Elle a vraiment très mal, que peut-on lui proposer?

Dr Sébastien Campard.
Clinique Jules Verne. Nantes.

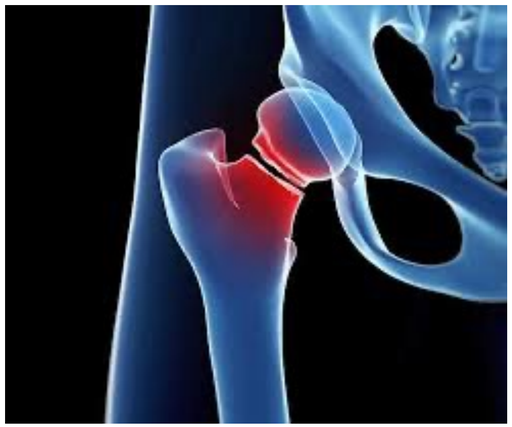
PHILEAS
ANESTHESISTES

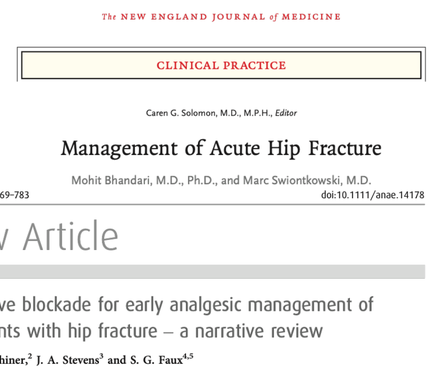
www.anesthesie-clinique-jules-verne.fr

15 ANS AEA

Fractures de la hanche

- 4,5 millions / an
- Mortalité: 10% à 1 mois, 36% à 1 an.
- Chirurgie < 48h
- Mortalité évitable: 50%
- Nombreuses co-morbidités (troubles cognitifs, cardiopathie, insuffisance rénale…)
- Difficultés d'évaluation: urgence, évaluation pluri-disciplinaire.





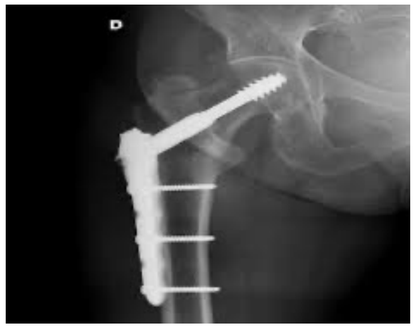
Analgésie à la phase initiale

- EVA élevées (> 8)
- Effets secondaires de l’antalgiques systémique: AINS, morphiniques…
- Mobilisations ++

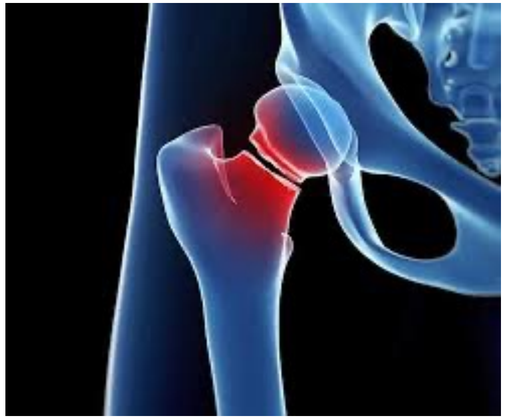
Analgésie efficace = diminution du délirium

Fractures de la hanche

Fracture extra capsulaires



Fracture intra capsulaires



Innervation de la hanche

Fascia iliaca compartment block

N. O'Reilly[1] M. Desmet[2] and R. Kearns[1,3,*]

[1]Glasgow Royal Infirmary, Glasgow, UK, [2]AZ Groeninge, Kortrijk, Belgium and [3]University of Glasgow, Glasgow, UK

*Corresponding author: rachel.kearns@glasgow.ac.uk

BJA Education, 19(6): 191–197 (2019)

doi: 10.1016/j.bjae.2019.03.001
Advance Access Publication Date: 24 April 2019

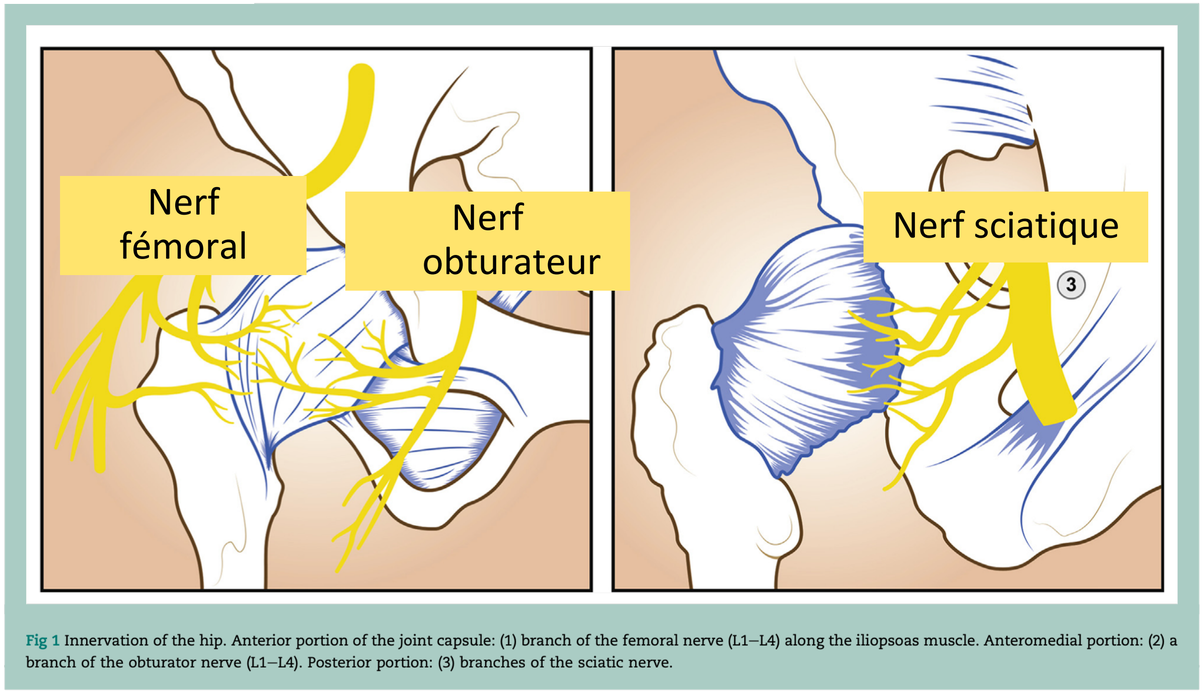


Fig 1 Innervation of the hip. Anterior portion of the joint capsule: (1) branch of the femoral nerve (L1–L4) along the iliopsoas muscle. Anteromedial portion: (2) a branch of the obturator nerve (L1–L4). Posterior portion: (3) branches of the sciatic nerve.

