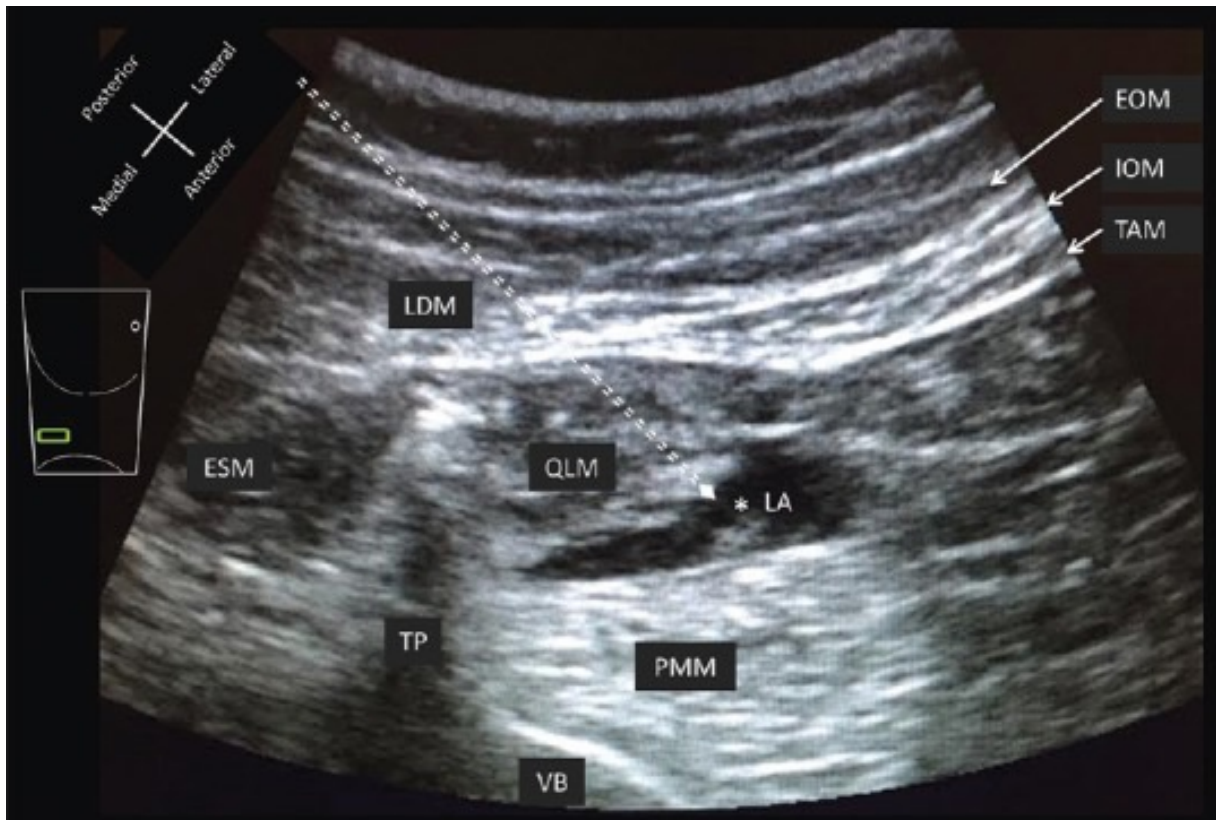
Fig. 4. Distribution of cutaneous sensory loss in the nine hip areas in the ropivacaine group. Quadratus lumborum blocks 1, 2, and 3 indicate the spread of ropivacaine lateral, posterior, or anterior, respectively, to the quadratus lumborum muscle.





**Fig. 6.** Probability of bedbound patients over time according to the groups. (A) Time to first standing. (B) Time to first ambulation.

# La partie antérieure du carré des lombes; Le QLB ant. - QLB III ?



## Quadratus lumborum block type 3 versus lumbar plexus block in hip replacement surgery: a randomized, prospective, non-inferiority study

Javier J Polania Gutierrez, Bruce Ben-David, Carl Rest, Manuel Torres Grajales, Sharad Kumar Khetarpal

**Results** The QL3 did not cross the non-inferiority delta of 2 points on the NRS pain score (mean difference  $-0.43$  (95% CI  $-1.74$  to  $0.87$ )). There were no significant differences between groups in total opioid consumption at 24 hours or in time to achieve 100 feet of walking. Quadriceps weakness at first PT session was less common with QL3 (26% vs 65%) and time to perform the block was significantly less with QL3 (10 min vs 5 min).

**Conclusion** This trial supported the hypothesis that the QL3 yields non-inferior analgesia compared with LPB for hip replacement surgery.

