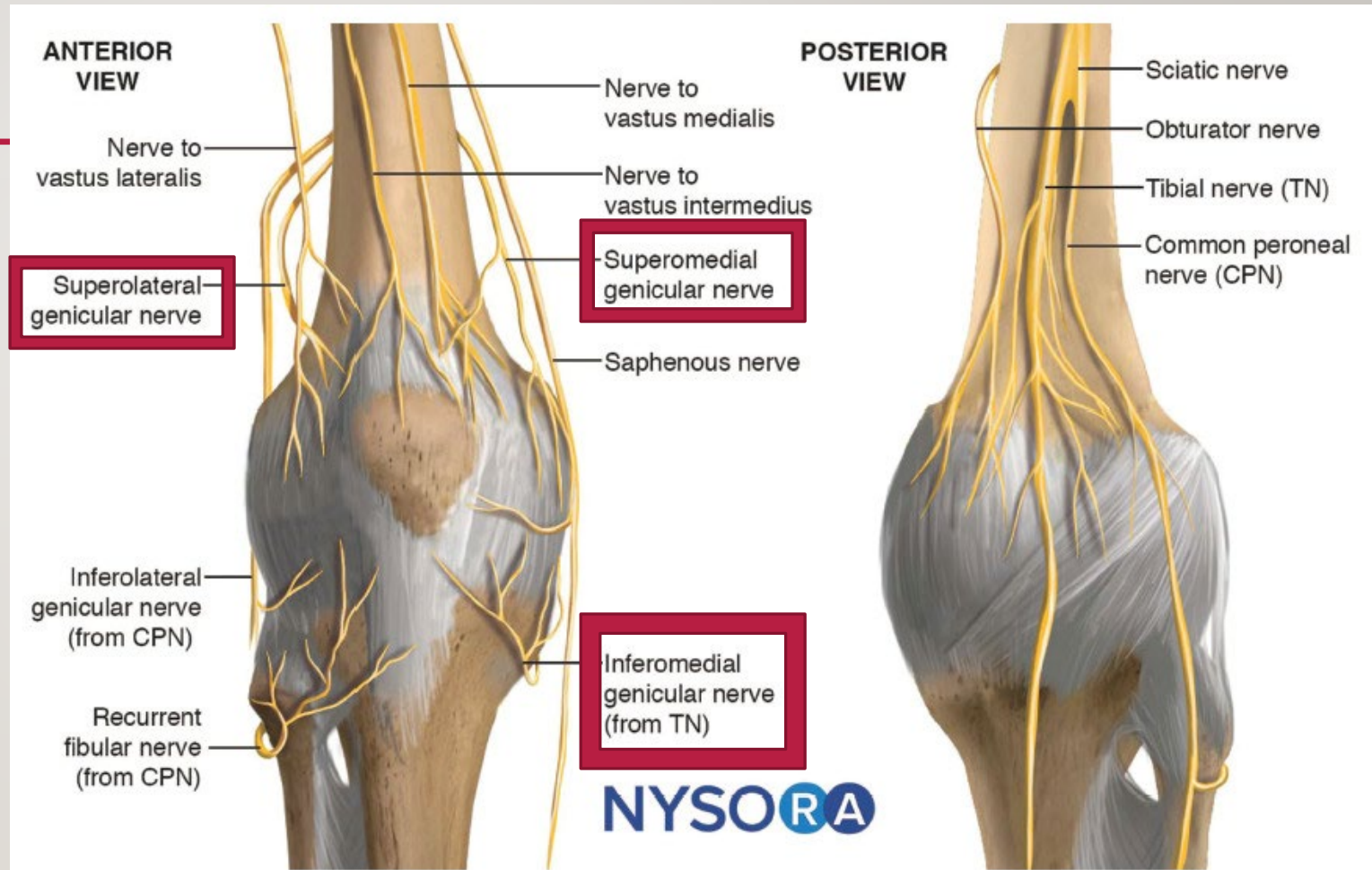


# ABLATION DES NERFS GÉNICULÉS

- Ostéoarthrose avancée
  - Pas candidats chirurgie
- Douleur post PTG
- Innervation complexe
  - 3 cibles identifiées
  - Nerfs géniculés supéro-latéral, supéro-médial et inféro-médial