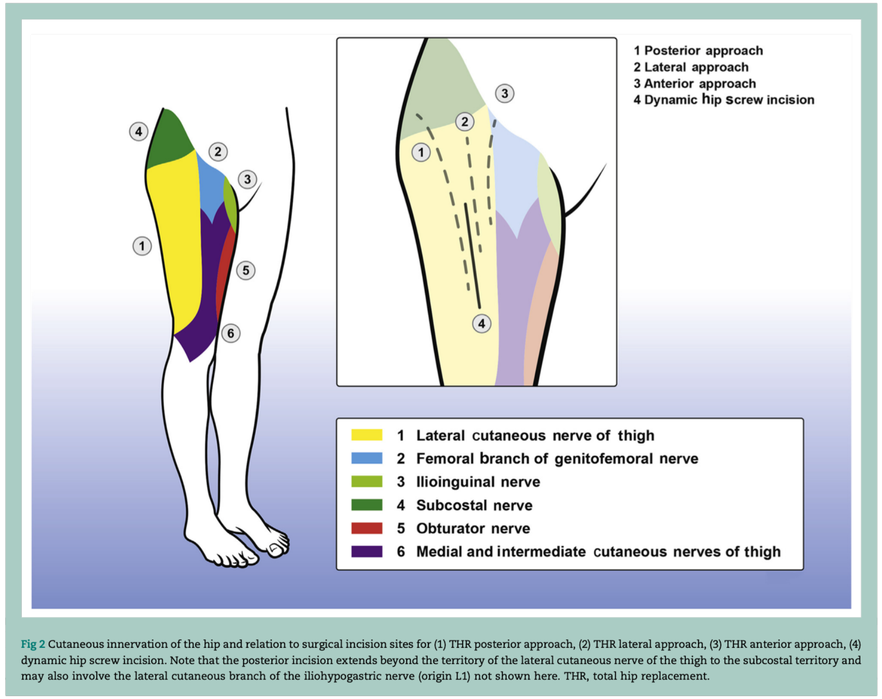
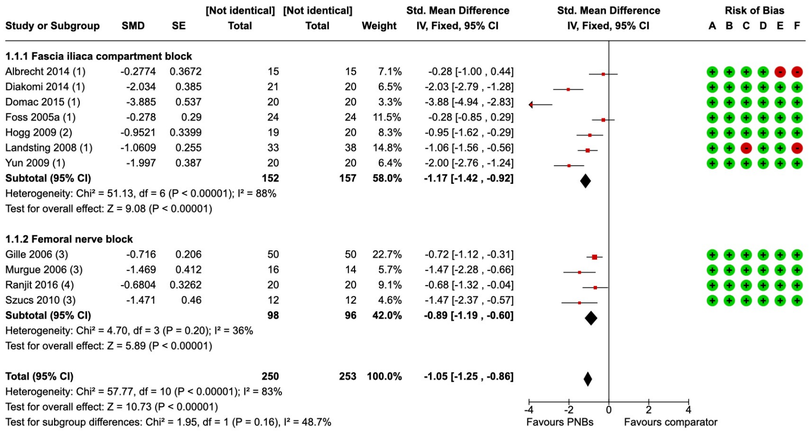


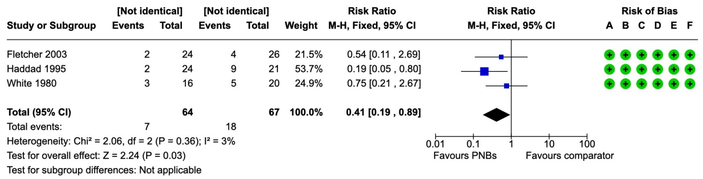
Fig 2 Cutaneous innervation of the hip and relation to surgical incision sites for (1) THR posterior approach, (2) THR lateral approach, (3) THR anterior approach, (4) dynamic hip screw incision. Note that the posterior incision extends beyond the territory of the lateral cutaneous nerve of the thigh to the subcostal territory and may also involve the lateral cutaneous branch of the iliohypogastric nerve (origin L1) not shown here. THR, total hip replacement.

Il nous faut:

- Un bloc fémoral
- Un bloc obturateur
- +/- un bloc cutané latéral de cuisse

Intérêts d'un bloc nerveux périphérique





Cochrane Database of Systematic Reviews | Review - Intervention

Peripheral nerve blocks for hip fractures in adults

Joanne Guay, Sandra Kopp Authors' declarations of interest

Version published: 25 November 2020 Version history

https://doi.org/10.1002/14651858.CD001159.pub3

Diminution de la douleur à 30 min
Diminution du délire postop
Diminution des infections respiratoires
Mobilisation plus précoce

Quel(s) Bloc(s) ?

Can J Anesth/J Can Anesth (2013) 60:230–243
DOI 10.1007/s12630-012-9880-8

REPORTS OF ORIGINAL INVESTIGATIONS

Efficacy of supplemental peripheral nerve blockade for hip fracture surgery: multiple treatment comparison

Efficacité d'un bloc nerveux périphérique supplémentaire pour les chirurgies de fracture de la hanche: Comparaison de plusieurs traitements

Saifee Rashiq, MB · Ben Vandermeer, MSc · Ahmed M. Abou-Setta, MD, PhD · Lauren A. Beaupre, PhD · C. Allyson Jones, PhD · Donna M. Dryden, PhD

Received: 24 August 2012 / Accepted: 18 December 2012 / Published online: 19 January 2013

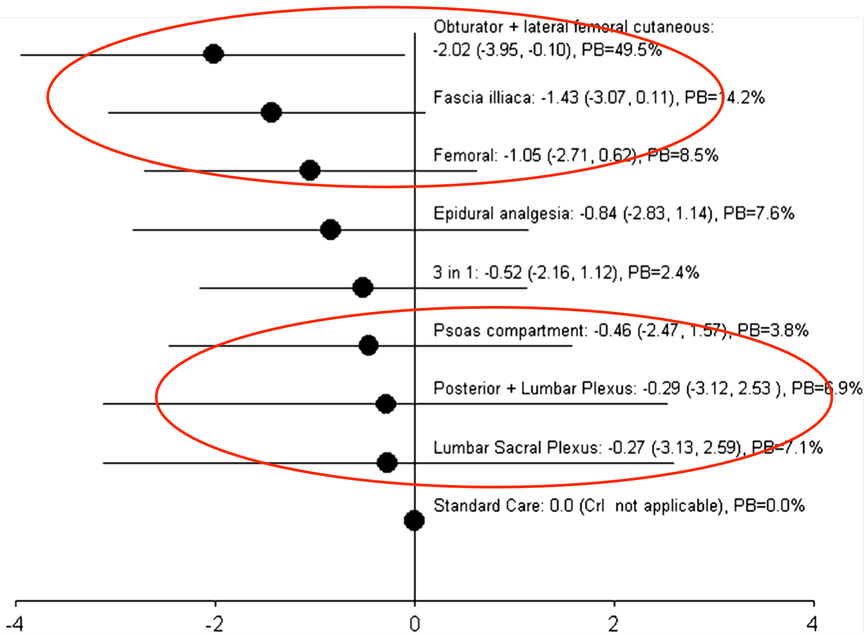


Fig. 4 Comparative efficacy of nerve blocks against acute postoperative pain. Data are standardized mean difference (95% credible intervals). PB = probability of being the best option