~~QLB III~~

~~Psoas compartment block~~

~~Fascia iliaca  
compartment block~~

Erector spinae plane block

PENG Block

~~Fascia Transversalis plane block~~

~~Lumbar plexus block~~

~~QLB II~~

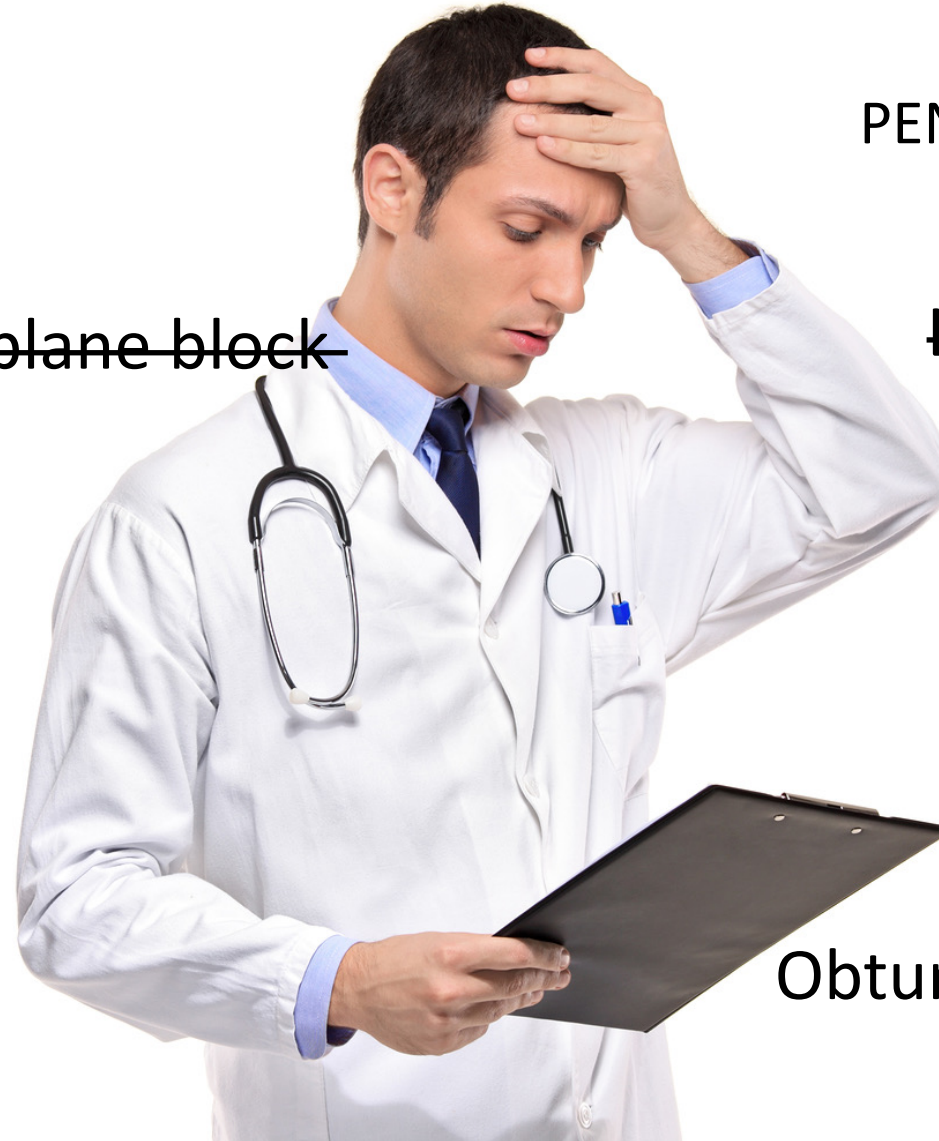
Ilio Psoas plane block

QLBim

~~QLB I~~

~~Femoral nerve block~~

Obturator nerve block



*The  
End*

~~QLB III~~

~~Psoas compartment block~~

~~Fascia iliaca  
compartment block~~

Erector spinae plane block

PENG Block

~~Fascia Transversalis plane block~~

~~Lumbar plexus block~~

Ilio Psoas plane block

~~QLB II~~

QLBim

~~QLB I~~

~~Femoral nerve block~~

~~Obturator nerve block~~



# The ESP's... a magic bullet?

Chirurgie  
orthopédique

Chirurgie  
Thoracique

Gynécologie/obstétrique



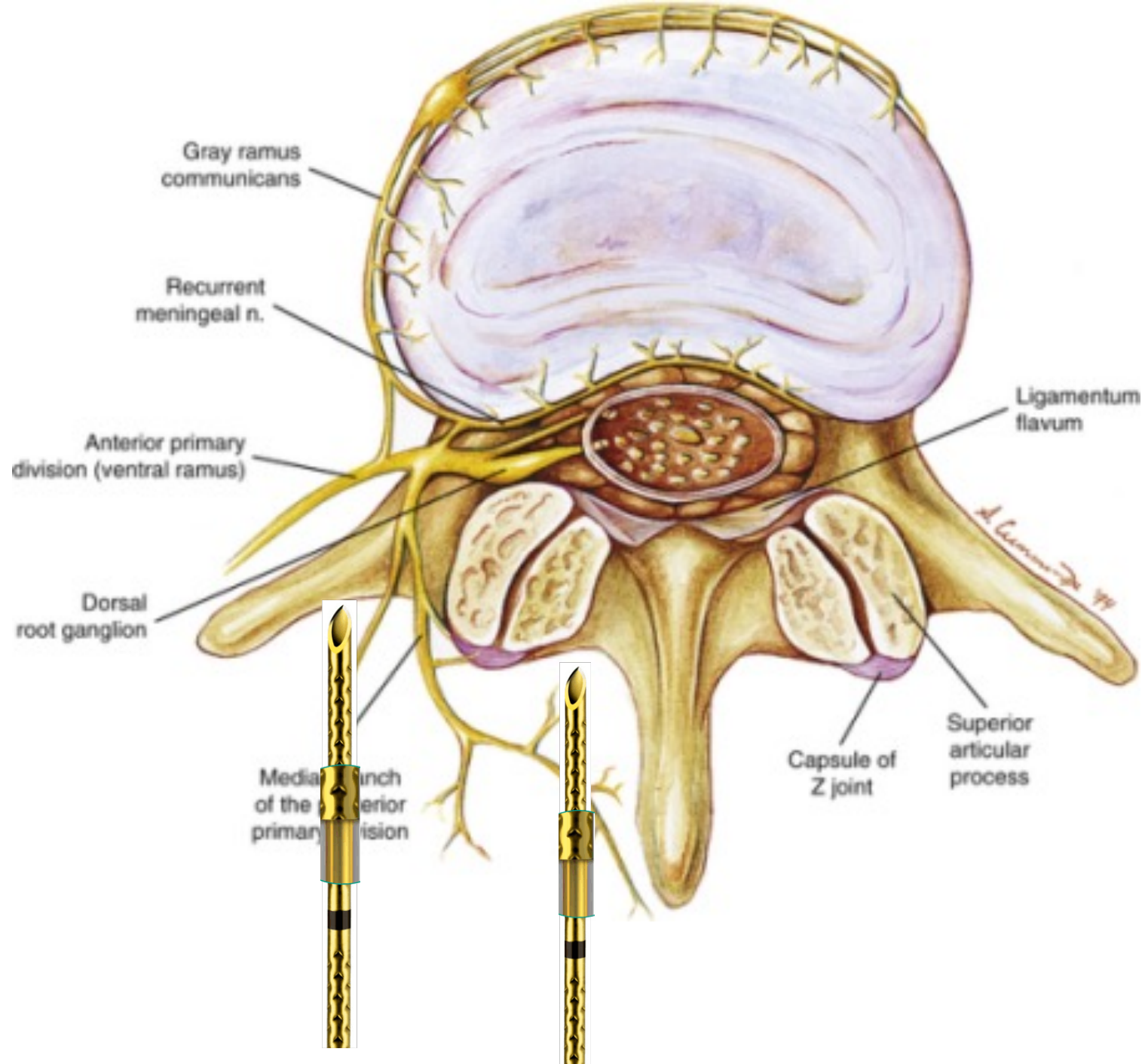
Urologie

Traumato

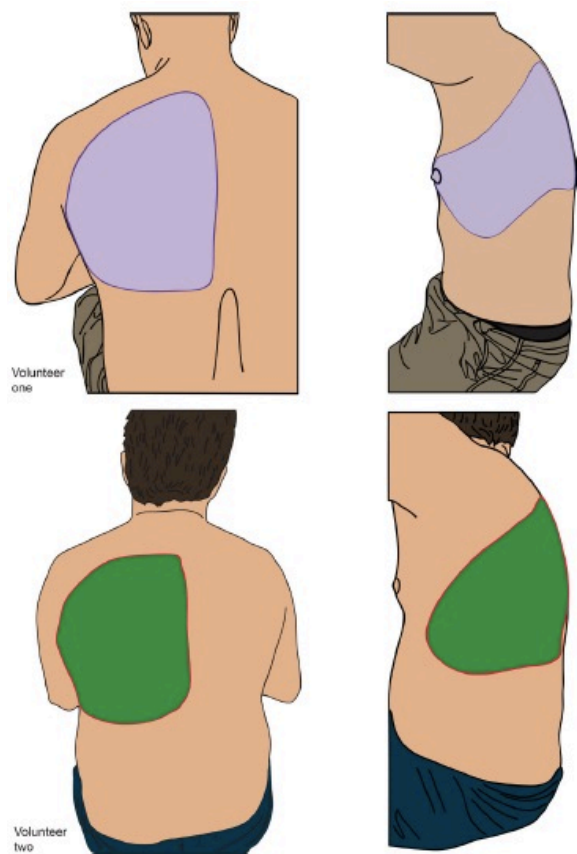
