

L'analgésie après prothèse totale de hanche



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RASA, 26 juin 2022

Dr Fabrice FERRE

**Rencontres des Anesthésistes Sanofi -Aventis
26 Juin 2022**

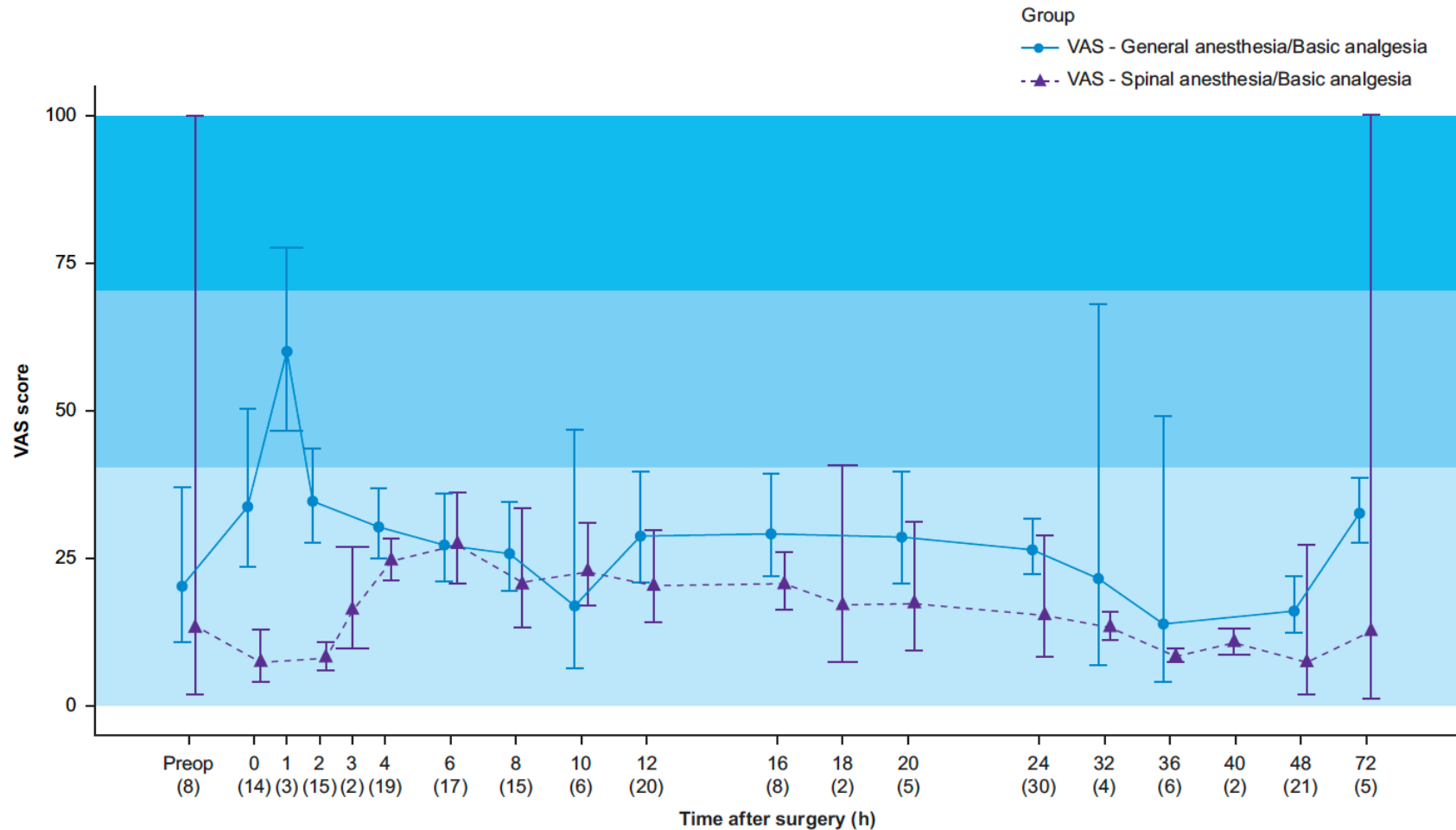
Liens d'intérêts:

Je déclare avoir reçu des honoraires en tant que consultant ou
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*Sanofi ne recommande en aucun cas l'usage des produits en dehors de leurs indications approuvées.
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Les informations ci-après sont fournies pour un usage médical et scientifique uniquement,
et sont destinées exclusivement aux participants de cette manifestation scientifique .*

Procedure-specific acute pain trajectory after elective total hip arthroplasty: systematic review and data synthesis

71 trials
5973 patients



PROSPECT guideline for total hip arthroplasty: a systematic review and procedure-specific postoperative pain management recommendations

Recommendations

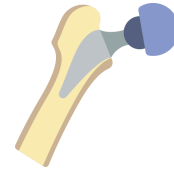
- 1** Pre-operative exercise and education are recommended.
- 2** The basic analgesic regimen should include a combination of paracetamol and a non-steroidal anti-inflammatory drug or a cyclo-oxygenase-2-selective inhibitor administered pre-operatively or intra-operatively and continued postoperatively.
- 3** Spinal or general anaesthesia is recommended.
- 4** A single intra-operative dose of intravenous dexamethasone 8–10 mg is recommended for its analgesic and anti-emetic effects.
- 5** A single-shot fascia iliaca block or local infiltration analgesia is recommended.
- 6** If the patient has received spinal anaesthesia for the surgery, intrathecal morphine 0.1 mg could be considered.
- 7** Opioids should be reserved as rescue analgesics in the postoperative period.

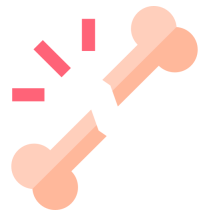
Chirurgie PTH

1. FESF



2. Coxarthrose



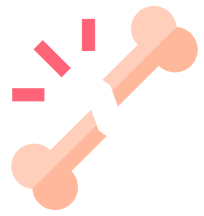


**RECOMMANDATION SUR L'ANESTHESIE DU SUJET AGE :
L'EXEMPLE DE FRACTURE DE L'EXTREME SUPERIEURE DU
FEMUR**

**R8.2 – Il faut probablement réaliser un bloc fémoral ou iliofascial
pour assurer l'analgésie en cas de FESF.**

GRADE 2+ (ACCORD FORT)

> 75 000 FESF par an en France



Peripheral nerve block for hip fracture

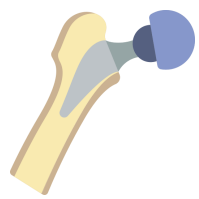
Meilleure **analgésie**
repos et **mobilisation**

Diminution **consommation** opioïdes

Diminution **délai** mobilisation

Diminution **pneumonies**

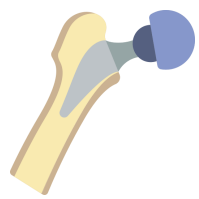
Diminution **delirium**



**Réhabilitation améliorée après chirurgie orthopédique
lourde du membre inférieur
(Arthroplastie de hanche et de genou hors fracture)**

ABSENCE DE RECOMMANDATION – Les données actuellement disponibles dans la littérature sont insuffisantes pour que les experts émettent une recommandation sur l'intérêt de l'analgésie locale ou locorégionale pour diminuer la douleur et/ou la consommation d'opiacés en postopératoire d'arthroplastie de hanche dans un programme de réhabilitation.