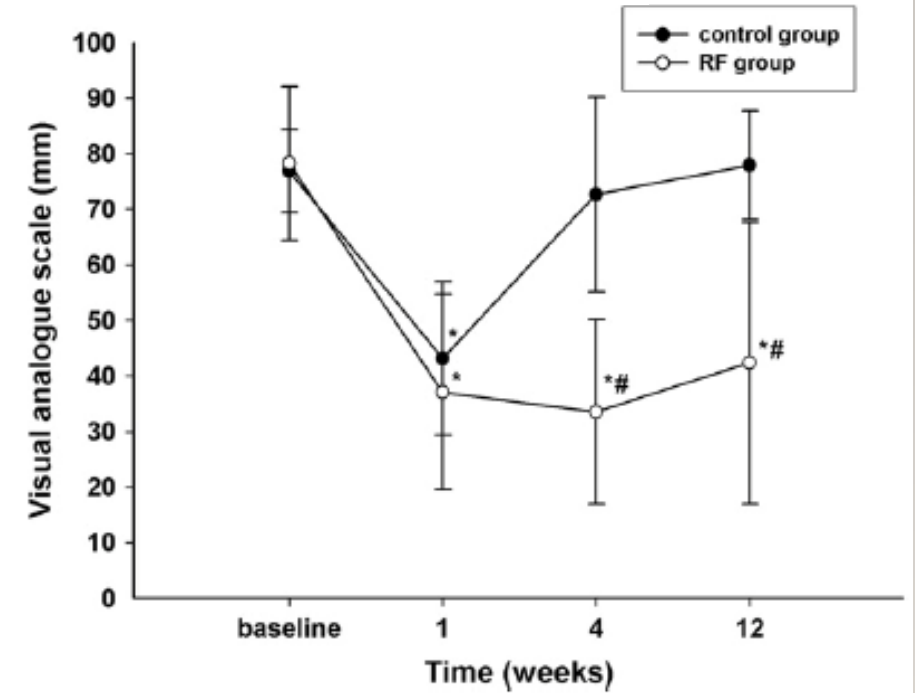
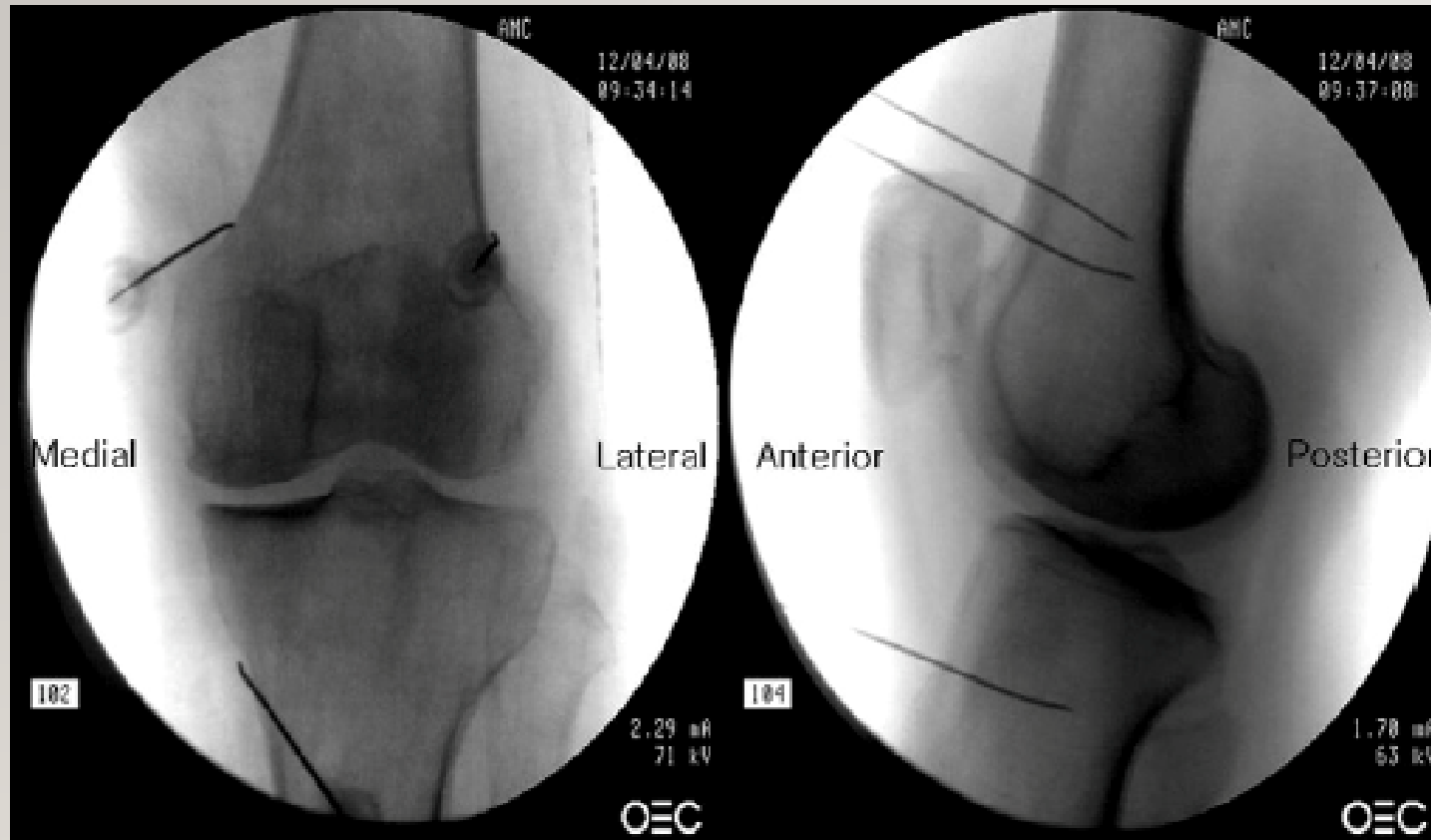


# Radiofrequency treatment relieves chronic knee osteoarthritis pain: A double-blind randomized controlled trial

Woo-Jong Choi<sup>a</sup>, Seung-Jun Hwang<sup>b</sup>, Jun-Gol Song<sup>a</sup>, Jeong-Gil Leem<sup>a</sup>, Yong-Up Kang<sup>c</sup>, Pyong-Hwan Park<sup>a</sup>, Jin-Woo Shin<sup>a,\*</sup>