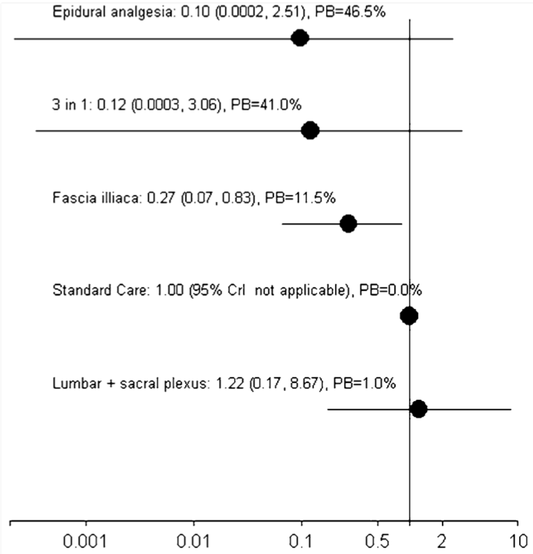


Fig. 5 Comparative efficacy of nerve blocks against delirium. Data are standardized mean difference (95% credible intervals). PB = probability of being the best option

Bloc fémoral

Meta-Analysis > Acta Anaesthesiol Scand. 2020 Jan;64(1):23-33. doi: 10.1111/aas.13491. Epub 2019 Nov 5.

Pre-operative femoral nerve block for hip fracture-A systematic review with meta-analysis

C Skjold [1], A M Møller [1], K Wildgaard [1]

Affiliations + expand

PMID: 31596943 DOI: 10.1111/aas.13491

Randomized Controlled Trial > Am J Emerg Med. 2016 Mar;34(3):586-9. doi: 10.1016/j.ajem.2015.12.016. Epub 2015 Dec 14.

Ultrasound-guided nerve blocks for intracapsular and extracapsular hip fractures

Eitan Dickman [1], Illya Pushkar [2], Antonios Likourezos [1], Knox Todd [3], Ula Hwang [4], Saadia Akhter [5], Sean Morrison [4]

Affiliations + expand

PMID: 26809928 PMCID: PMC4799725 DOI: 10.1016/j.ajem.2015.12.016

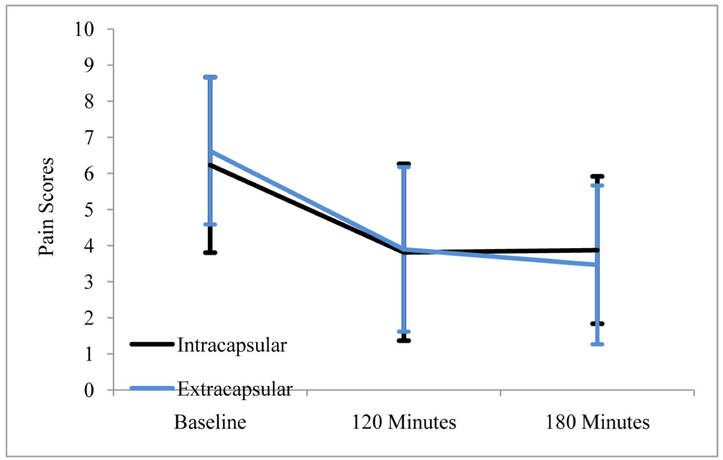
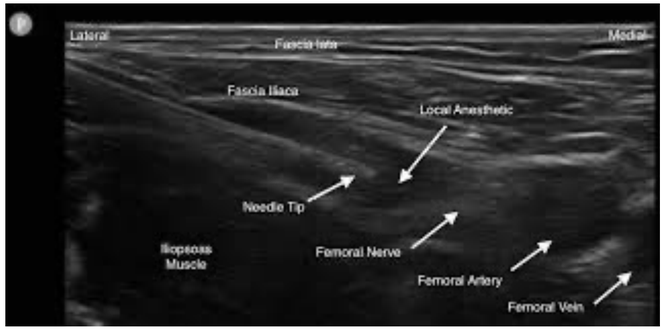


Figure 3.
Patient Reported pain with 95% Confidence Interval bars.



REVIEW ARTICLE

Femoral nerve block versus intravenous fentanyl in adult patients with hip fractures – a systematic review

Flávia Vieira Guimarães Hartmann [a,b,c,d,*], Maria Rita Carvalho Garbi Novaes [e,f,g], Marta Rodrigues de Carvalho [d]

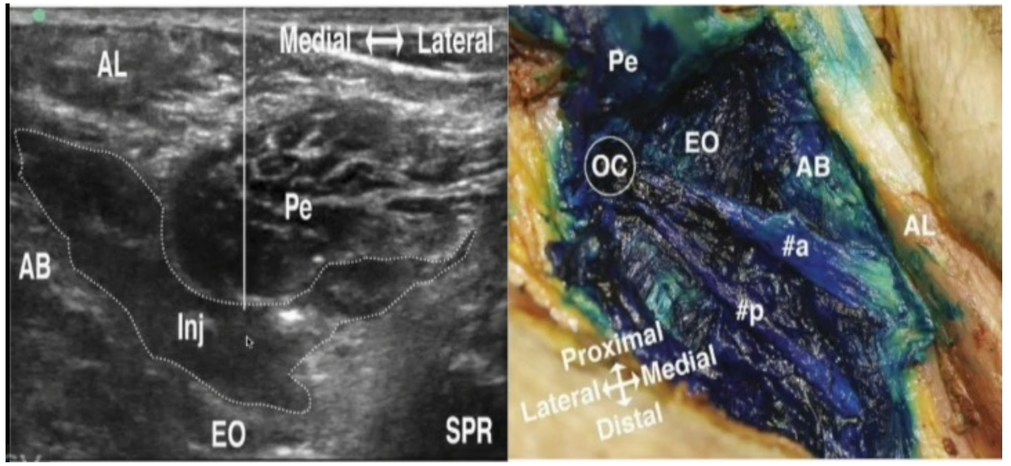
- Meilleur qu'une analgésie systémique
- Études anciennes et hétérogènes
- Paralysie quadricipitale

Bloc du nerf Obturateur

A Cadaveric Study of Ultrasound-Guided Subpectineal Injectate Spread Around the Obturator Nerve and Its Hip Articular Branches

Thomas D. Nielsen, MD, Bernhard Moriggl, MD, PhD, FIACA,† Kjeld Søballe, MD, DMSc,‡ Jens A. Kolsen-Petersen, MD, PhD,* Jens Børglum, MD, PhD,§ and Thomas Fichtner Bendtsen, MD, PhD**

Regional Anesthesia and Pain Medicine • Volume 42, Number 3, May-June 2017



J Back Musculoskelet Rehabil. 2013;26(1):79-83. doi: 10.3233/BMR-2012-00353.