106 000 PTH par an en France



Consensus statement for perioperative care in total hip replacement and total knee replacement surgery: Enhanced Recovery After Surgery (ERAS[®]) Society recommendations

PTH = pas d'ALR

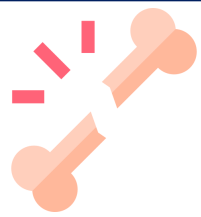


The efficacy of intraoperative periarticular injection in Total hip arthroplasty: a systematic review and meta-analysis

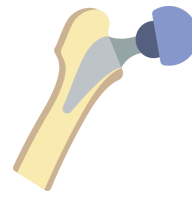
11 RCTs

Results: Our analysis demonstrated that PAI was more effective than the control group with a lower visual analog scale (VAS) score during rest at 24 h ($P=0.003$), 48 h ($P=0.002$), and VAS score with activity at 24 h ($P=0.04$). There was also less amount of opioid consumption ($P=0.01$). There were no differences in length of hospital stay ($P=0.526$) and postoperative nausea rate ($P=0.153$).

Conclusion: Compared with the control group, PAI showed better pain relief and less amount of opioid consumption after THA. Our meta-analysis suggests that PAI is a safe and effective multimodal analgesia technique that can be used for THA.



ALR

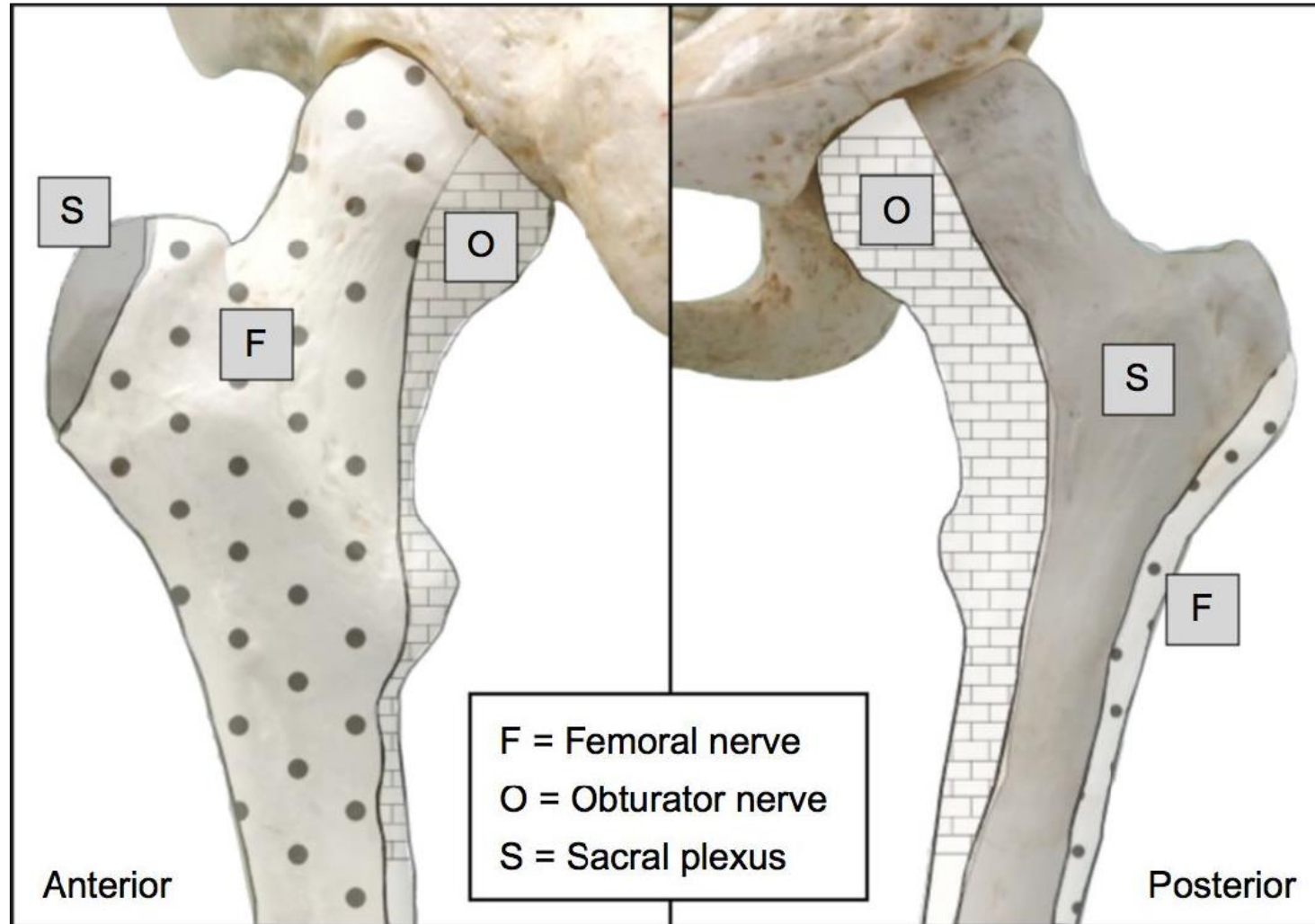


ERAS



Douleur
(scores, consommation
morphiniques)

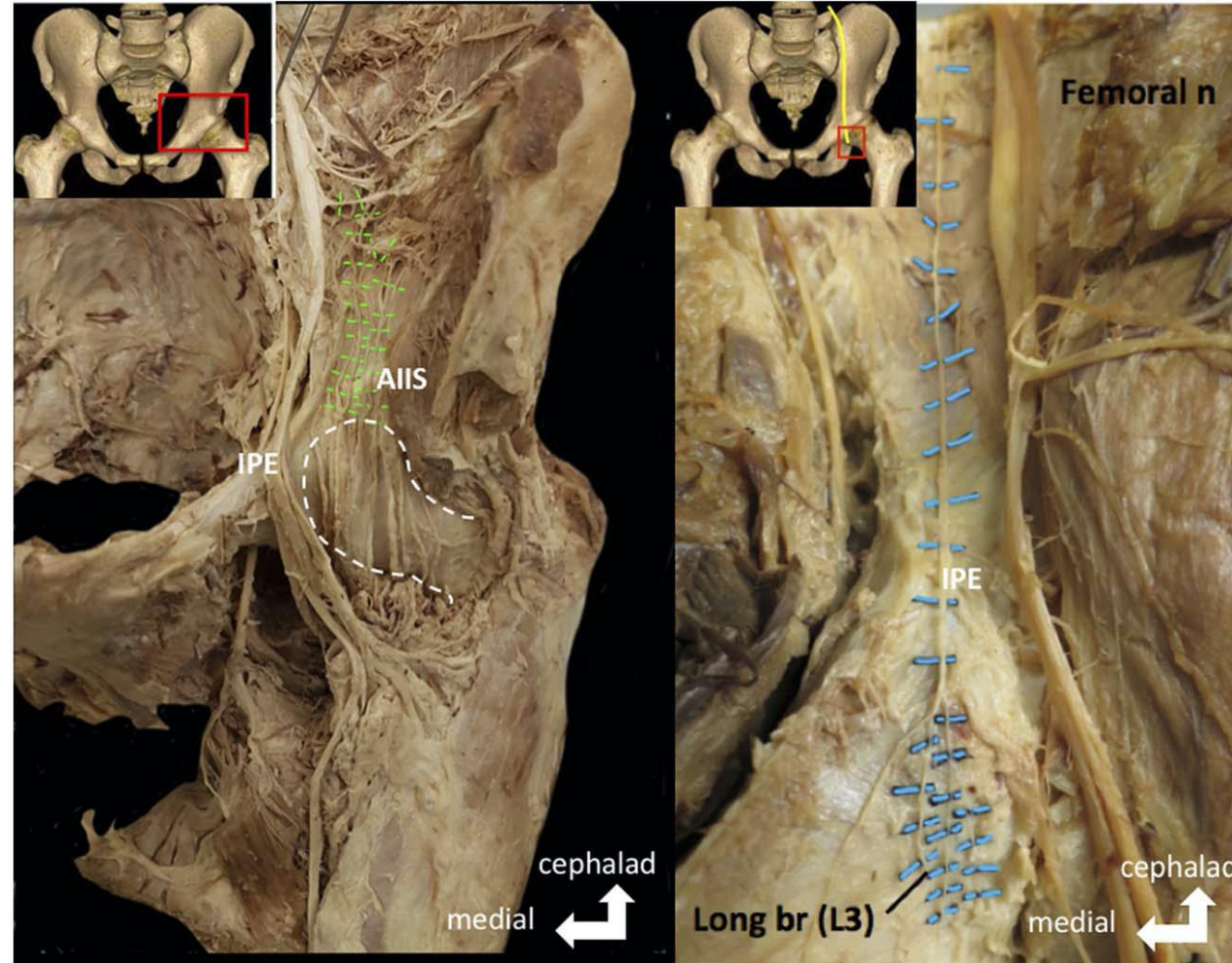
Epargner **fonction**
musculaire motrice