PAIN<sup>®</sup>

PAIN<sup>®</sup> 152 (2011) 481–487



## Groupe RF:

59% des patients avec >50% de soulagement à 12 semaines

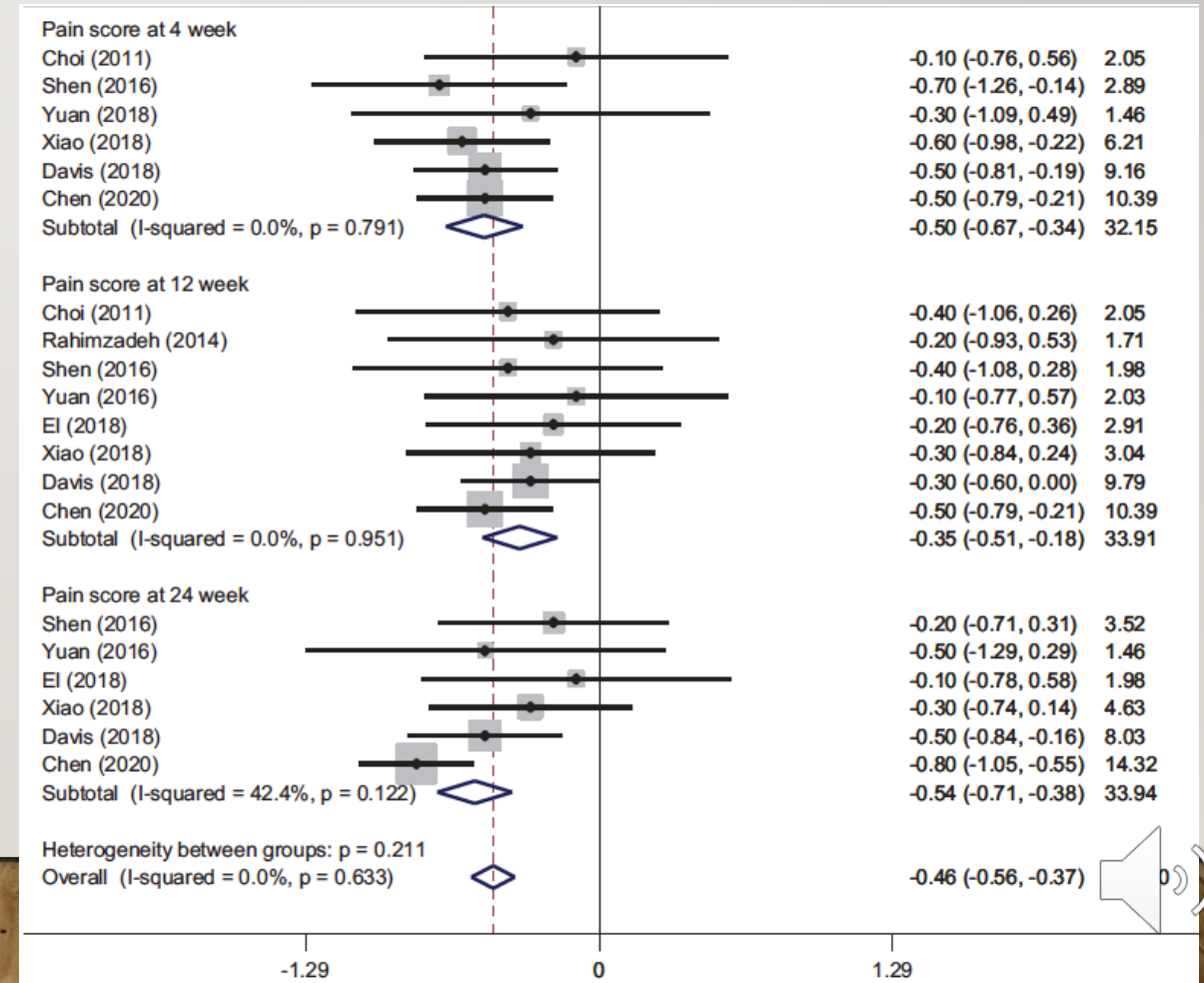


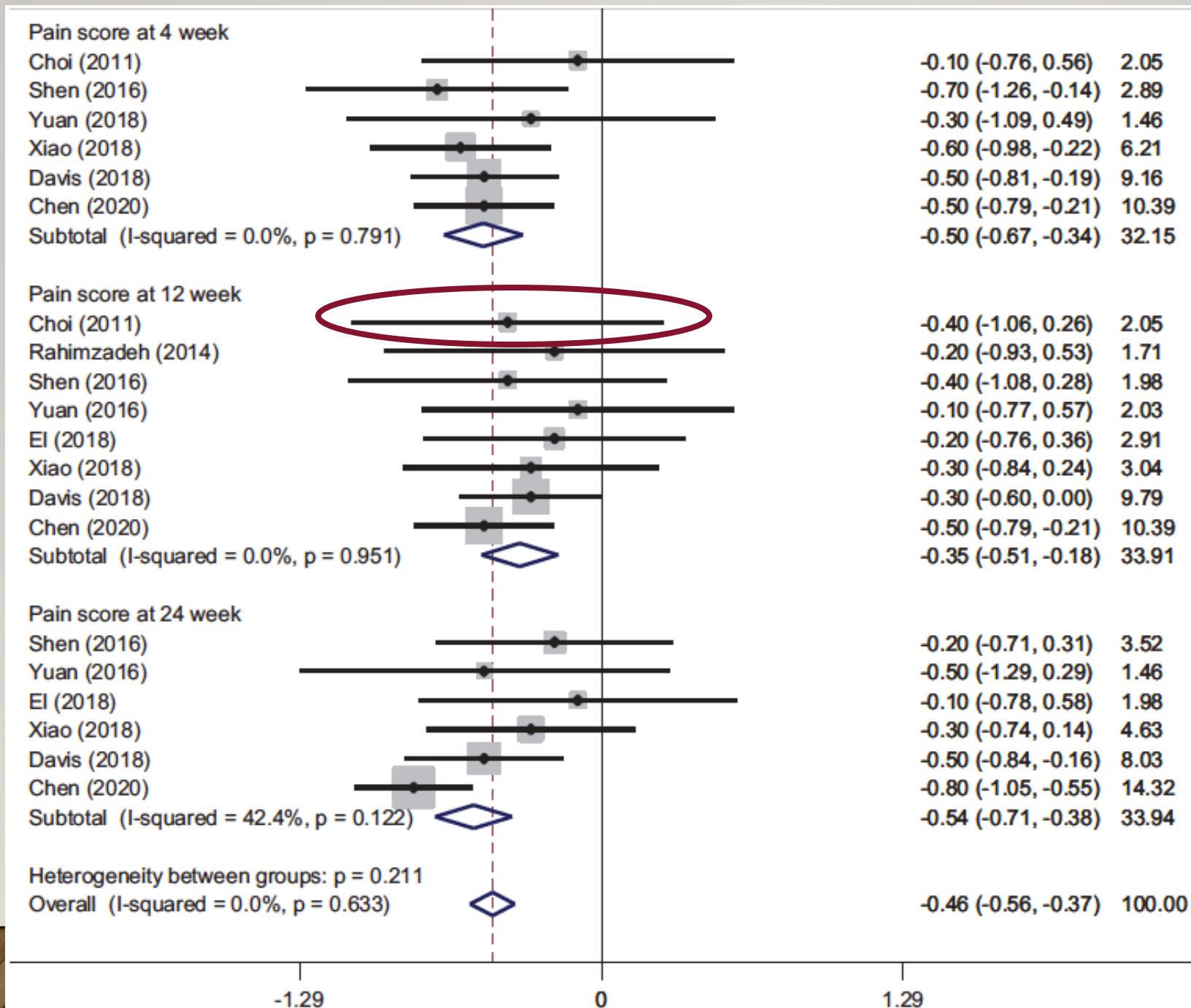


**Results:** Nine randomized controlled trials were collected for the data extraction and meta-analysis. Significant differences in the pain score at 4, 12, and 24 weeks were found between patients treated with radiofrequency ablation and those treated with placebo. Furthermore, the use of radiofrequency ablation was associated with an improved outcome of the Western Ontario and McMaster Universities Arthritis Index at 4, 12, and 24 weeks. No serious adverse events were observed in any patients who underwent radiofrequency ablation.

# Efficacy and safety of radiofrequency ablation for treatment of knee osteoarthritis: a meta-analysis of randomized controlled trials

Hua Zhang, Bo Wang, Jie He and Zhongju Du 





Aucun groupe  
contrôle avec  
procédure  
'SHAM'

Effet placebo??



# IMPACT PRÉ OP?

Radiofrequency ablation of genicular nerves prior to total knee replacement has no effect on postoperative pain outcomes: a prospective randomized sham-controlled trial with 6-month follow-up

Walega D, et al. *Reg Anesth Pain Med* 2019;0:1–6.