Chirurgie digestive

Algologie

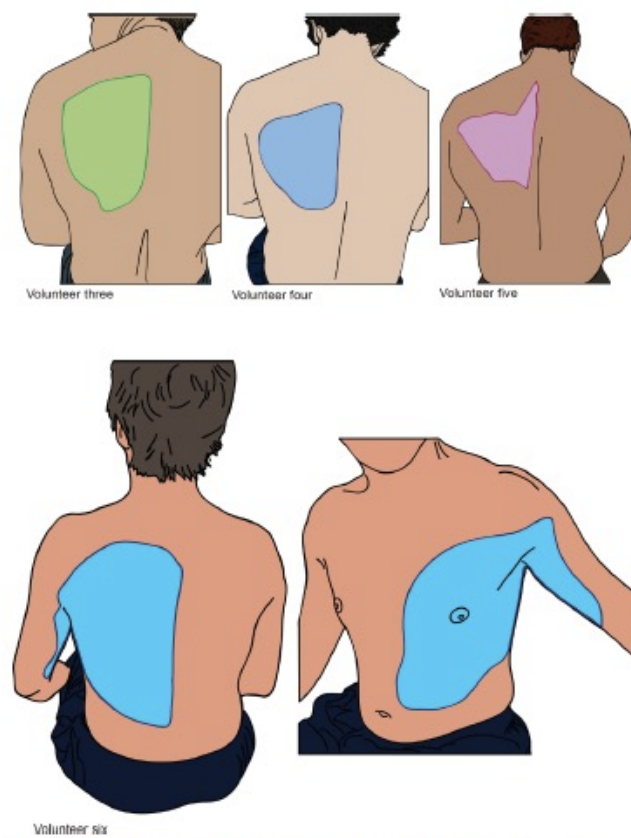
Chirurgie herniaire abdominale







**Figure 1** Sensory changes to standardized cold stimulus in volunteers one and two.



**Figure 2** Sensory changes to standardized cold stimulus in volunteers three, four, five and six.

*The  
End*

~~QLB III~~

~~Psoas compartment block~~

~~Fascia iliaca compartment block~~

~~Erector spinae plane block~~

PENG Block

~~Fascia Transversalis plane block~~

~~Lumbar plexus block~~

~~QLB II~~

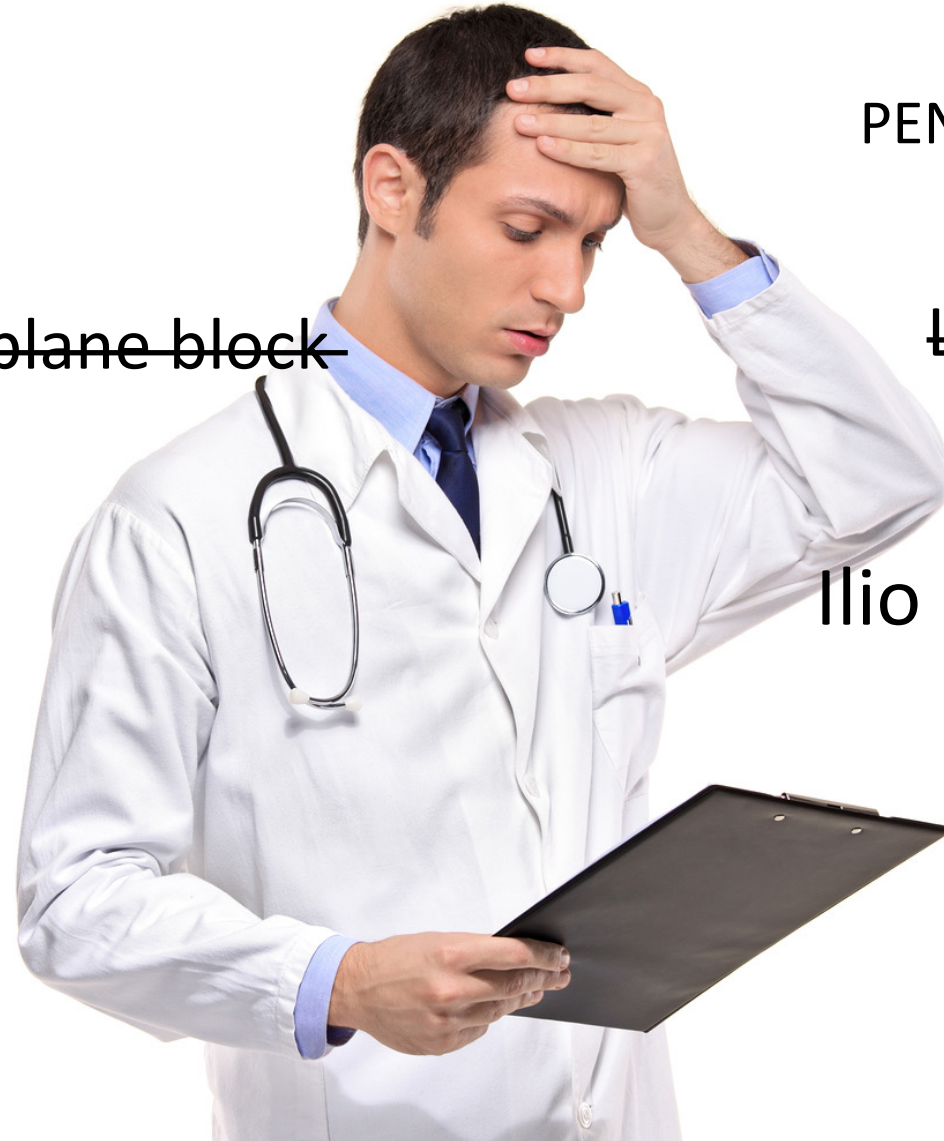
Ilio Psoas plane block

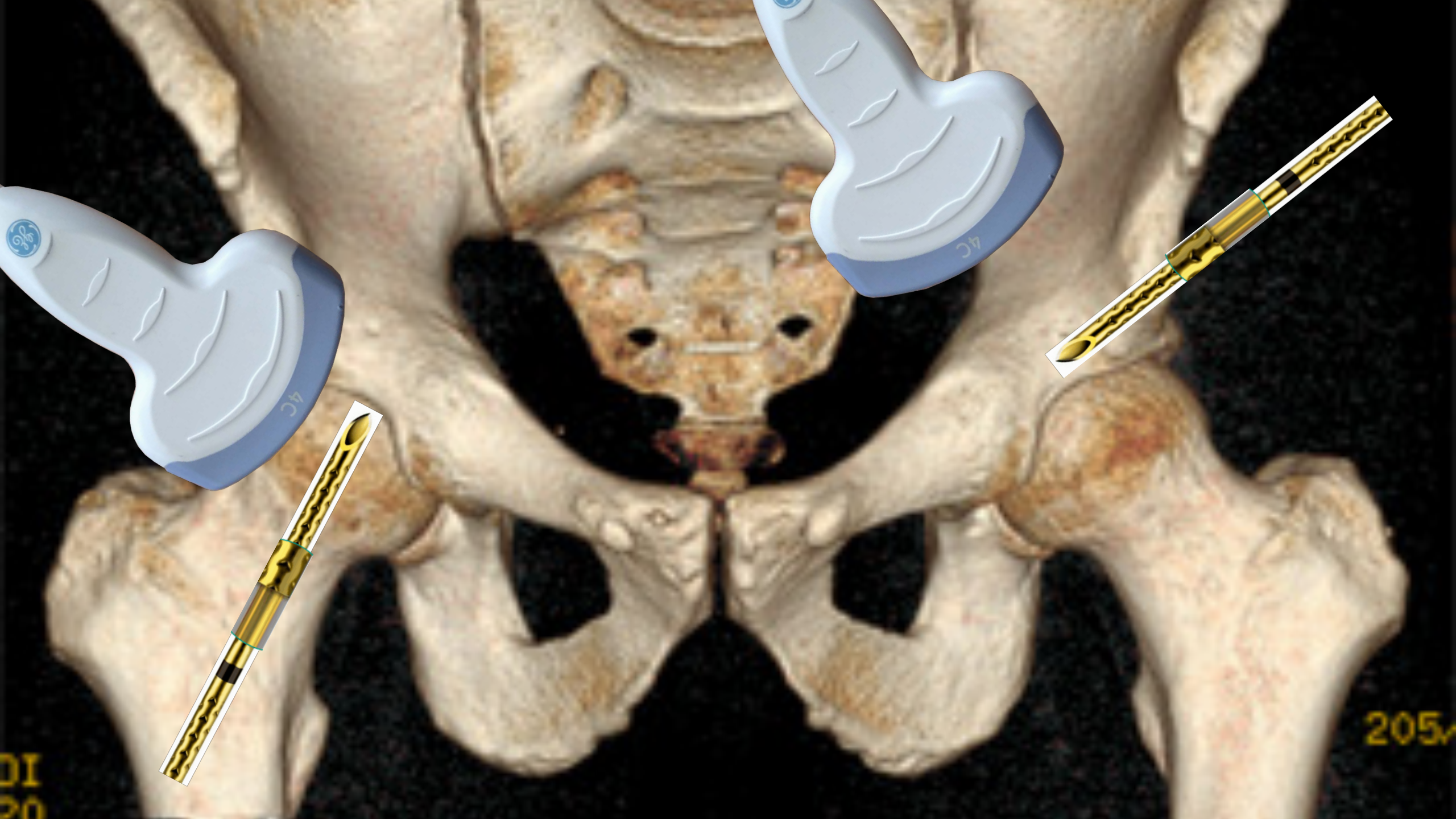
QLBim

~~QLB I~~

~~Femoral nerve block~~

~~Obturator nerve block~~





Le



block (et IPP block)

- **Le principe**: infiltration écho guidée de la partie antérieure de l'articulation coxo-fémorale