Anatomic Study of Innervation of the Anterior Hip Capsule

Implication for Image-Guided Intervention

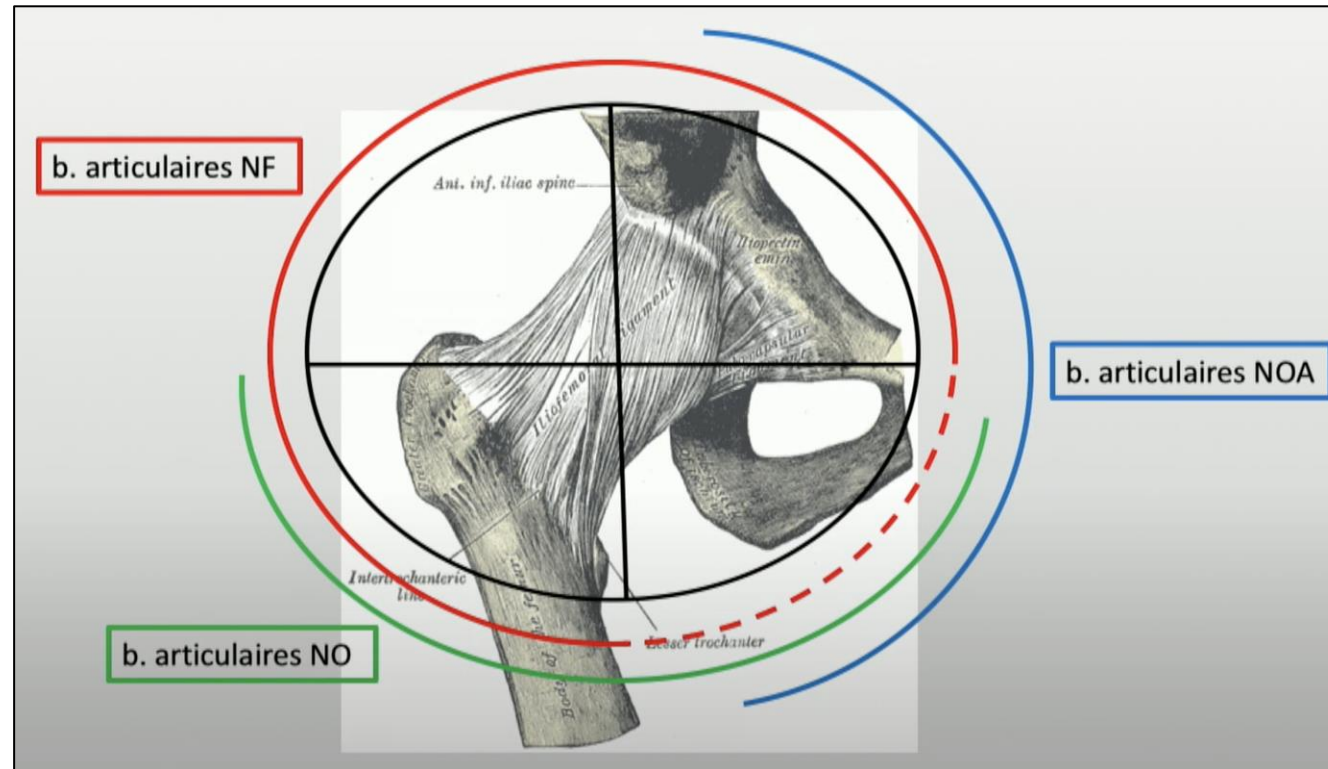


Short, Reg Anesth Pain Med 2017
Giron-Arango, Reg Anesth Pain Med 2018



Anatomic Study of Innervation of the Anterior Hip Capsule

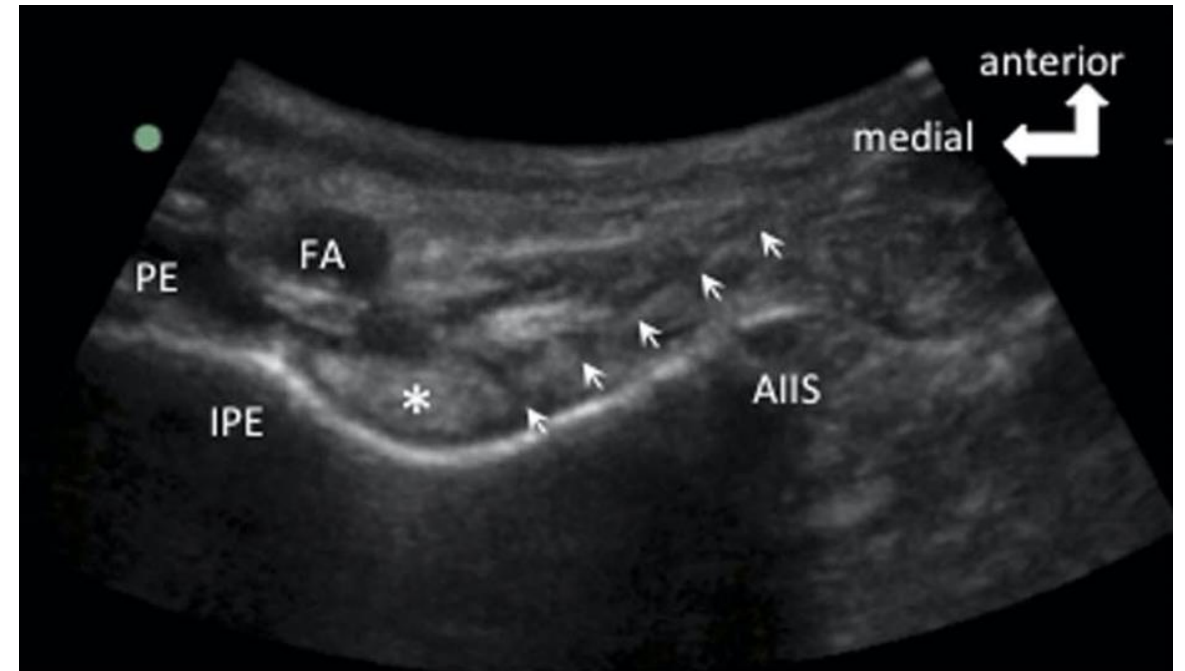
Implication for Image-Guided Intervention