**Table 2** Oral morphine equivalents at baseline and 48 hours postoperatively

	Control group	Treatment group	Median difference (95% CI)	P value
N	32	35		
Morphine equivalents at baseline (mg)	0 (0 to 0)	0 (0 to 0)	0 (0 to 0)	0.607
Morphine equivalents at 48 hours (mg)	144 (112.5–314)	192 (105–274)	0 (-65 to 65)	0.978
Median difference (95% CI)	-191 (-254 to -133)	-187 (-233 to -148)		
P value	<0.0001	<0.0001		

Is preoperative genicular radiofrequency ablation effective for reducing pain following total knee arthroplasty? A pilot randomized clinical trial

*Reg Anesth Pain Med*. 2021 September ; 46(9): 752–756.

**Table 4** Physical function characteristics on postoperative day 2

	Control group	Treatment group	Mean difference (95%CI)	P value
Ambulate postoperative day 2 (ft.)	232±115*	216±134†	16 (-51 to 83)	0.466
Climb stairs at discharge (steps)	8±5†	7±4*	1 (-1 to 4)	0.32

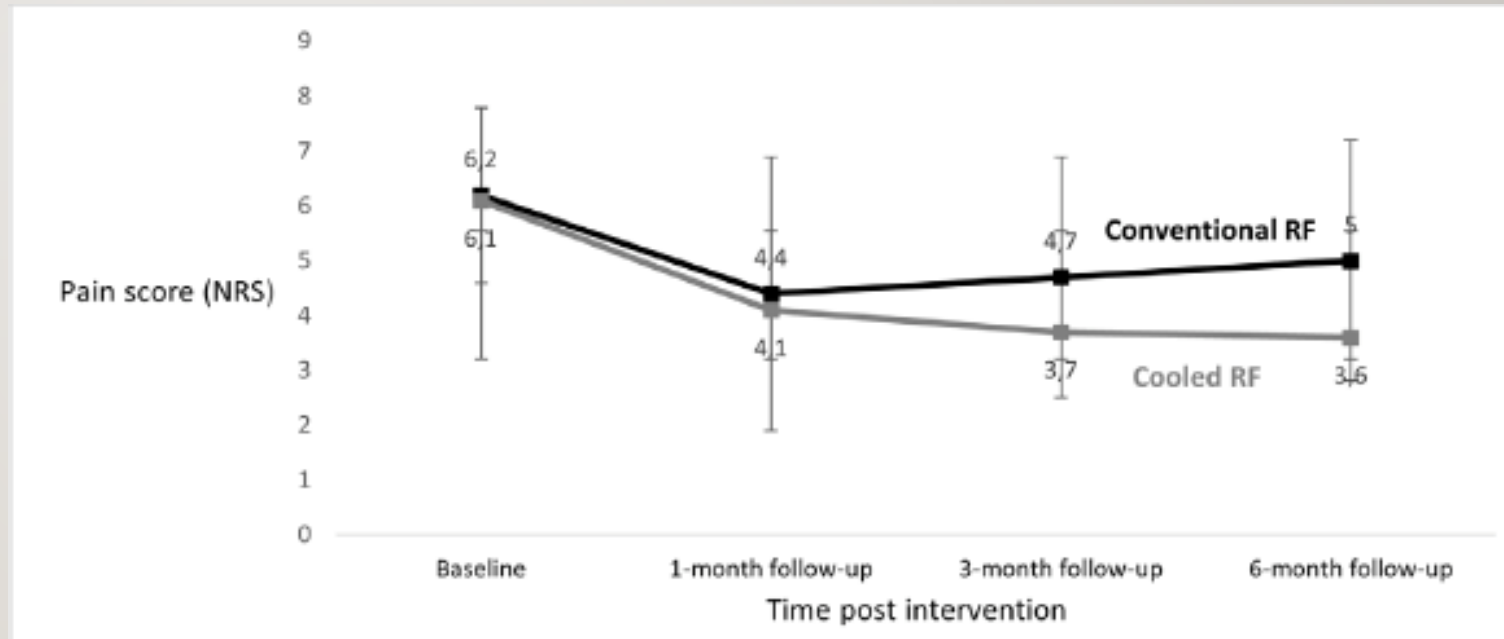




# Comparison of cooled versus conventional radiofrequency treatment of the genicular nerves for chronic knee pain: a multicenter non-inferiority randomized pilot trial (COCOGEN trial)

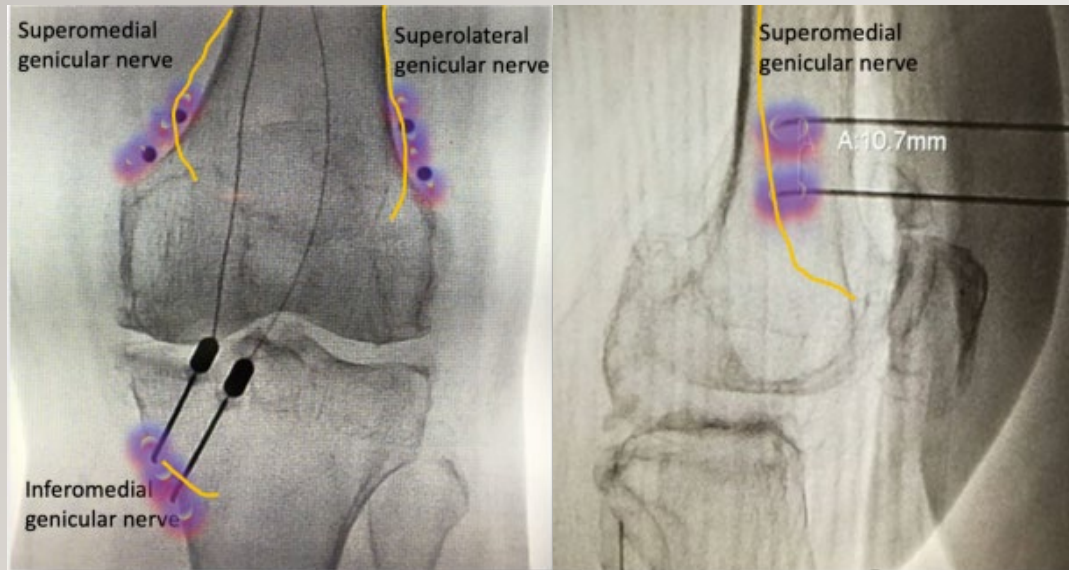
**Methods** This double blind, non-inferiority, pilot, randomized controlled trial compared the effects of cooled and conventional RF in chronic knee pain patients suffering from osteoarthritis or persistent postsurgical pain after total knee arthroplasty. Patients were randomized following a 1:1 rate. The primary outcome was the proportion of patients with  $\geq 50\%$  pain reduction at 3 months postintervention. Other outcomes were knee pain, functionality, quality of life, emotional health, and adverse events up to 6 months postintervention. Conventional RF treatment was tested for non-inferiority to cooled in reducing knee pain at 3 months follow-up.