- **La localisation** : Entre l'articulation et le muscle iliopsoas (et le bord latéral du muscle pectiné)
- **L'espoir** : atteindre les branches distales articulaires du NF, NO et OA... sans atteinte motrice

**Impact of the pericapsular nerve group (PENG) block on postoperative analgesia and functional recovery following total hip arthroplasty: a randomised, observer-masked, controlled trial**

**Table 2** Study outcomes. Values are median (IQR [range]), number (proportion) or mean (SD).

	<b>PENG n = 30</b>	<b>Control n = 30</b>	<b>p value</b>
Postoperative pain; <u>Maximum NRS</u>			
0–12 h	2.5 (2.0–3.7 [0.0–7.0])	5.5 (5.0–7.0 [2.0–8.0])	<0.001
12–24 h	3 (2–4 [0–7])	6 (5–6 [2–8])	–
24–48 h	2 (2–4 [0–5])	3.0 (2.0–4.7 [0.0–6.0])	–
Postoperative opioid consumption			
Yes	20 (77%)	30 (100%)	0.001
No	10 (33%)	0	–
Time to first opioid; h	12 (6.7)	6 (4.9)	0.001
Total opioid consumption			
Sufentanil tablets; n	2 (0–2 [0–9])	5 (3–6 [2–9])	<0.001
<u>Intravenous morphine equivalent; mg</u>	<u>4.0 (4.5)</u>	<u>8.9 (4.0)</u>	
Mobility			
Range of motion; degrees	62.3 (20.2)	38.7 (22.4)	<0.001
<u>Time to first walk; h</u>	<u>22.1 (9.6)</u>	<u>32.4 (10.6)</u>	<0.001
Length of hospital stay; h	51.1 (12.6)	53.3 (13.8)	0.5

# Randomized comparison between pericapsular nerve group (PENG) block and suprainguinal fascia iliaca block for total hip arthroplasty

Julián Aliste ,<sup>1</sup> Sebastián Layera ,<sup>1</sup> Daniela Bravo ,<sup>1</sup> Álvaro Jara,<sup>1</sup>  
Gonzalo Muñoz,<sup>1</sup> Cristián Barrientos,<sup>2</sup> Rodrigo Wulf,<sup>2</sup> Julián Brañez,<sup>2</sup>  
Roderick J Finlayson ,<sup>3</sup> De Q Tran <sup>4</sup>