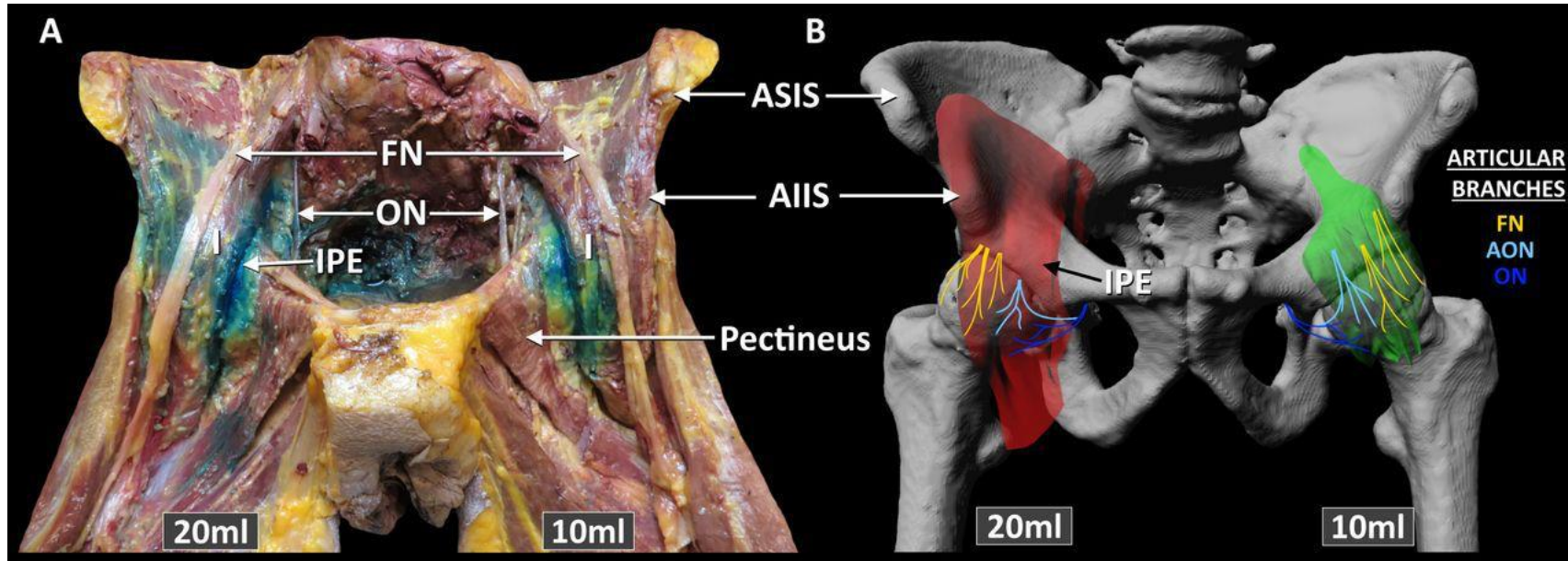
Pericapsular Nerve Group (PENG) Block for Hip Fracture

Laura Girón-Arango, MD,† Philip W.H. Peng, MBBS, FRCPC, Founder (Pain Med),*†
Ki Jinn Chin, MBBS, MMed, FANZCA, FAMS, FRCPC,*†
Richard Brull, MD, FRCPC,* and Anahi Perlas, MD, FRCPC*†*





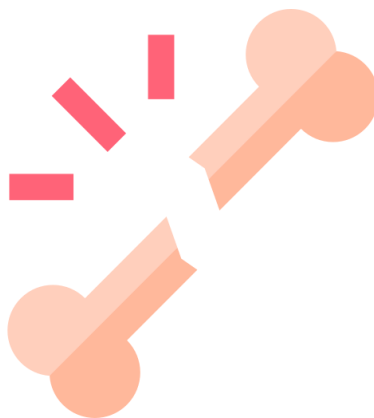
Is pericapsular nerve group (PENG) block a true pericapsular block?

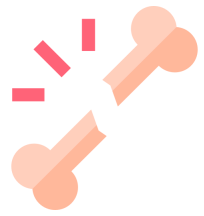


Analgesia and anesthesia using the pericapsular nerve group block in hip surgery and hip fracture: a scoping review

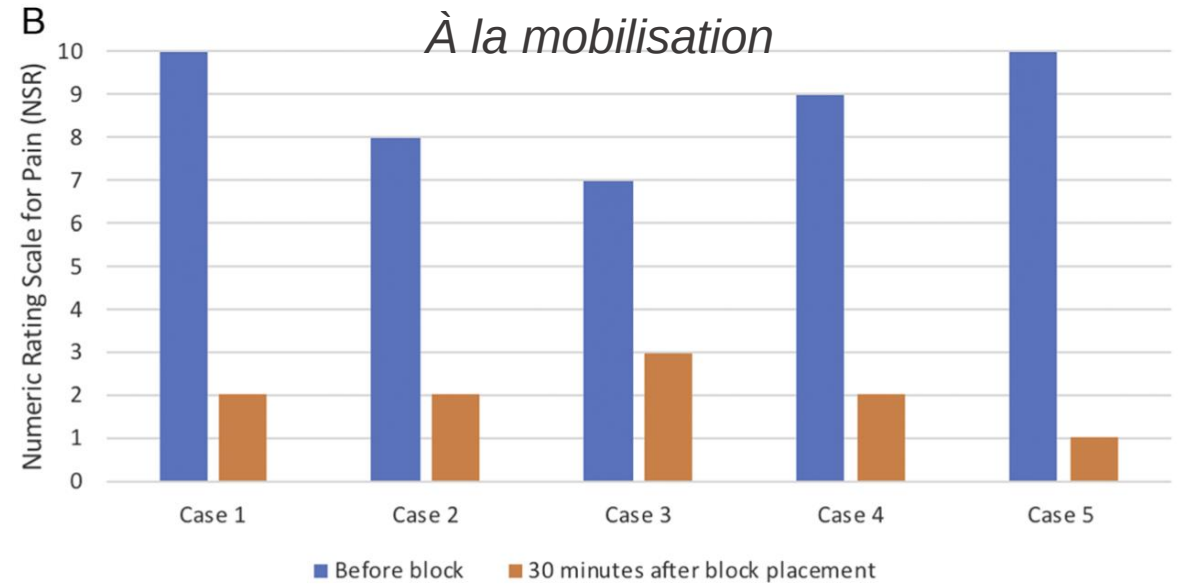
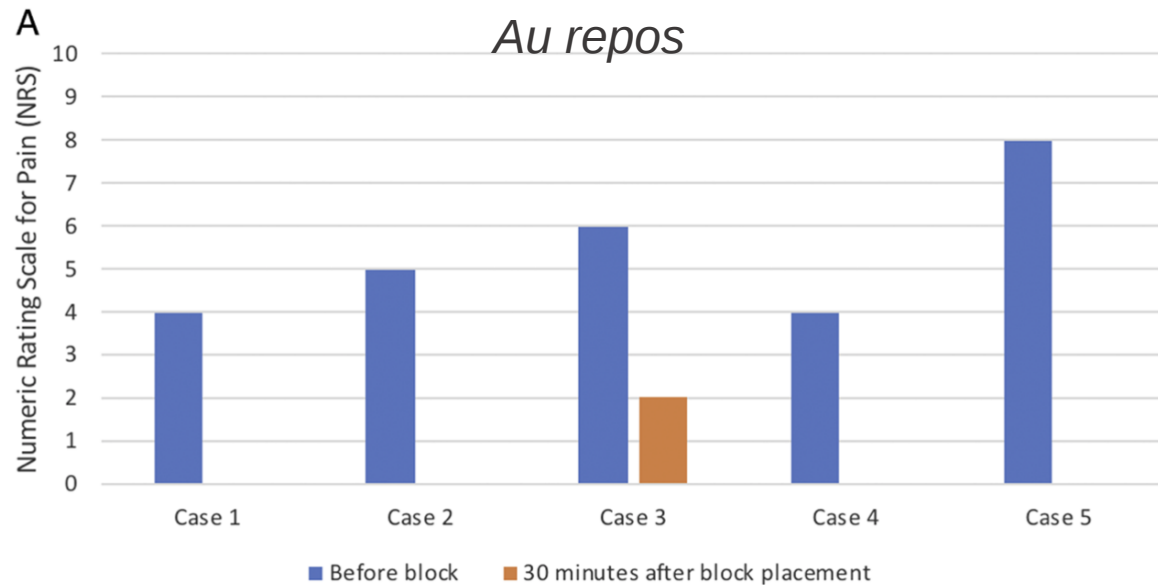
Results Database searches identified 345 articles, 20 of which could be included in the current review, with a combined patient number of 74. Included articles comprised case reports and case series only, describing 1 to 10 patients. In all studies, PENG block was described to provide sufficient analgesia or anesthesia. Transient motor side effects occurred only when the local anesthetic was deposited in an unintended location (n=2).