**Results** Forty-nine of 70 patients were included, of which 47 completed a 3-month follow-up. The primary outcome was achieved in 4 of 23 patients treated with conventional RF (17%) vs in 8 of 24 with cooled (33%) ( $p=0,21$ ). Results from the non-inferiority comparison were inconclusive in relation to the non-inferiority margin. There was no statistically significant difference between secondary outcomes. There were no serious adverse events.



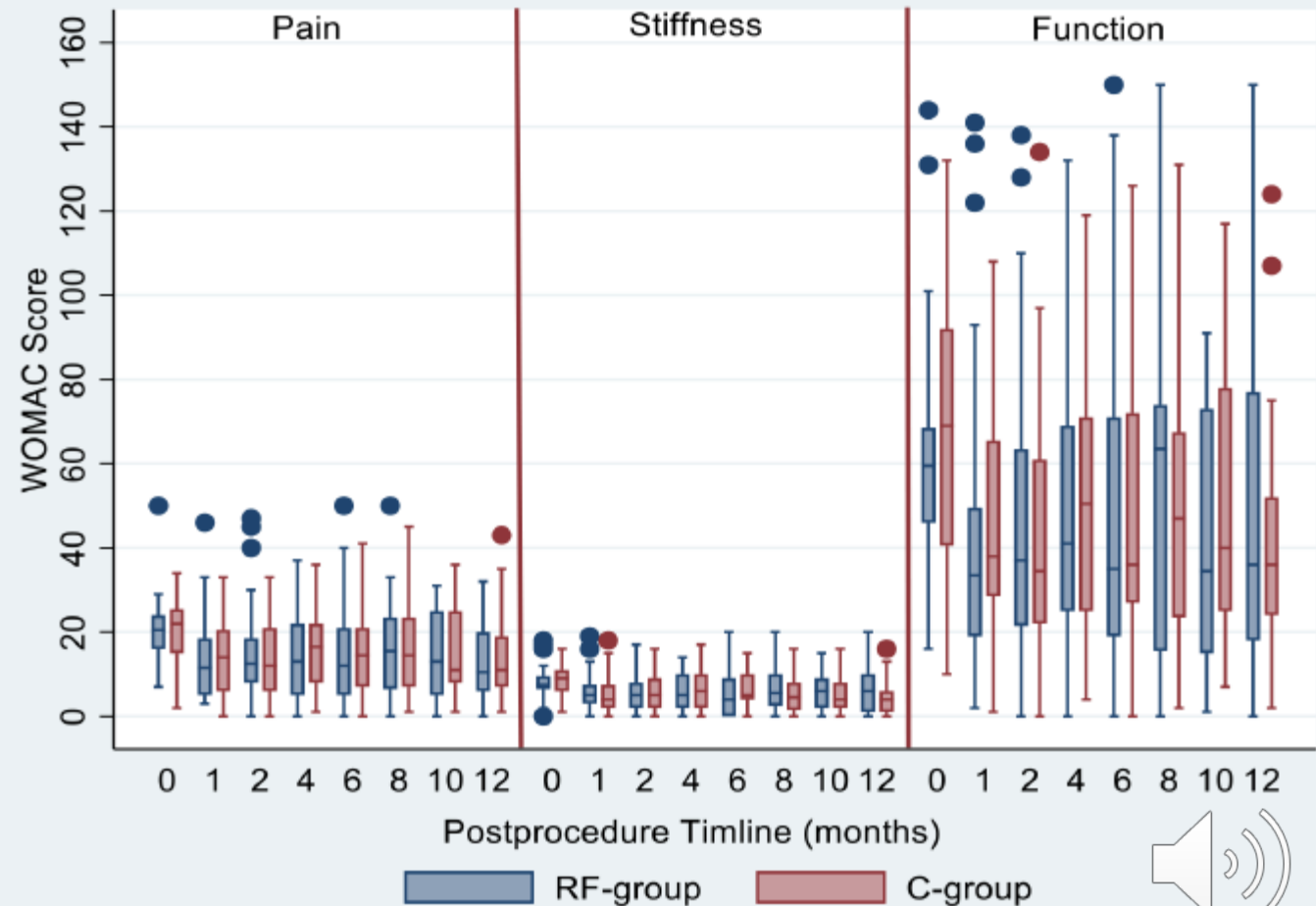
# Bipolar radiofrequency ablation of the superomedial (SM), superolateral (SL) and inferomedial (IM) genicular nerves for chronic osteoarthritis knee pain: a randomized double-blind placebo-controlled trial with 12-month follow-up