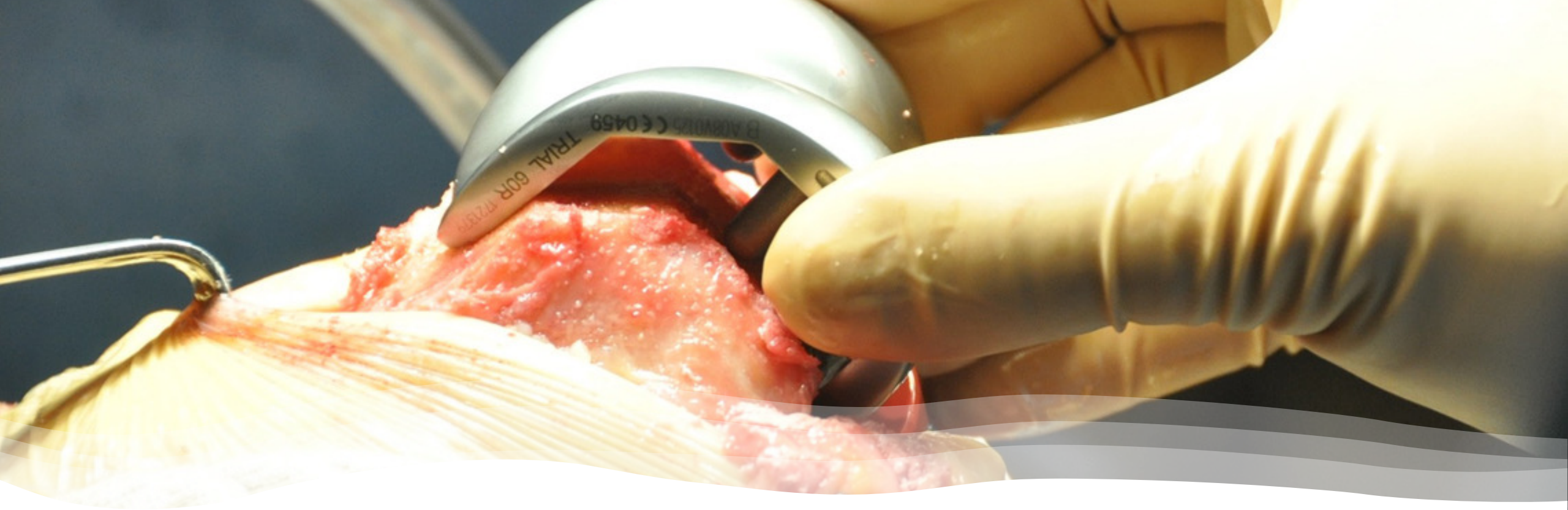


**Table 2** Sensory and motor block assessment

Motor block	SIFIB (n=20)			PENG (n=20)			
	No block	Paresis	Paralysis	No block	Paresis	Paralysis	
Knee extension at 3-hour postblock, n (%)	2 (10)	4 (20)	14 (70)	11 (55)	7 (35)	2 (10)	<0.001
Knee extension at 6-hour postblock, n (%)	3 (15)	6 (30)	11 (55)	15 (75)	4 (20)	1 (5)	<0.001
Knee extension at 24-hour postblock, n (%)	13 (65)	5 (25)	2 (10)	19 (95)	1 (5)	0 (0)	0.102
Hip adduction at 3-hour postblock, n (%)	2 (10)	10 (50)	8 (40)	10 (50)	8 (50)	4 (20)	0.023
Hip adduction at 6-hour postblock, n (%)	7 (35)	8 (40)	5 (25)	10 (50)	7 (35)	3 (15)	0.341
Hip adduction at 24-hour postblock, n (%)	14 (70)	5 (25)	1 (5)	15 (75)	5 (25)	0 (0)	0.738



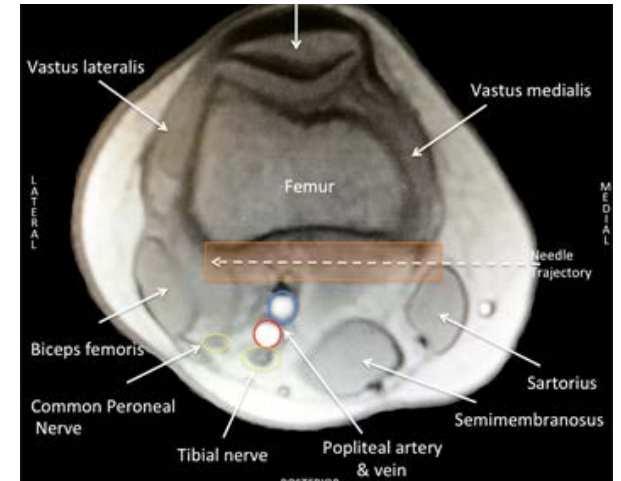
- PENG block gagnant aujourd'hui...
- S'inscrit bien dans la RAAC,
- Tjs dans un contexte **d'ANALGESIE Multimodale**
- Épargne morphinique modeste
- Meilleure « *Epargne motrice* »
- Facile et reproductible
  
- A adapter à la situation clinique...



Quoi de neuf pour la PTG?