Conclusions Current evidence of using PENG block for hip surgery or hip pain is limited to case reports and case series only. PENG block is a promising regional analgesia technique as an alternative to other regional nerve blocks such as femoral nerve block or iliac fascia nerve block. Observational and experimental studies are required to determine the effectiveness, efficacy and safety of the PENG block.

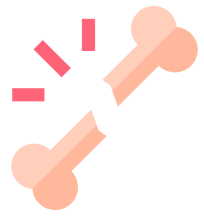




Série de cas: ENS avant/après PENG



↓ EN de 7 points en médiane 30 minutes après le bloc



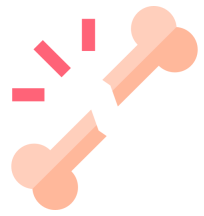
PENG avant RA

- 10 FESF

Age (years)	Gender	Fracture	NRS score before PENG (on movement)	NRS score 10 minutes after PENG (on movement)	NRS score while positioning upright for spinal/epidural
19	M	IT	8	3	2
50	M	IT	9	1	1
45	F	ST	7	2	1
16	M	ST	6	1	0
85	F	IT	8	2	1
42	F	IT	7	2	1
62	F	NOF	6	1	1
52	M	IT	8	3	2
94	F	IT	9	2	2
27	M	ST	7	3	1

↓ de la douleur

Position assise sans aide pour RA

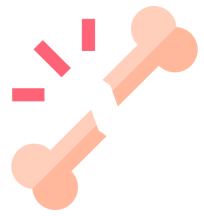


PENG avant RA

- 9 FESF

Table 2: Visual Analogue Pain (VAS) score at various points (expressed as mean±SD)	
VAS score at various points	Mean±SD
Pre-procedure VAS at rest	6.77±1.20
Pre-procedure VAS at 15° passive SLR	9.22±0.83
Post-procedure VAS at rest (30 min)	0.44±0.52
Post-procedure VAS at 15° passive SLR	1.44±0.72
Ease of Patient Positioning for Spinal (0-3)	2.33±0.86
Postoperative VAS scores	
6 h	0.88±0.78
12 h	2.55±0.72
24 h	3.22±0.97

Pericapsular nerve group (PENG) block for hip fractures: Another weapon in the armamentarium of anesthesiologists



Pericapsular nerve group (PENG) block provides improved short-term analgesia compared with the femoral nerve block in hip fracture surgery: a single-center double-blinded randomized comparative trial

FESF sous AG ou RA

PENG vs BF (20 ml Ropi 0.75%)

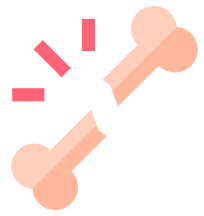
RCT, 60 patients

- **Douleur modérée à sévère (CJP):**

- **SSPI:** 10% PENG vs 36% BF ($p=0,04$) → PENG > BF
- **J1:** PENG = BF

- **Force musculaire (5/5):**

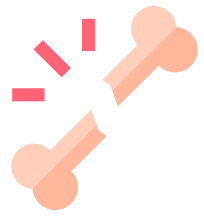
- **SSPI:** 60% PENG vs 0% BF ($p<0,001$)
 - **J1:** 90% PENG vs 50% BF ($p=0,004$)
- } → PENG > BF



Is the PENG block appropriate for all hip fracture surgeries ?

	FB + DHS/Nail (n=18)	PENG + DHS/Nail (n=16)	p
Maximum NRS (PACU)			0.789
• None (0)	9 (50)	11 (69)	
• Mild (1-4)	4 (22)	2 (12.5)	
• Moderate (5-7)	3 (17)	1 (6)	
• Severe (8-10)	2 (11)	2 (12.5)	