Malaithong W, et al. *Reg Anesth Pain Med* 2023;**48**:151–160



64 patients

Contrôle: ablation SHAM + lido 2%/  
dexaméthasone 2.5 mg

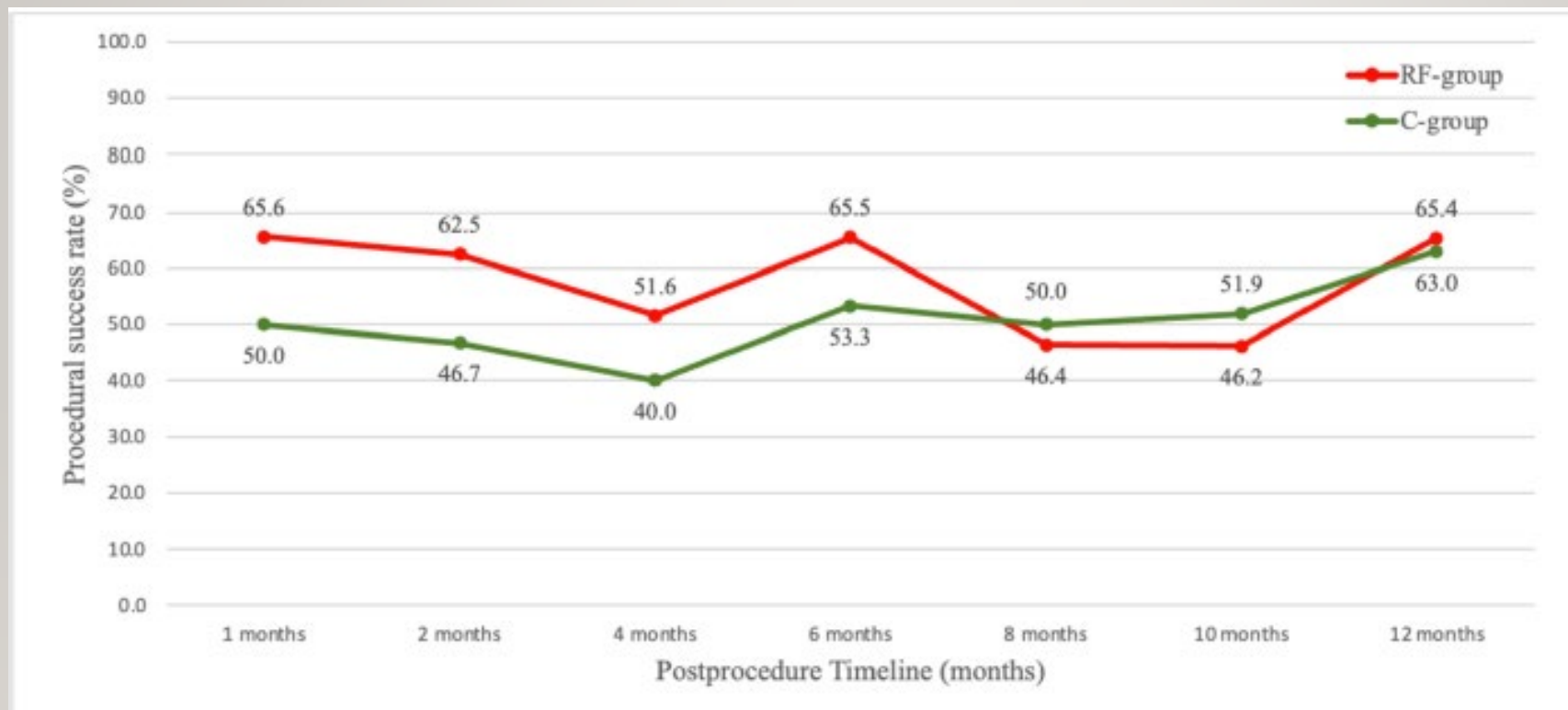


Discussion:

- Effet placebo fort lorsque bloc présenté comme traitement (vs valeur pronostique)?
- Inflammation nerveuse??
- Renversement de la sensibilisation centrale?





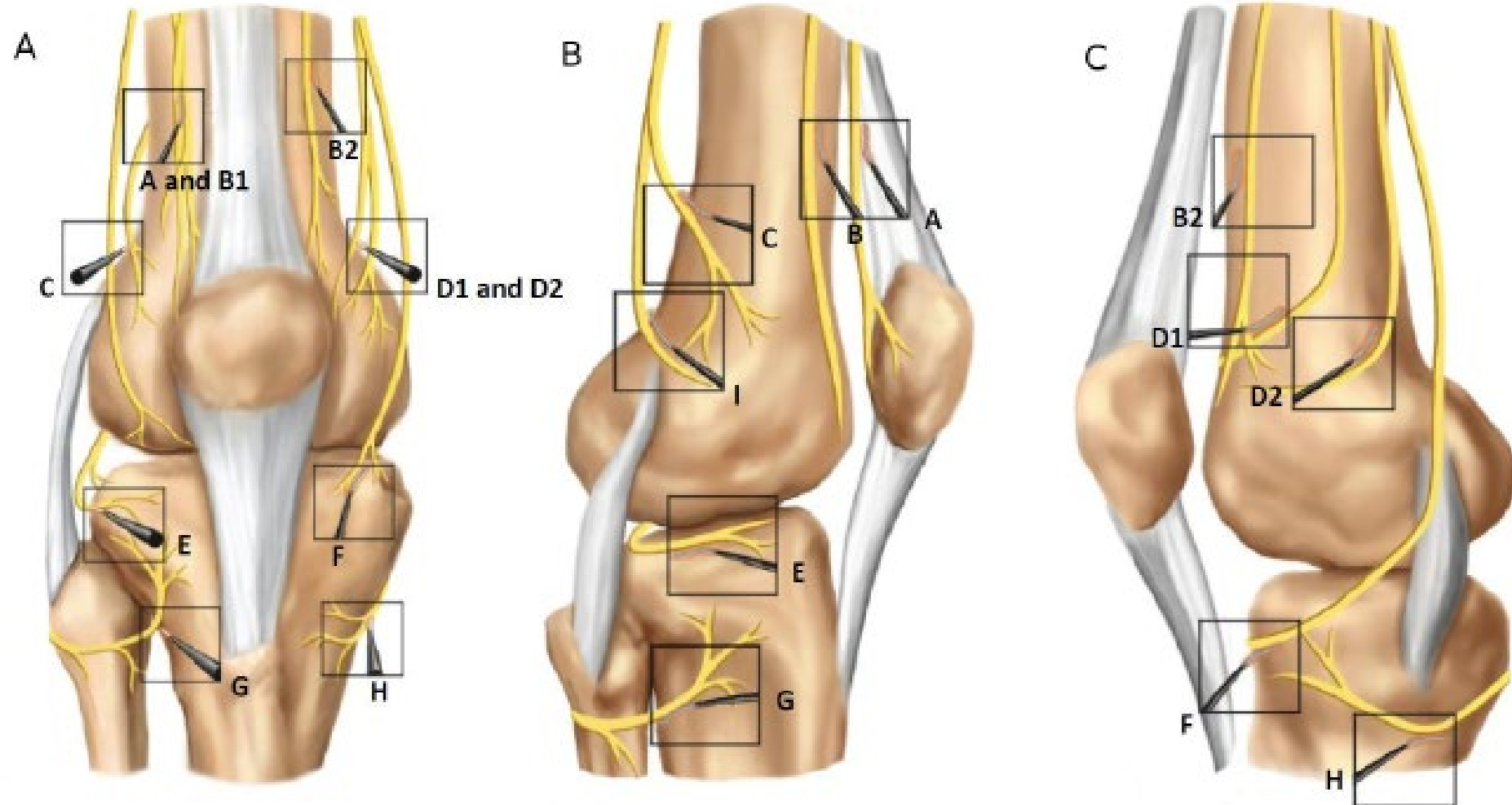


RFA: un peu plus de répondants que l'injection cortisonnée  
Effet modeste

➡ Léser 3/10 nerfs = insuffisant



# Technical considerations for genicular nerve radiofrequency ablation: optimizing outcomes



# Clinical and technical factors associated with knee radiofrequency ablation outcomes: a multicenter analysis

Chen Y, et al. *Reg Anesth Pain Med* 2021;**46**:298–304. doi:10.1136/rapm-2020-102017