Nerve block of articular branches of the obturator and femoral nerves for the treatment of hip joint pain.

Yavuz F[1], Yasar E, Ali Taskaynatan M, Goktepe AS, Tan AK.

Can J Anaesth. 2013 Mar;60(3):230-43. doi: 10.1007/s12630-012-9880-8. Epub 2013 Jan 19.

Efficacy of supplemental peripheral nerve blockade for hip fracture surgery: multiple treatment comparison.

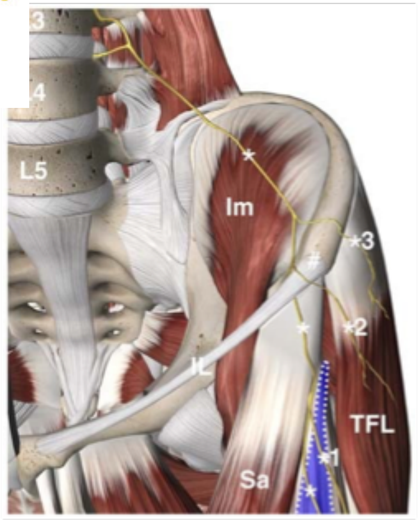
Rashiq S[1], Vandermeer B, Abou-Setta AM, Beaupre LA, Jones CA, Dryden DM.

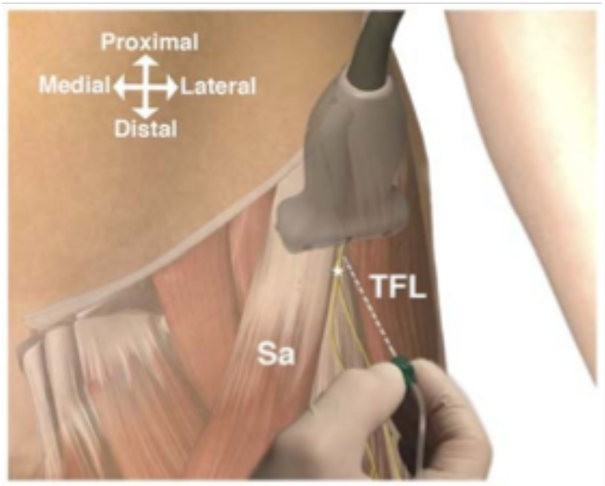
1 injection sous le pectiné couvrirait les 2 branches…

– Innervation de la capsule articulaire

– Bonne efficacité analgésique, combinaisons de blocs?

Bloc nerf cutané latéral de cuisse





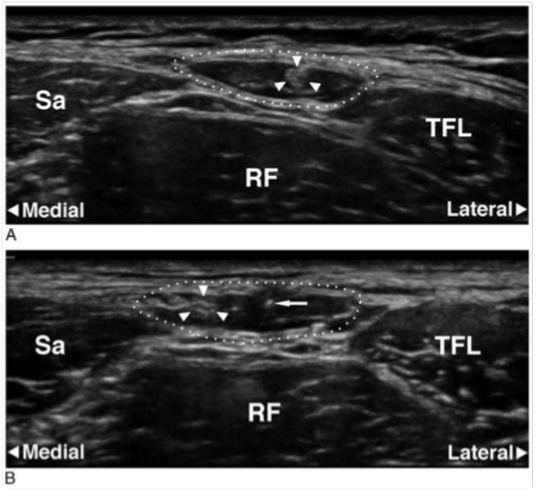
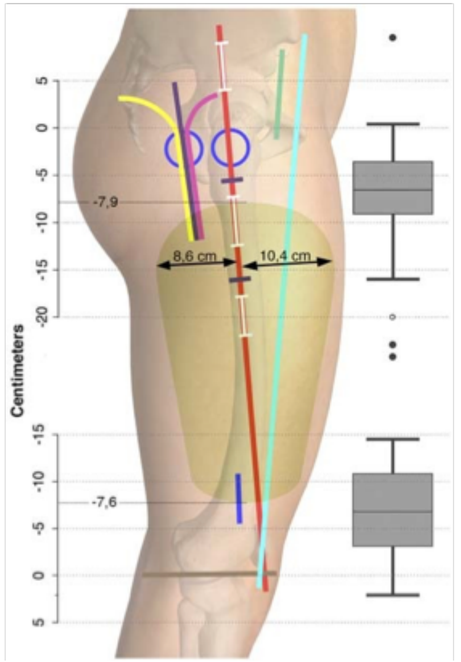


FIGURE 3. A and B, Ultrasonographic images of the FFFT. A, Transverse scan 10 cm distal to the ASIS. The dotted line indicates the circumference of the FFFT. The hyperechoic LFC nerve (arrowheads) is surrounded by the anechoic (ie, black) fat inside the FFFT. B, Transverse scan 5 cm distal to the ASIS. The needle tip (arrow) is visualized in cross section. The LFC nerve (arrowheads) has just entered into the FFFT after crossing the anterior surface of the sartorius muscle (Sa). RF indicates rectus femoris muscle; TFL, tensor fasciae latae muscle.

REGIONAL ANESTHESIA AND ACUTE PAIN
ORIGINAL ARTICLE

The Lateral Femoral Cutaneous Nerve
Description of the Sensory Territory and a Novel Ultrasound-Guided Nerve Block Technique

Thomas D. Nielsen, MD, Bernhard Moriggl, MD, PhD, FIACA,† Jeppe Barckman, MD, PhD,‡ Jens A. Kølsen-Petersen, MD, PhD,* Kjeld Søballe, MD, DMSc,‡ Jens Børglum, MD, PhD,§ and Thomas F. Bendtsen, MD, PhD**



> 95% de succès
> intérêt si proche de la chirurgie

QLB (s) ?

J Anaesthesiol Clin Pharmacol. 2018 Jul-Sep;34(3):372-378. doi: 10.4103/joacp.JOACP_335_17.

Transmuscular quadratus lumborum versus lumbar plexus block for total hip arthroplasty: A retrospective propensity score matched cohort study.