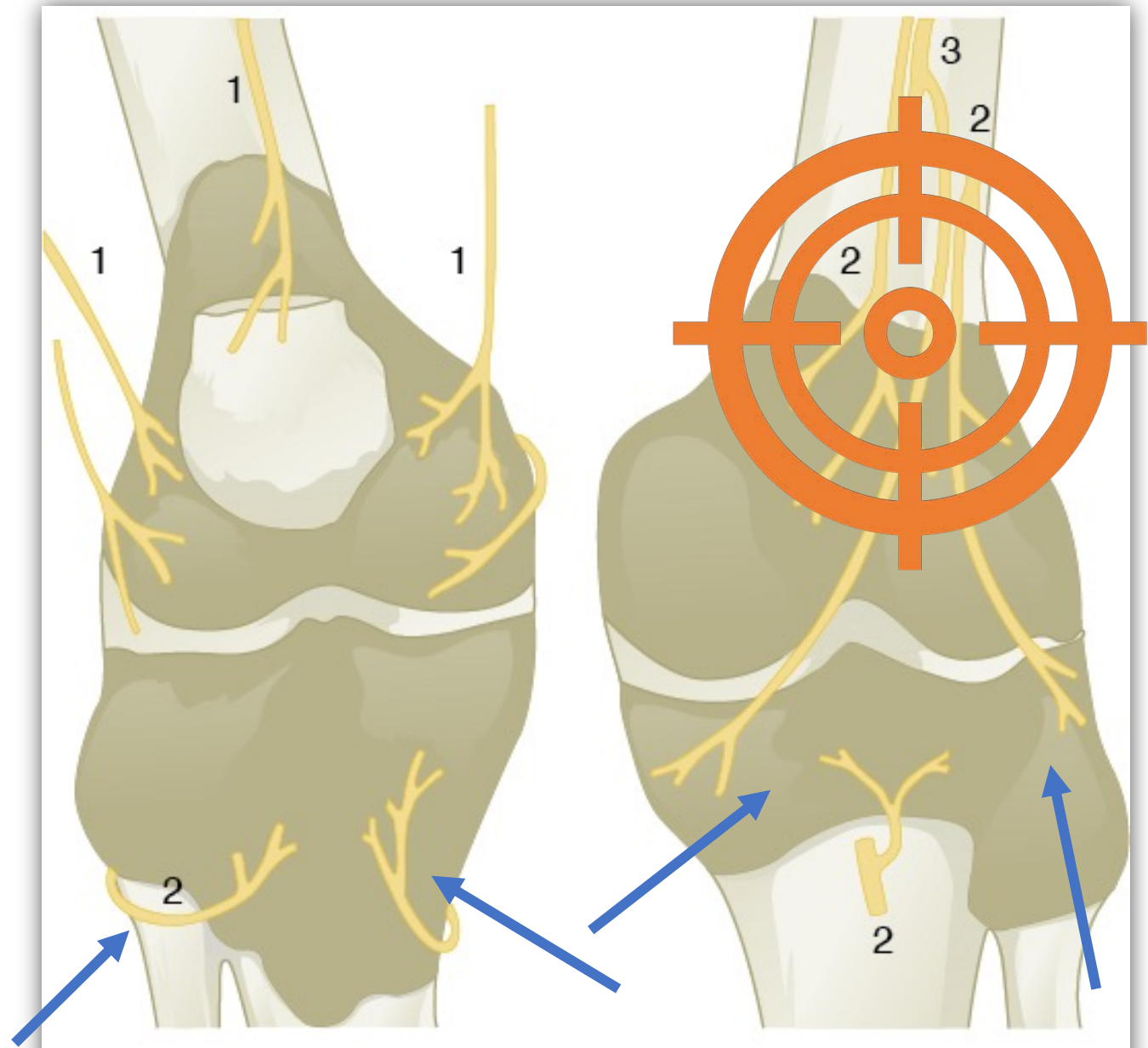
# Infiltration between Popliteal Artery and Capsule of Knee (iPACK)

- Concept développé par le Dr. Sinha. en 2012
- Pour contrôler la douleur postérieure du genou
- En épargnant le tronc principal des nerf tibial et fibulaire
- >>> conserver la la fonction sensorielle/proprioceptive et motrice du membre inférieur



# Le concept

- Atteindre les branches distales articulaires
- Nerfs géniculaires provenant
  - du N. Tibial
  - du N. Fibulaire
  - du N. Obturateur (ram. Post)
- 20-30 ml d' AL longue durée peu concentré
- Mais incomplet