## Technique:

- Cibler > 3 nerfs
- Cooled ou >18 Ga
- Lésions répétées

## Sélection des patients:

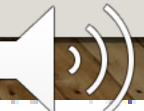
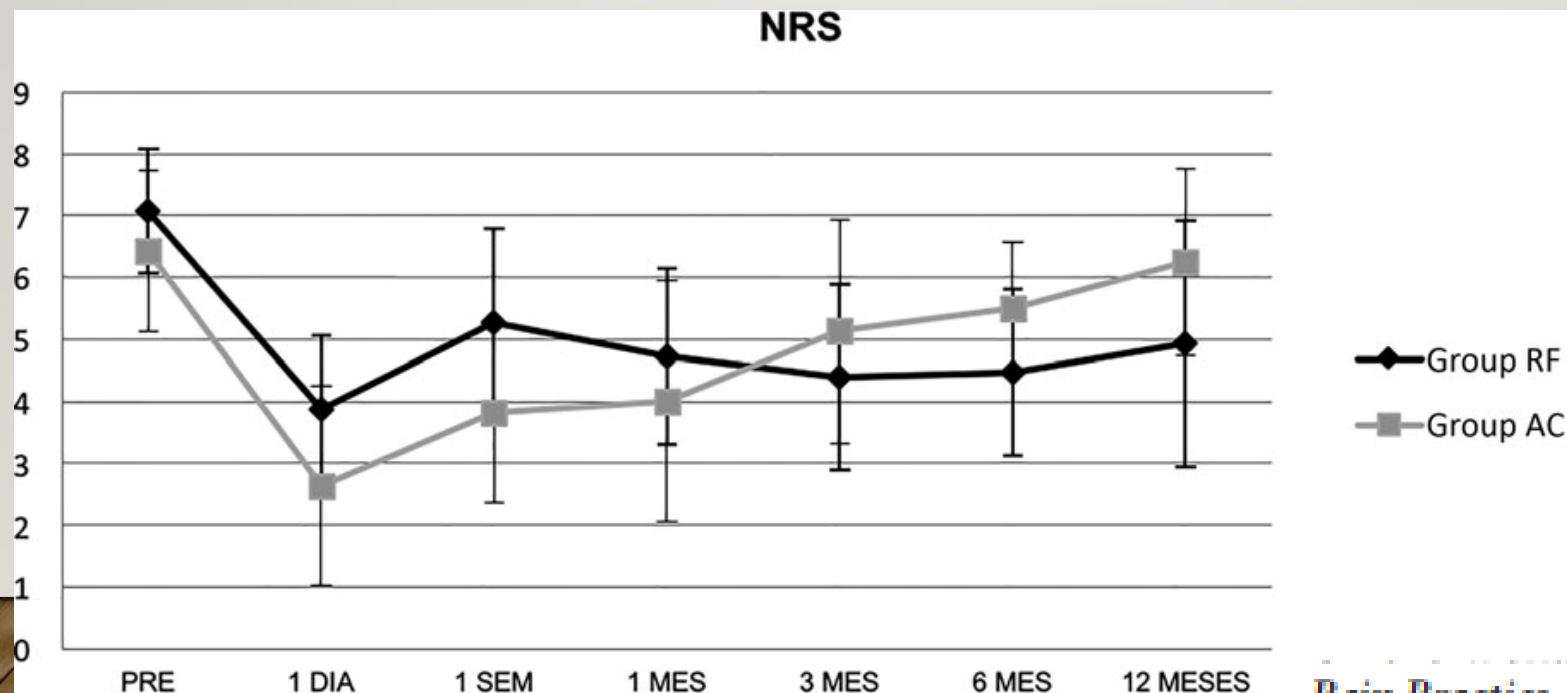
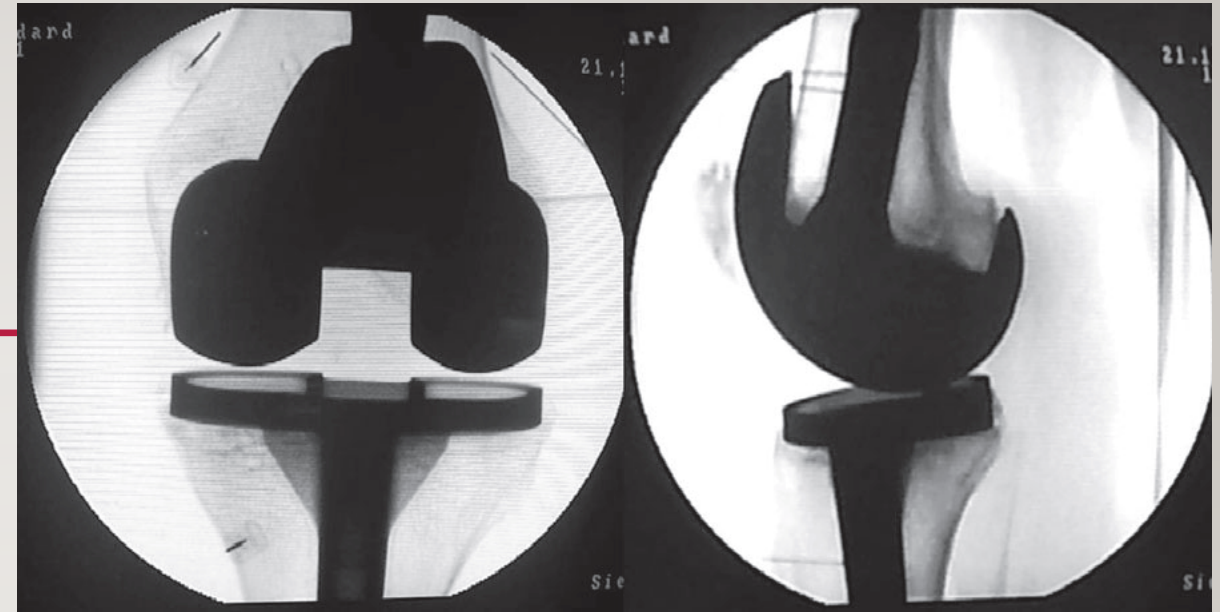
- >80% soulagement au bloc Dx
- Pas de:
  - opioïde
  - condition psychiatrique
  - score de douleur bas





# DOULEUR PERSISTANTE POST PTG?

A Comparison of Genicular Nerve Treatment Using Either Radiofrequency or Analgesic Block with Corticosteroid for Pain after a Total Knee Arthroplasty: A Double-Blind, Randomized Clinical Study



# DOULEUR PERSISTANTE POST PTG?

**Table 2** Percentage of patients with  $\geq 30\%$  and  $\geq 50\%$  pain reduction after conventional and cooled RF treatment