Adhikary SD[1], Short AJ[2], El-Boghdadly K[3], Abdelmalak MJ[4], Chin KJ[5].

- Possible extension au plexus lombaire
- Analgésie équivalente à un bloc lombaire postérieur ?

CASE REPORT

Quadratus Lumborum Block as an Alternative to Lumbar Plexus Block for Hip Surgery: A Report of 2 Cases

Luca La Colla, MD, Bruce Ben-David, MD, and Rita Merman, MD

Regional Anesthesia and Pain Medicine 2017

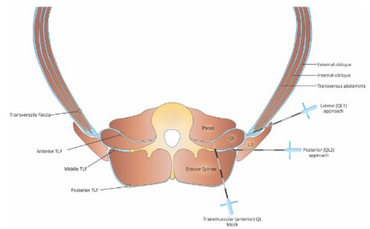


Figure 4 Diagrammatic representation of the key fascial layers of the posterior abdominal wall (left) and the three approaches to the quadratus lumborum block (right). LD, latissimus dorsi; TLF, thoracolumbar fascia; QL, quadratus lumborum.

Anterior quadratus lumborum block analgesia for total hip arthroplasty: a randomized, controlled study

Promil Kukreja,[1] Lisa MacBeth,[1] Adam Sturdivant,[1] Charity J Morgan,[2] Elie Ghanem,[3] Hari Kalagara,[1] Vincent W S Chan[4]

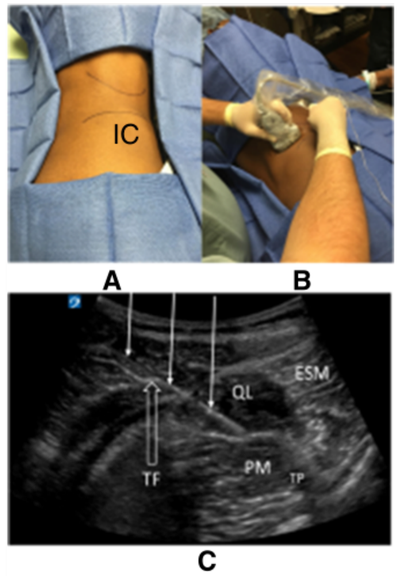


Figure 1 (A) Patient positioning for anterior QL block. (B) Ultrasound probe position with the direction of needle entry (lateral to medial). (C) Ultrasound image of anterior QL block (white arrows display needle trajectory). ESM, erector spinae muscle; IC, iliac crest (caudad); PM, psoas major; QL, quadratus lumborum; TF, transversalis fascia; TP, transverse process.

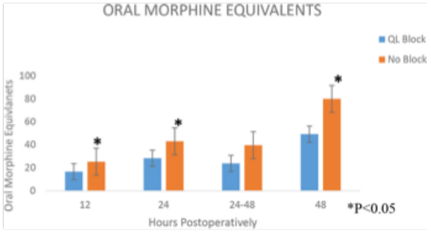


Figure 4 Total opioid consumption measured as oral morphine equivalents (OMEs) for first 12, 12–24, 24, 24–48, and 48 hours postoperatively in both groups. There was significantly ($p<0.05$) less OMEs consumption in the QL block group at 12, 24, and 48 hours duration. Bars represent SE of the mean. QL, quadratus lumborum.

Nombreuses approches : 1, 2, 3 …
Beaucoup de cas cliniques …
Combinaisons de blocs nécessaires …

Bloc Fascia iliaca

Fascia iliaca compartment block

N. O'Reilly[1] M. Desmet[2] and R. Kearns[1,3,*]

[1]Glasgow Royal Infirmary, Glasgow, UK, [2]AZ Groeninge, Kortrijk, Belgium and [3]University of Glasgow, Glasgow, UK

*Corresponding author: rachel.kearns@glasgow.ac.uk

Anaesthesia
Journal of the Association of Anaesthetists of Great Britain and Ireland

Anaesthesia, 2011, **66**, pages 300–305 doi:10.1111/j.1365-2044.2011.06628.x

ORIGINAL ARTICLE

Ultrasound-guided supra-inguinal fascia iliaca block: a cadaveric evaluation of a novel approach

P. Hebbard,[1] J. Ivanusic[2] and S. Sha[3]

- Repères anatomiques = bloc « 3 en 1 »
  - 1/3 externe ligne EIAS/pubis
  - 2 « clics »

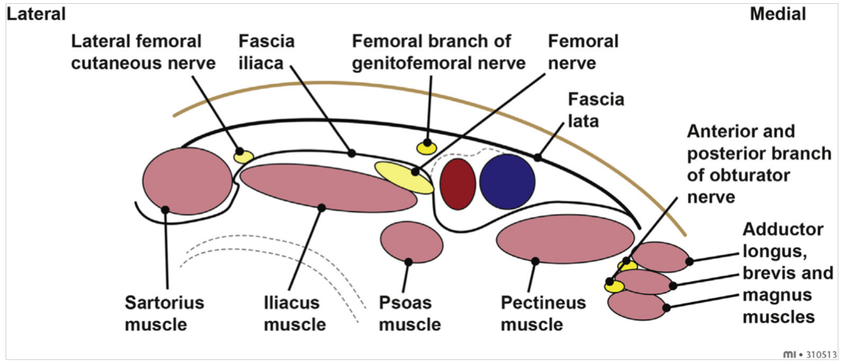


Fig 3 Schematic diagram of fascia iliaca and related structures.

- Approche infra inguinale

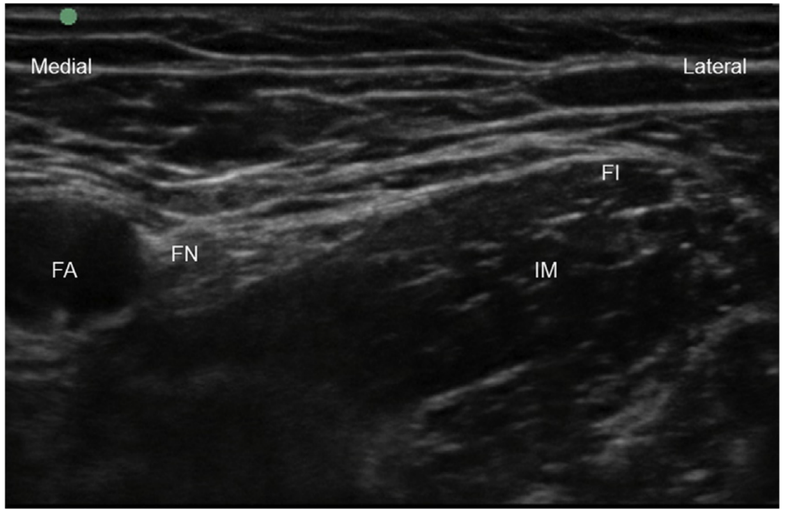


Fig 4 Sonoanatomy of infrainguinal approach to fascia iliaca compartment block. FA, femoral artery; FN, femoral nerve; FI, fascia iliaca; IM, iliacus muscle; IPM, iliopsoas muscle.