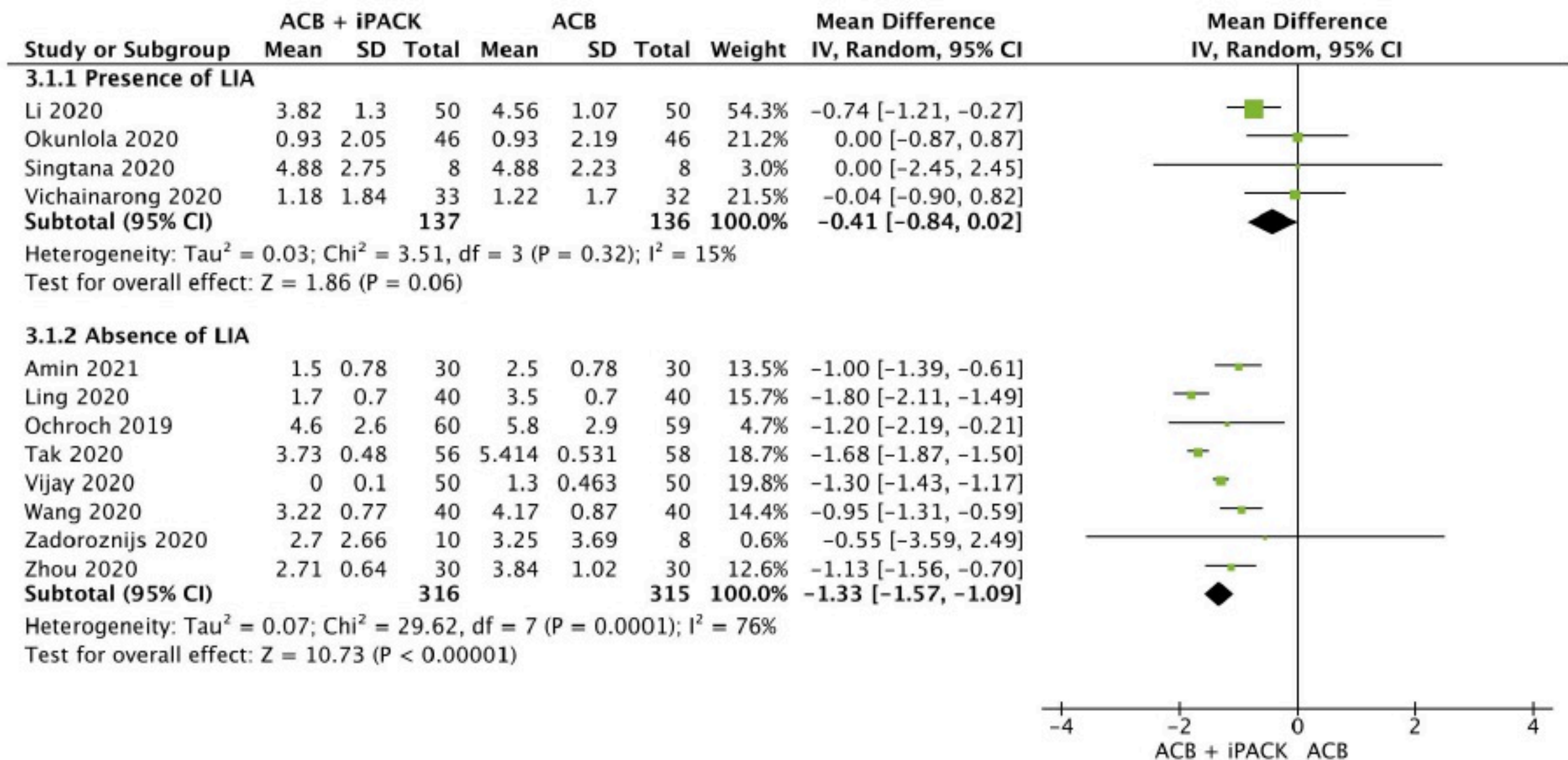


Source: Atchabahian A, Gupta R: *The Anesthesia Guide*  
[www.accessanesthesiology.com](http://www.accessanesthesiology.com)

Copyright © The McGraw-Hill Companies, Inc. All rights reserved.

Does the addition of iPACK to adductor canal block in the presence or absence of periarticular local anesthetic infiltration improve analgesic and functional outcomes following total knee arthroplasty? A systematic review and meta-analysis

Hussain N, et al. *Reg Anesth Pain Med* 2021;**46**:713–721. doi:10.1136/rapm-2021-102705



## LIA GROUP

30 patients received local infiltration analgesia



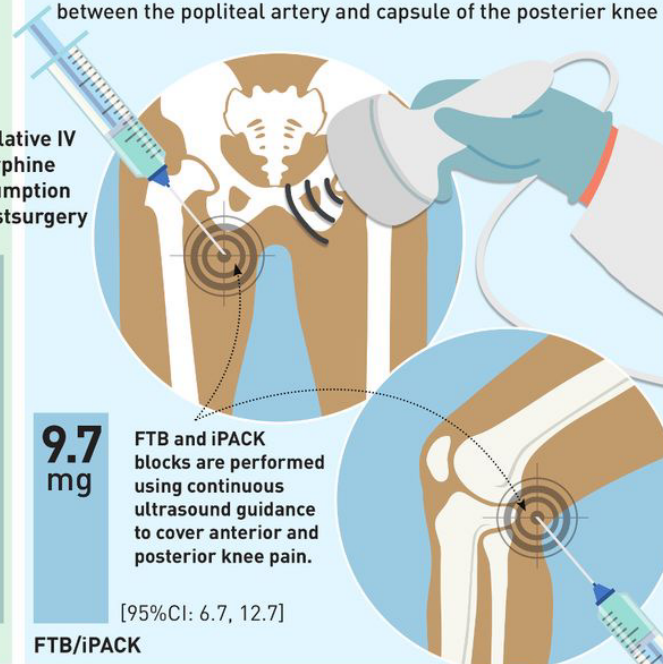
[95%CI: 11.1, 23.0]

17 mg

LIA

## FTB/iPACK GROUP

30 patients received femoral triangle block and infiltration between the popliteal artery and capsule of the posterior knee



Cumulative IV morphine consumption 24h postsurgery

9.7 mg

[95%CI: 6.7, 12.7]

FTB/iPACK

FTB and iPACK blocks are performed using continuous ultrasound guidance to cover anterior and posterior knee pain.

FTB/iPACK Group received 42.9% less morphine than the LIA group, yet still had...

### ... No significant differences in:



#### PAIN SCORES

- ✓ Mean resting pain score
- ✓ Mean dynamic pain score
- ✓ Postoperative nausea and vomiting

#### EARLY FUNCTIONAL-RELATED OUTCOMES

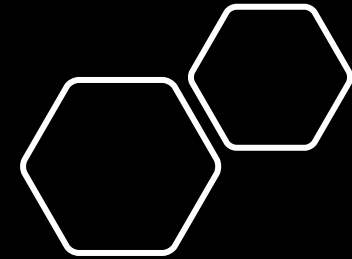
- ✓ Mean walking distance
- ✓ Mean range of motion in flexion
- ✓ Mean quadriceps muscle strength



#### LATE FUNCTIONAL-RELATED OUTCOMES

- ✓ Mean range of motion in flexion
- ✓ Mean concentric quadriceps strength
- ✓ Mean concentric hamstring strength
- ✓ Mean Y balance test
- ✓ Mean ACL-RSI scale
- ✓ Mean IKDC score quadriceps muscle strength

Abbreviations: ACL-RSI, Anterior Cruciate Ligament Return to Sport After Injury; IKDC, International Knee Documentation Committee scale





A	D	D	U	C	T	O	R
I	T	Q	J	V	P	T	L
N	P	A	F	V	A	K	B
F	U	N	C	T	I	O	N
E	R	A	D	E	N	L	O
C	C	L	T	H	T	E	R
T	S	I	I	A	T	I	C
i	P	A	C	K	R	O	P

Déambulation

*Ipack+SSF*      *LIA+ KTF*      *BS+KTF + OB*      *APD*  
*Ipack+CA*      *KTF+Ipack*      *KTF+KTS + OB*  
*LIA*      *LIA+KTCA*

Analgésie

# Les nouveaux blocs sur la sellette?

- L'autopsie nous le dira...
- Facile, reproductible, rapide...
- Analgésie Multimodale...
- A individualiser... rapport analgésie/déambulation
  
- ! « fast food » ... « fast LR anesthesia »...