	OA			PPSP			Whole group		
	Conv RF, n (%)	Cooled RF, n (%)	P value* †	Conv RF, n (%)	Cooled RF, n (%)	P value† ‡	Conv RF, n (%)	Cooled RF, n (%)	P value† §
$\geq 50\%$ pain reduction compared with baseline									
1 month	5/12 (41.7)	6/12 (50)	1.00	2/12 (16.7)	3/12 (25)	1.00	7/24 (29.2)	9/24 (37.5)	0.54
3 months	3/12 (25)	4/12 (33.3)	1.00	1/11 (9.1)	4/12 (33.3)	0.32	4/23 (17.4)	8/24 (33.3)	0.21
6 months	3/11 (27.3)	4/12 (33.3)	1.00	1/11 (9.1)	5/12 (41.7)	0.16	4/22 (18.2)	9/24 (37.5)	0.15
$\geq 30\%$ pain reduction compared with baseline									
1 month	6/12 (50)	7/12 (58.3)	0.68	4/12 (33.3)	6/12 (50)	0.41	10/24 (41.7)	13/24 (54.2)	0.39
3 months	5/12 (41.7)	8/12 (66.7)	0.22	2/11 (18.2)	6/12 (50)	0.19	7/23 (30.4)	14/24 (58.3)	0.05
6 months	4/11 (36.4)	5/12 (41.7)	1.00	1/11 (9.1)	5/12 (41.7)	0.16	5/22 (22.7)	10/24 (41.7)	0.17

\*P value compares conventional RF versus cooled RF procedure in the OA group.

†Pearson's  $\chi^2$  test used to compare proportions.

‡P value compares conventional RF versus cooled RF procedure in the PPSP group.

§P value compares conventional RF versus cooled RF procedure in the whole population.

OA, osteoarthritis; PPSP, persistent postsurgical pain; RF, radiofrequency ablation.



# RADIOFRÉQUENCE DES NERFS GÉNICULÉS

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Traitement d'efficacité limitée

Faible taux de réponse significative

Réponse = 30% de soulagement

Efficacité pourrait être accrue par le ciblage des 10 nerfs et en sélectionnant mieux les patients

Reste à déterminer

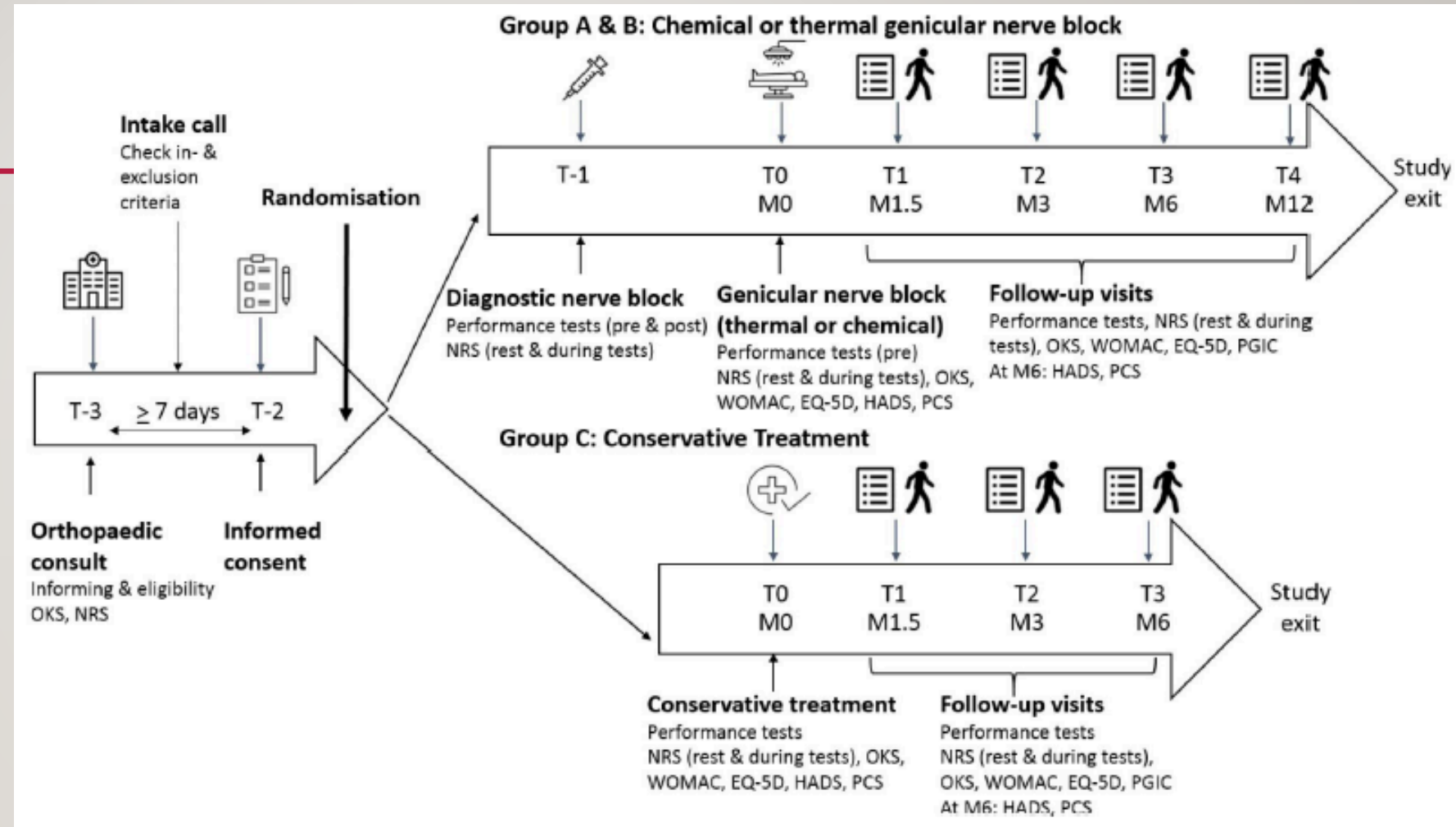
Douleur chronique post PTG: bloc avec AL + stéroïde offre bénéfices





# ÉTUDE RADIOPHENOL


- RF 3 cibles
- Phenol 3 cibles
- Tx conservateur




Completed 

## A Sequenced Strategy for Improving Outcomes in People With Knee Osteoarthritis Pain (SKOAP)

ClinicalTrials.gov ID  NCT04504812

Sponsor  Johns Hopkins University

Information provided by  Johns Hopkins University (Responsible Party)

Last Update Posted  2025-04-18

Plusieurs bras:

- Tx conservateur + duloxétine
- Tx conservateur + duloxetine + TCC
- Injection IA acide hyaluronique + stéroïde
- Radio ablation 10 cibles nerveuses + stéroïde
- Tx conservateur seul