Bloc fascia iliaca

Approche supra inguinale

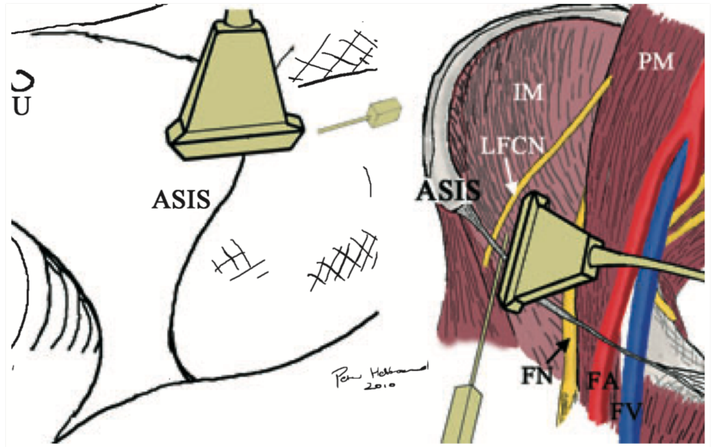


Figure 1 Probe and needle position and diagram of dissected iliac fossa showing anatomy for the supra-inguinal fascia iliaca block. Iliacus muscle (IM), psoas muscle (PM), femoral nerve (FN), femoral artery (FA), femoral vein (FV), anterior superior iliac spine (ASIS), umbilicus (U).

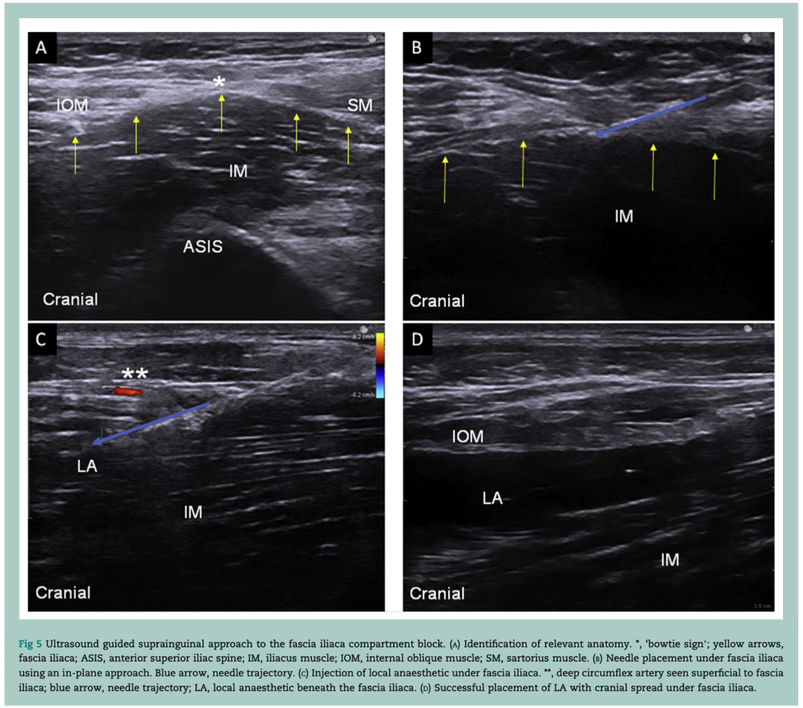


Fig 5 Ultrasound guided suprainguinal approach to the fascia iliaca compartment block. (A) Identification of relevant anatomy. *, 'bowtie sign'; yellow arrows, fascia iliaca; ASIS, anterior superior iliac spine; IM, iliacus muscle; IOM, internal oblique muscle; SM, sartorius muscle. (B) Needle placement under fascia iliaca using an in-plane approach. Blue arrow, needle trajectory. (C) Injection of local anaesthetic under fascia iliaca. **, deep circumflex artery seen superficial to fascia iliaca; blue arrow, needle trajectory; LA, local anaesthetic beneath the fascia iliaca. (D) Successful placement of LA with cranial spread under fascia iliaca.

Fascia iliaca compartment block

N. O'Reilly[1] M. Desmet[2] and R. Kearns[1,3,*]

[1]Glasgow Royal Infirmary, Glasgow, UK, [2]AZ Groeninge, Kortrijk, Belgium and [3]University of Glasgow, Glasgow, UK

*Corresponding author: rachel.kearns@glasgow.ac.uk

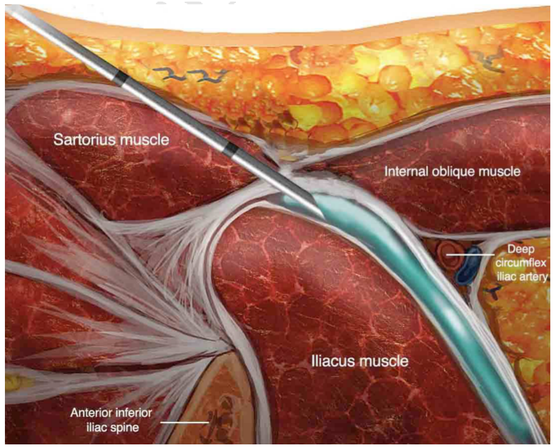
Anaesthesia
Journal of the Association of Anaesthetists of Great Britain and Ireland

Anaesthesia, 2011, 66, pages 300–305 doi:10.1111/j.1365-2044.2011.06628.x

ORIGINAL ARTICLE

Ultrasound-guided supra-inguinal fascia iliaca block: a cadaveric evaluation of a novel approach

P. Hebbard,[1] J. Ivanusic[2] and S. Sha[3]



Bonne analgésie, bloc moteur fréquent
Technique plus difficile, Volume ?