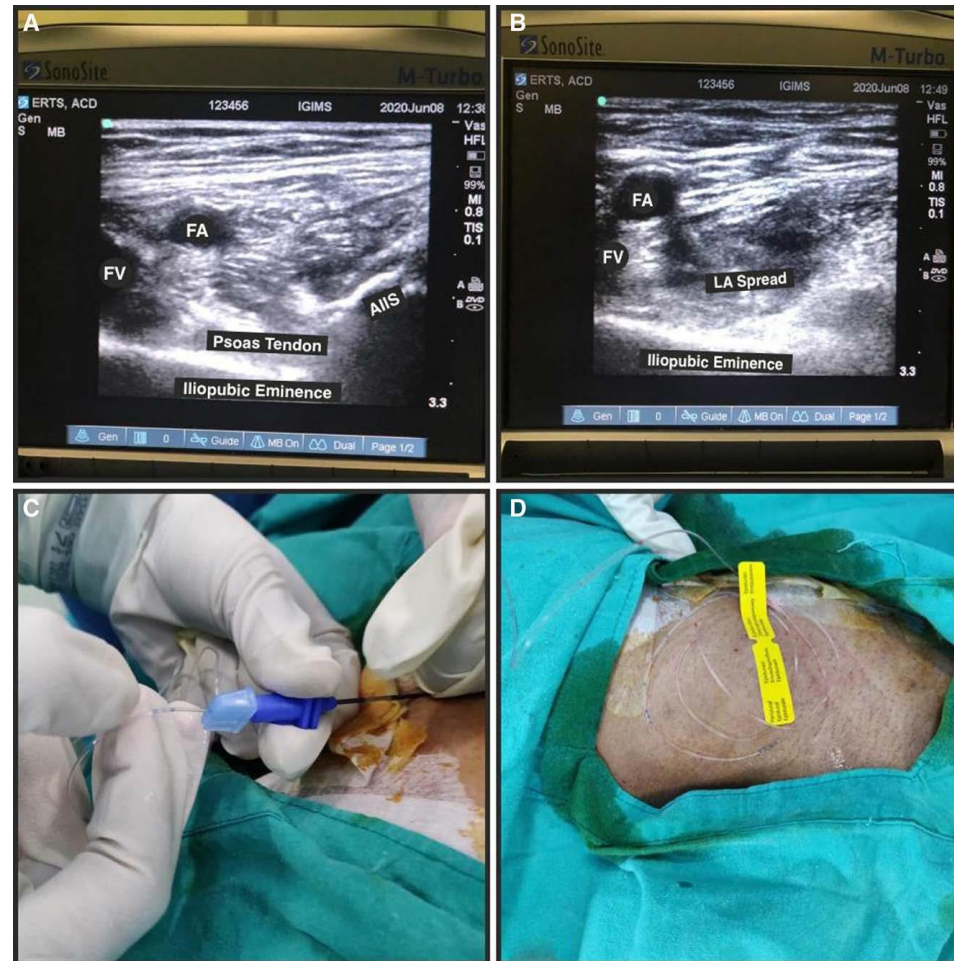
	FB + arthroplasty (n=12)	PENG + arthroplasty (n=14)	p
Maximum NRS (PACU)			0.001
• None (0)	0 (0)	8 (57)	
• Mild (1-4)	4 (33)	6 (43)	
• Moderate (5-7)	4 (33)	0 (0)	
• Severe (8-10)	2 (17)	0 (0)	

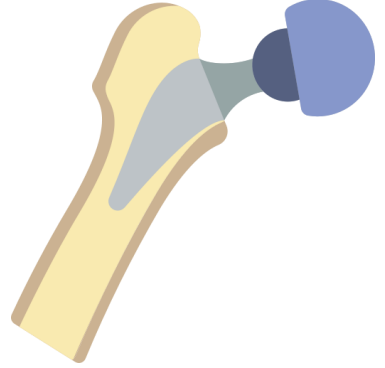


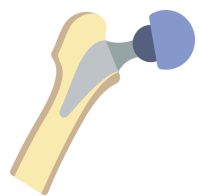
**Pericapsular nerve group
block results in a longer
analgesic effect and shorter
time to discharge than
femoral nerve block in
patients after hip fracture
surgery: a single-center
double-blinded
randomized trial**

	Femoral nerve block (n = 30)	PENG (n = 30)	p-value
Discharge ready (postoperative day), median (range) ^c	4 (2–15)	3 (1–14)	0.02

Continuous Pericapsular Nerve Group Block for Hip Surgery: A Case Series







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

PTH programmée sous RA

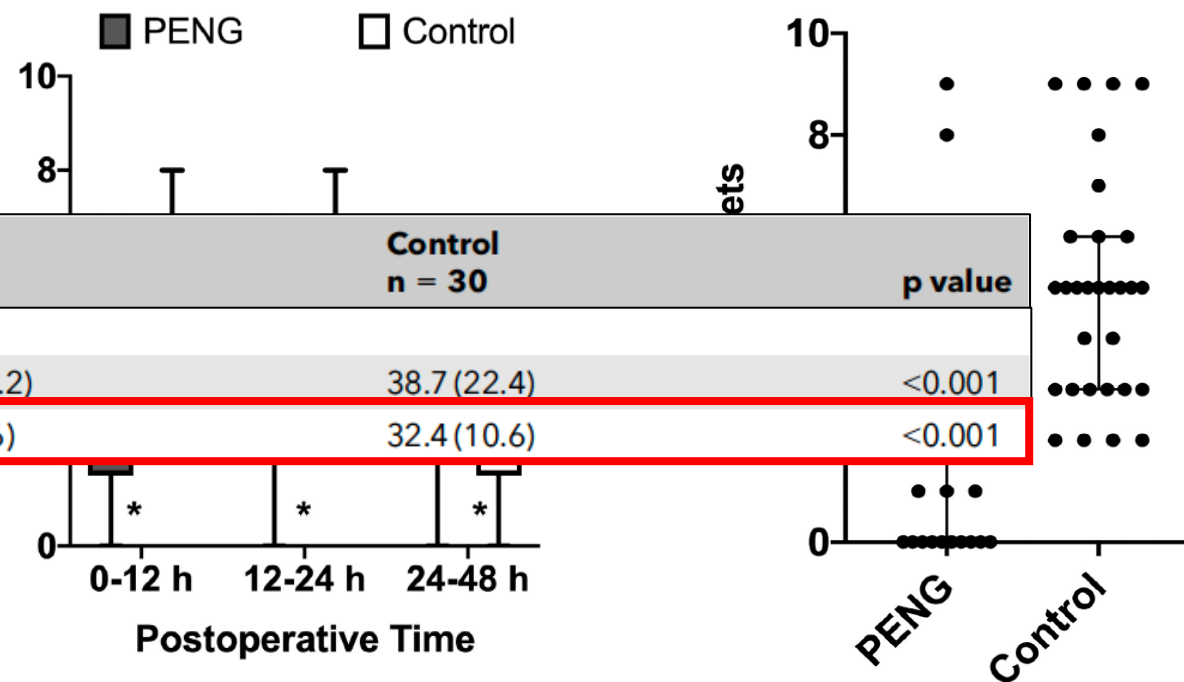
PENG (20 ml ropi 0.275%) vs CONTROL

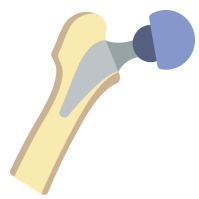
RCT, 60 patients

Douleur J2

- ENS max: 2 [0-5] vs. 3 [0-6] ($p < 0.001$)

→ PENG > CONTROL





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

PTH programmée sous **RA**

PENG (20 ml Levobupi 0.5%) vs. **SIFI** (40 ml Levobupi 0.25%)

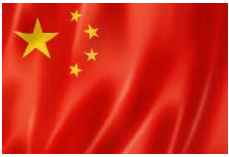
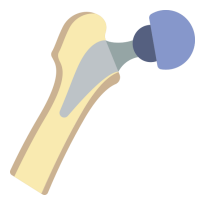
RCT, 40 patients

- **Bloc moteur quadriceps H6 (CJP):**

- H3: 45% PENG vs 90% SIFI ($p < 0,001$)
 - H6: 25% PENG vs 85% SIFI ($p < 0,001$)
- } → PENG > SIFI

- **Douleur:**

- Scores H3 à H48: NS
 - Consommation opiacés H24 et H48: NS
- } → PENG = SIFI



Preoperative pericapsular nerve group (PENG) block for total hip arthroplasty: a randomized, placebo-controlled trial

