

LETTER

Preoperative sensory knee denervation and postoperative pain after total knee arthroplasty

To the editor,

Despite the use of multimodal analgesia, total knee replacement (TKR) causes severe postoperative acute pain and can lead to persistent pain, interfering with rehabilitation and quality of life, in at least 20% of the patients. For that reason, we read with great interest the recent paper of Walega and colleagues,¹ who investigated the effect of genicular nerve radiofrequency ablation (GN-RFA) on postoperative outcome after TKR. Considering preoperative pain severity being a major risk factor for postoperative pain, the authors hypothesized that optimal control of the local pain might be an effective strategy to improve recovery. Their results, however, did not show a measurable effect of preoperative GN-RFA on early postoperative analgesia and function, nor improved longer term recovery assessed at 1, 3 and 6 months. As a possible explanation for these negative results, the authors underline a non-responder rate for GN-RFA of at least 26%. Indeed, as for any technique, GN-RFA has an intrinsic rate of non-responders even in experienced hands and even when a prognostic genicular nerve block is performed (which was not the case here). The complexity of the innervation of the knee, including a significant interindividual variability, questions the technique currently used and argues for revisiting the anatomical landmarks.² It is surprising that the authors did not assess the benefit of GN-RFA immediately before TKR in

terms of pain and function while the technique was performed between 2 and 6 weeks before surgery. A second possible explanation for the local treatment failure has not been taken into account by the authors. It is now evident that a subset of patients (20%–40%) with advanced knee osteoarthritis present with centrally mediated pain that is predictive of poor outcome after TKR.³ These patients are at higher risk for both severe acute postoperative pain and chronic pain after joint replacement, because removal of the peripheral pain source may not reverse the underlying central sensitization phenomenon.⁴ Moreover, inconsistent response to peripheral nerve radiofrequency ablation has been previously observed in patients with characteristics of fibromyalgia and central sensitization.⁵ Current trends in perioperative medicine support patient phenotypic stratification, not only to predict outcome but also to better individualize and target perioperative treatments.⁶ Assessing the degree of central sensitization in patients scheduled for TKR may help to identify individuals who are less likely to respond to peripherally directed treatments such as GN-RFA or surgery.⁴

Patricia Lavand'homme,¹ Emmanuel Thienpont,² Olivier Cornu²

¹Department of Anesthesiology, Cliniques universitaires Saint-Luc, Brussels, Belgium

²Department of Orthopedics and Trauma, Cliniques Universitaires Saint-Luc, Brussels, Belgium

Correspondence to Dr Patricia Lavand'homme, Department of Anesthesiology, Cliniques universitaires Saint-Luc, Brussels 1200, Belgium; patricia.lavandhomme@udouvain.be

Contributors PL, ET and OC have participated to the content and to the writing of the manuscript.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; internally peer reviewed.

© American Society of Regional Anesthesia & Pain Medicine 2019. No commercial re-use. See rights and permissions. Published by BMJ.



To cite Lavand'homme P, Thienpont E, Cornu O. *Reg Anesth Pain Med* Epub ahead of print: [please include Day Month Year]. doi:10.1136/rapm-2019-100834

Received 8 July 2019

Revised 24 July 2019

Accepted 31 July 2019



► <http://dx.doi.org/10.1136/rapm-2019-100094>

► <http://dx.doi.org/10.1136/rapm-2019-100939>

Reg Anesth Pain Med 2019;0:1.

doi:10.1136/rapm-2019-100834

REFERENCES

- Walega D, McCormick Z, Manning D, et al. 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. *Reg Anesth Pain Med* 2019;44:646–51.
- Fonkoué L, Behets C, Kouassi Jean-Éric K, et al. Distribution of sensory nerves supplying the knee joint capsule and implications for genicular blockade and radiofrequency ablation: an anatomical study. *Surgical and Radiologic Anatomy* 2019;17.
- Wylde V, Sayers A, Odutola A, et al. Central sensitization as a determinant of patients' benefit from total hip and knee replacement. *Eur J Pain* 2017;21:357–65.
- Harte SE, Harris RE, Clauw DJ. The neurobiology of central sensitization. *J Appl Biobehav Res* 2018;23:e12137.
- Brummett CM, Lohse AG, Tsodikov A, et al. Aberrant analgesic response to medial branch blocks in patients with characteristics of fibromyalgia. *Reg Anesth Pain Med* 2015;40:249–54.
- Lavand'homme P, Thienpont E. Pain after total knee arthroplasty: a narrative review focusing on the stratification of patients at risk for persistent pain. *Bone Joint J* 2015;45–8.