PENG Block

Anatomic Study of Innervation of the Anterior Hip Capsule
Implication for Image-Guided Intervention

Anthony J. Short, MBBS, Jessi Jo G. Barnett,† Michael Gofeld, MD,‡ Ehtesham Baig, MD,‡ Karen Lam, MD,‡ Anne M.R. Agur, PhD,† and Philip W.H. Peng, MBBS, FRCPC, Founder (Pain Medicine)‡§*

Reg Anesth Pain Med. 2018 Nov

TABLE 2. Innervation of the Anterior Hip Joint Capsule and Related Landmarks

Nerve	Specimens (n = 13)	Landmark(s)
Femoral high	92.3% (12/13)	Iliopubic eminence AIIS
Femoral low	33.3 % (4/13)	None
Obturator high	61.5% (8/13)	Inferomedial acetabulum (teardrop)
Obturator low	74.0% (9/13)	Inferomedial acetabulum (teardrop)
AON	53.8% (7/13)	Iliopubic eminence

Fracture

Med),†*

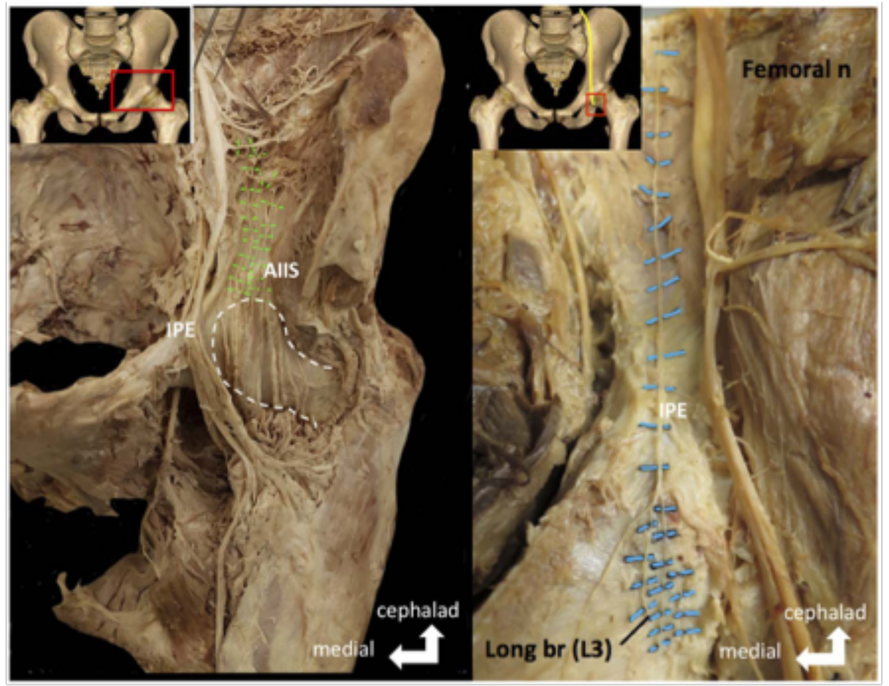


FIGURE 5. Anatomy of the articular branches of FN and accessory FNs in cadaveric dissection. The figure on the left side shows the articular branches of FN (highlighted in green) coursing between AIIS and IPE toward the hip capsule. The femoral head is outlined by the dotted line. The figure on the right side shows the course of the AON (highlighted in blue) passing over the IPE. The areas of dissection are shown in the insert on the left upper corners. Reproduced with permission from Philip Peng Educational Series.

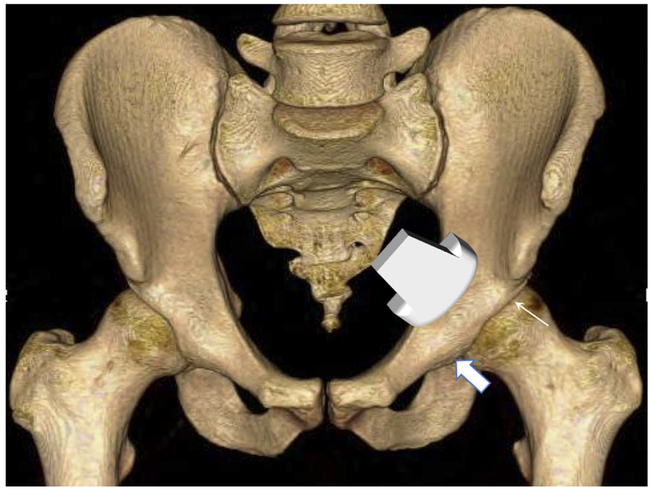
Bloc des branches capsulaires du nerf fémoral et du nerf obturateur accessoire