PTH programmée sous **AG**

PENG (20 ml ropi 0.5%) + **LIA** (20 ml ropi 0.5%) vs. **LIA**

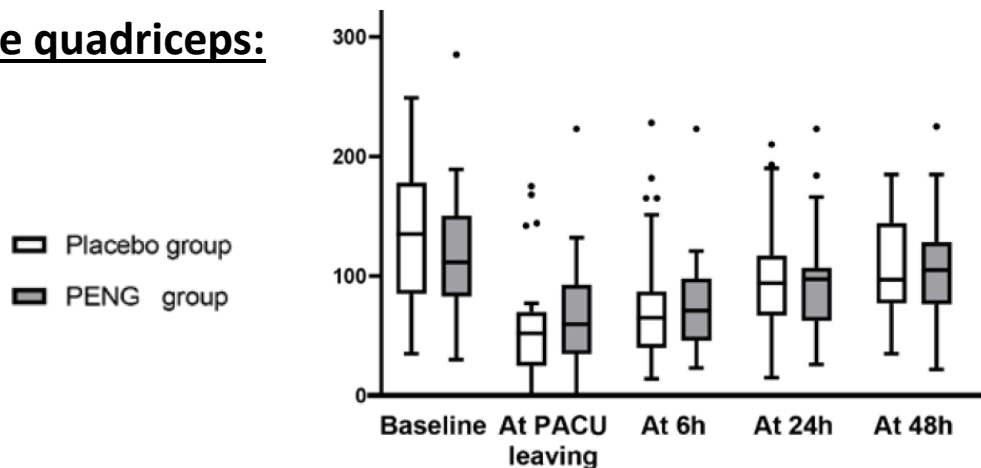
RCT, 70 patients

- **Douleur SSPI (CJP):**

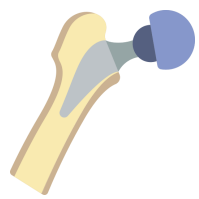
- ENS max: 3.3 ± 2.7 vs. 5.2 ± 3.1 ($p < 0.01$)
- Différence moyenne (IC95%): -1.9 (-3.3 à 0.5)

➔ **PENG + LIA > LIA**

- **Force quadriceps:**



➔ **PENG + LIA = LIA**



PENG block combined with LIA is not superior to LIA for the management of postoperative pain after elective THA: a prospective, randomized, controlled trial.

PTH programmée sous **AG**

PENG (20 ml ropi 0.475%) + **LIA** (80 ml ropi 0.2%) vs. **LIA**

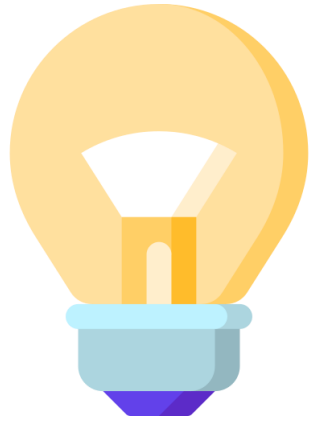
RCT, 64 patients

- **Consommation opiacés J1 (CJP):**

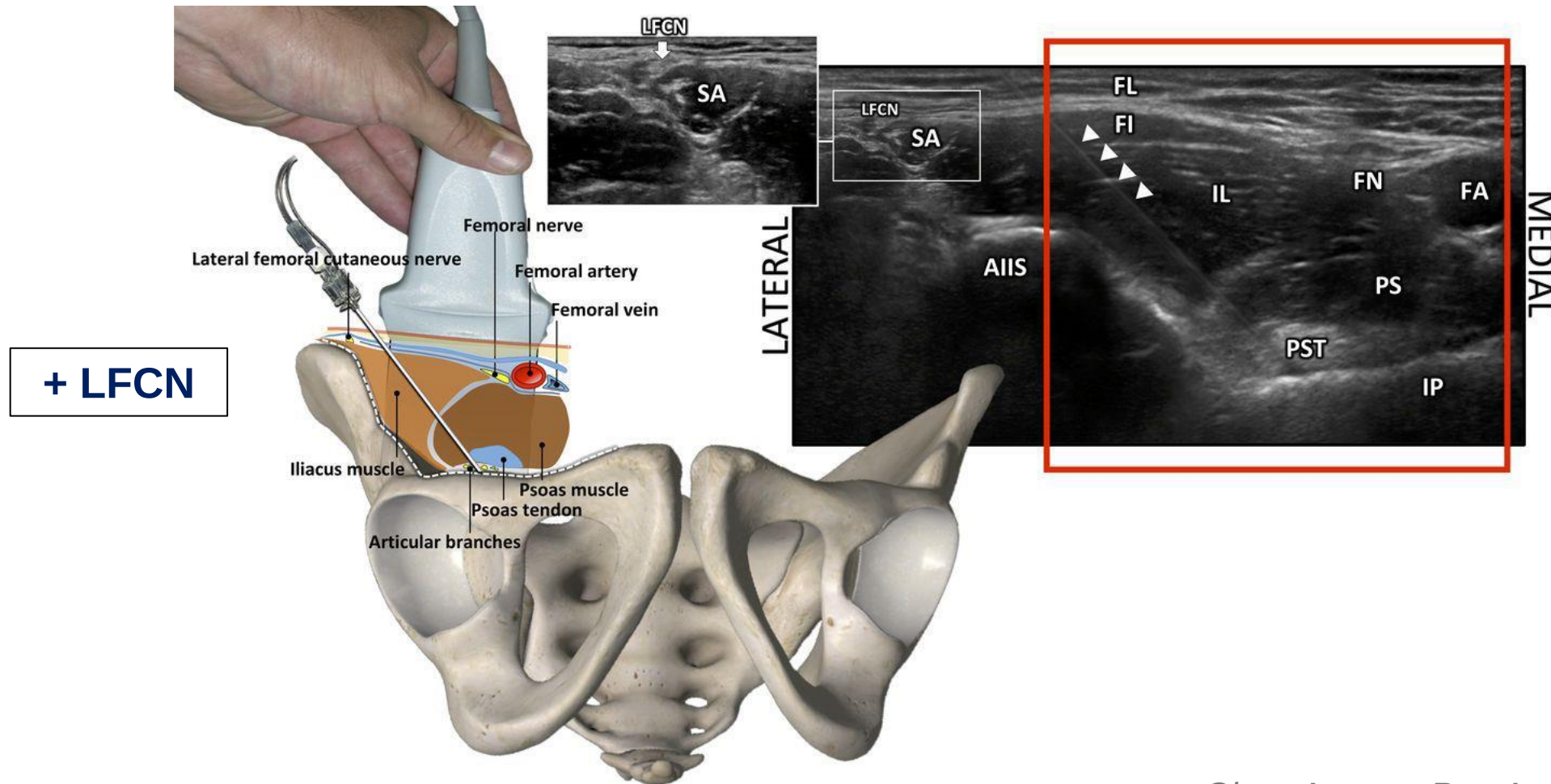
- 58 [0-113] mg vs. 78 [0-141] mg (p=0.09)
 - Différence médiane (IC95%): -17 (-34 à 1) mg
- } → PENG + LIA = LIA