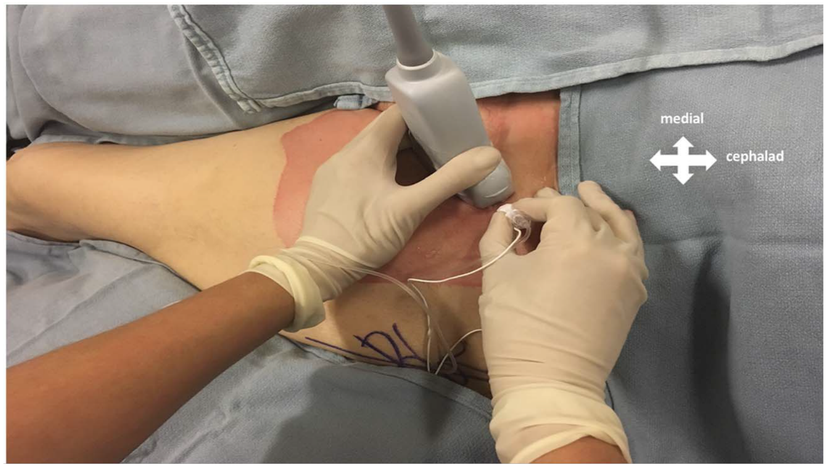
PENG Block

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*†*

Reg Anesth Pain Med. Nov 2018





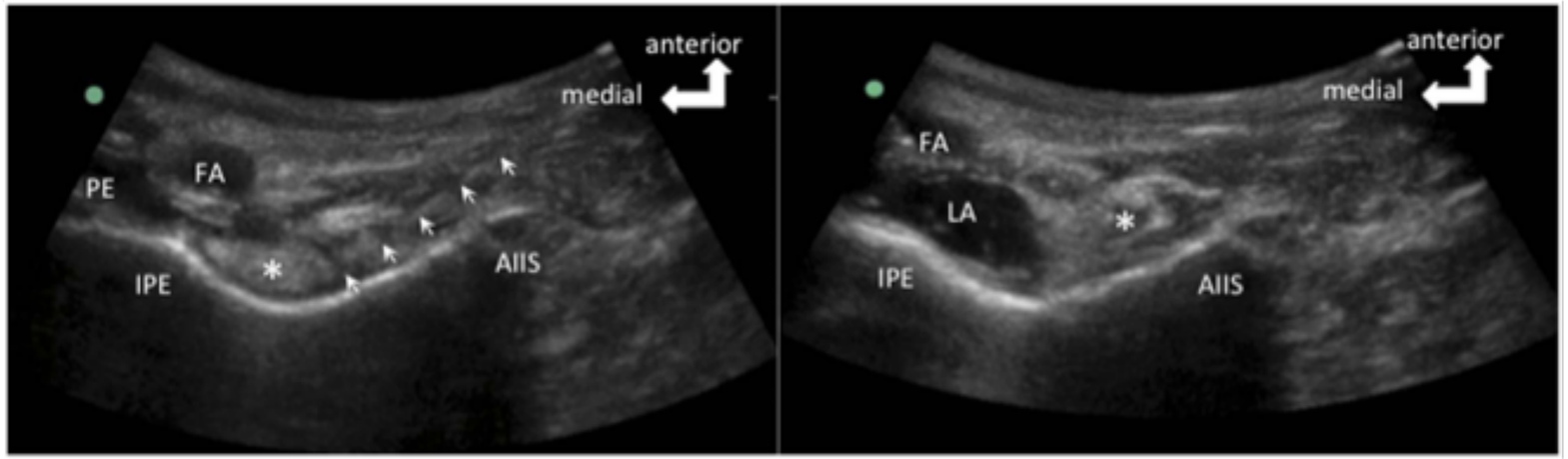


FIGURE 4. The corresponding sonogram from Fig. 3. The figure on the left shows the needle position. The needle is outlined by the arrows. The figure on the right shows the local anesthetic spread following injection. FA indicates femoral artery; LA, local anesthetic; PE, pectineus muscle. *Psoas tendon. Reproduced with permission from Philip Peng Educational Series.

Avec un cathéter ?

Case report

Continuous PENG block for hip fracture: a case series

Romualdo Del Buono [1], Eleonora Padua,[1] Giuseppe Pascarella [2], Corina Gabriela Soare,[3] Enrico Barbara[1]

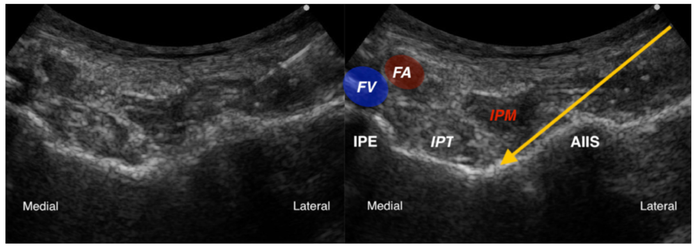


Figure 1 Needle path for the PENG block. The catheter is inserted for 3 cm beyond the needle tip. AIIS, anterior inferior iliac spine; arrow, needle; FA, femoral artery; FV, femoral vein; IPE, iliopubic eminence; IPM, iliopsoas muscle; IPT, iliopsoas tendon.

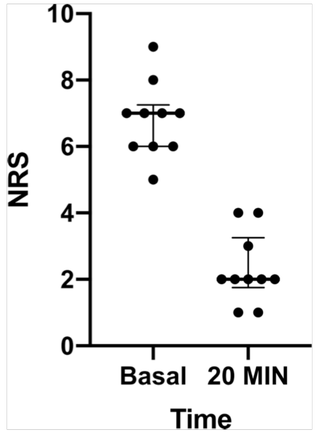


Figure 3 Wilcoxon signed-rank test to compare the repeated pain scores measurements before and 20 min after block execution (p=0.002). Dots: NRS values. vertical lines: IQR. NRS, Numerical Rating Scale.

- 10 procédures
- Bonne analgésie pré et postop
- Difficultés de mise en place et fixation habituels
- Risque de ponction vasculaire.

PENG le meilleur bloc ?

Original research

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

D-Yin Lin ,[1] Craig Morrison ,[1] Brigid Brown,[1] Alexander Andrew Saies,[2] Reshma Pawar,[1] Marthinus Vermeulen,[1] Stewart Robert Anderson,[1] Tsai Sheng Lee,[1] Job Doornberg,[2] Hidde Maarten Kroon,[3,4] Ruurd Lukas Jaarsma[5]

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Table 2 Postoperative pain and motor outcomes

	Femoral nerve block (n=30)	PENG (n=30)	P value
Maximum postoperative pain score (NRS) in recovery unit (day 0), n (%)*			**0.04**
None (0)	9 (30)	19 (63)	
Mild (1–4)	8 (27)	8 (27)	
Moderate (5–7)	7 (23)	1 (3)	
Severe (8–10)	4 (13)	2 (7)	
Unable to assess due to delirium	*2 (7)*	*0 (0)*	
Quadriceps strength in recovery, n (%)*			**<0.001**
Intact	0 (0)	18 (60)	
Reduced	11 (37)	8 (26)	
Absent	12 (40)	2 (7)	
Unable to assess	*7 (23)*	*2 (7)*	
Maximum postoperative pain score (NRS) on day 1, n (%)*			0.53
None (0)	2 (7)	6 (20)	
Mild (1–4)	11 (37)	12 (40)	
Moderate (5–7)	7 (23)	7 (23)	
Severe (8–10)	7 (23)	5 (17)	
Unable to assess due to delirium	*3 (10)*	*0 (0)*	
Quadriceps strength on day 1, n (%)*			**0.004**
Intact	15 (50)	27 (90)	
Reduced	10 (33)	2 (7)	
Absent	0 (0)	0 (0)	
Unable to assess	*5 (17)*	*1 (3)*	

- 60 patients, monocentrique, double aveugle
- PENG
  - Meilleure EVA en SSPI
  - Maintien force musculaire
  - Récupération identique

Original research

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

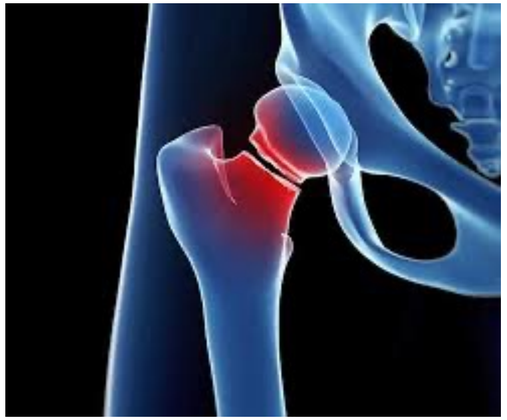
Julián Aliste ,[1] Sebastián Layera ,[1] Daniela Bravo ,[1] Álvaro Jara,[1] Gonzalo Muñoz,[1] Cristián Barrientos,[2] Rodrigo Wulf,[2] Julián Brañez,[2] Roderick J Finlayson ,[3] De Q Tran [4]

Rapm 2021

- 40 patients, monocentrique, double aveugle
- PENG
  - EVA identiques
  - Maintien force musculaire
  - Récupération identique

Bonne analgésie
Préserve la force musculaire

Conclusion



- Intérêt ++ d'une ALR analgésique précoce
- Probable intérêt du PENG Block
- Associations de blocs intéressantes (cutané latéral de cuisse pour l'intervention)
- Épargne morphinique et meilleure analgésie à la mobilisation

- *Mon choix*: PENG block (avec cathéter) dès l'arrivée, ré-injection dans le cathéter et cutané latéral de cuisse en préopératoire immédiat.

(Profiter de l'échographie pour vérifier la vessie !)