- **Récupération fonctionnelle J1:**

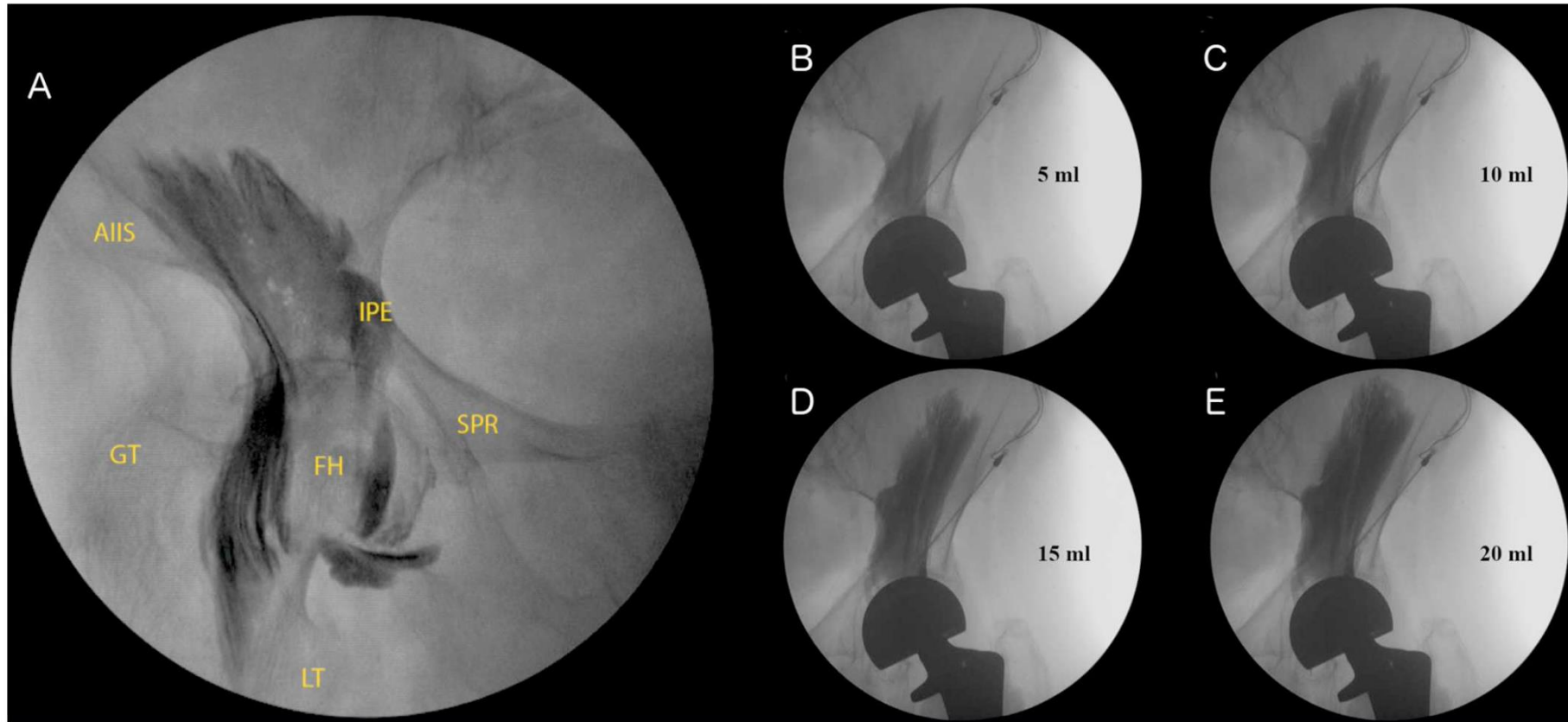
- TUG: 31.5 [11 – 106] vs. 35 [16 – 140] sec. (p=0.39)
 - Adduction cuisse: 100 [50 – 170] vs. 105 [40 – 200] mmHg (p=0.60)
- } → PENG + LIA = LIA



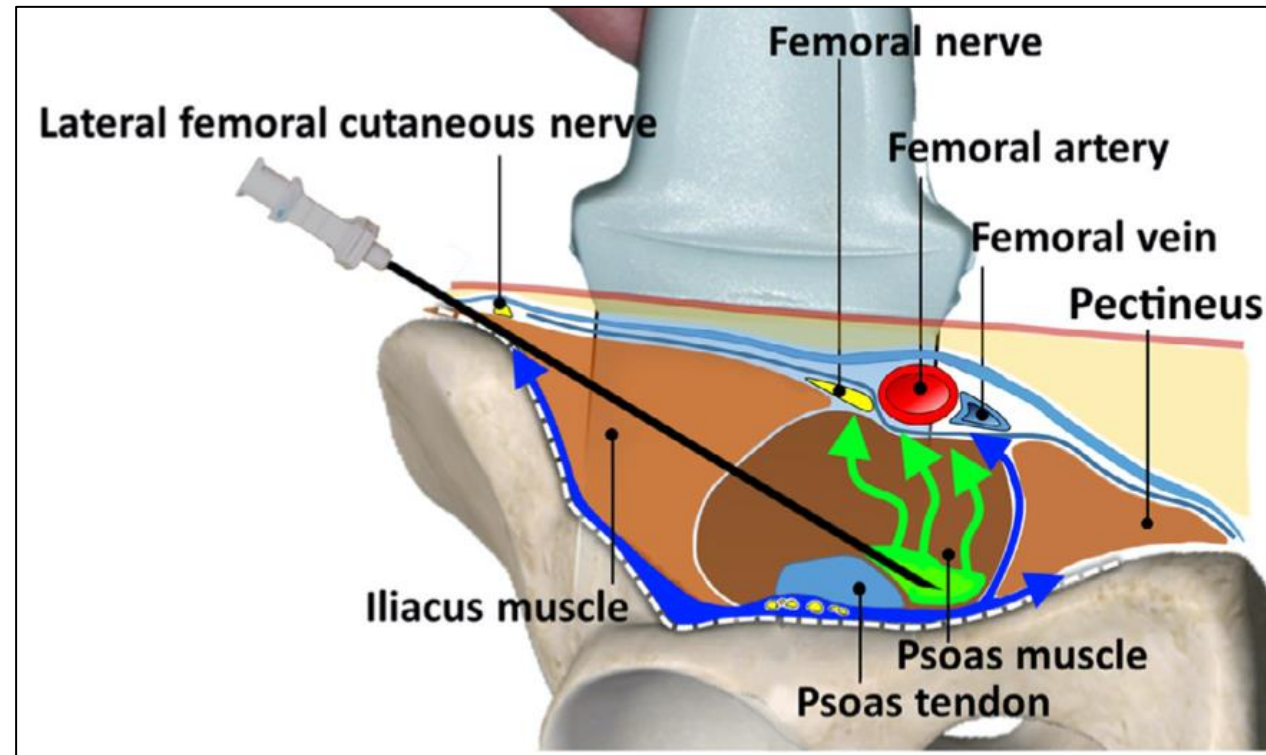
PERicapsular Nerve Group block: branches articulaires NF, NO et NOA



Peng block in prosthetic hip replacement: A cadaveric radiological evaluation



Inadvertent quadriceps weakness following the pericapsular nerve group (PENG) block



Conclusion & Perspectives

- Douleur modérée à intense: **4-6 premières heures** postopératoires
- **LIA, DXM, opiacés ALD...**
- **PENG** block
 - Capsule antérieure hanche: bloc branches articulaires **NF, NO, NOA**
 - Volume: **20 mL**
 - **Epargne fonction musculaire** motrice mais...
 - **Analésie** chirurgie **FESF: réalité**
 - **PTH** programmée: **mythe ?**