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THE EFFECT OF ONE DRY NEEDLING SESSION ON PAIN AND CENTRAL PAIN PROCESSING IN PATIENTS WITH KNEE OSTEOARTHRITIS: A RANDOMIZED CONTROLLED TRIAL

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Background: Osteoarthritis (OA) is the leading cause of chronic disability in the elderly^{1,2}. Abnormal central pain processing (CPP) is present in around 30% of the knee OA patients³ and can be partly induced by peripheral nociception through long term potentiation⁴. An attempt to resolve abnormal CPP can be to eliminate this nociception⁵. Myofascial trigger points (MTrPs) are often present in knee OA⁶, can lead to nociception⁷ and therefore abnormal CPP if prolonged present⁸. These are usually defined as hypersensitive tender spots within taut bands of a muscle⁹. Additionally, both MTrPs and knee OA can induce disturbed motor control, increased co-antagonist activation and modified gait pattern^{10,11}. Dry needling (DN) is often used to deactivate the MTrP and thus resolve the source of nociception, which normally results in reducing pain and restoring muscle dysfunction¹². However, studies about the effect of DN on CPP and other outcomes than pain are very limiting. Therefore, more high-quality studies concerning DN and its effects on CPP, muscle features and gait are needed^{13,14}.

Objectives: The aim of this randomized controlled trial is to assess the effect of one DN session compared to one sham needling (SN) session on pain (processing), muscle activity and gait in patients with knee OA.

Methods: 61 patients participated of which 31 were allocated to the DN and 30 to the SN group. Each patient underwent one treatment session. Primary outcomes were pain intensity, measured with questionnaires; and CPP, measured with quantitative sensory testing. Secondary outcomes included muscle co-activation, measured with electromyography; and spatiotemporal parameters, measured with gait analysis. Patients were assessed at baseline, 15 minutes (post 1) and 3 days after intervention (post2- only for the outcome pain). Linear mixed models was used to identify the possible differences over time between the two therapy modalities.

Results: The following significant within group differences were observed: decreased pain, stride- and step time and increased widespread pain pressure threshold and step length. A significant between group difference of the conditioned pain modulation score was found, whereas the SN group showed a decrease in difference between the pain pressure threshold scores (with and without conditioning stimulus) and the DN group remained stable. No other significant between or within group differences were detected. However, if we compared both interventions, the change over time for the visual analogue scale (VAS) behaved different in the DN ($p < 0.05$, post 2 - baseline) and SN group ($p < 0.05$, post 1 - baseline and post 2 - post 1).

Conclusion: One DN session has no larger effect on all outcome measurements compared to SN. Both therapies seem to be useful to improve pain and

widespread pain pressure threshold in short term, however the improvement of pain differs in the groups. Although improvements in some spatiotemporal parameters were observed, it is uncertain they are of clinical relevance or related to treatment. More research is necessary to reveal the ideal number of sessions of DN to improve outcomes and to reveal the effect of DN compared to no treatment, as SN could have hide the real treatment effect.

REFERENCES:

- [1] Reginster, J. Y. *Rheumatol. Oxf.* 41 Supp 1, 3–6 (2002)
- [2] Lespasio, M. J. *et al. Perm J* 21, 16–183 (2017)
- [3] Lluch, E. *et al. Eur J Pain* 18, 1367–75 (2014)
- [4] Mease, P. J. *et al. J. Rheumatol.* 38, 1546–1551 (2011)
- [5] Nijs, J. *et al. Expert Opin Pharmacother* 15, 1671–83 (2014)
- [6] Bajaj, P. *et al. J. Musculoskelet. Pain* 9, 17–33 (2004)
- [7] Jafri, M. S. *Int. Sch. Res. Not.* 2014, (2014)
- [8] Cagnie, B. *et al. Curr Pain Headache Rep* 17, 348 (2013)
- [9] Borg-Stein, J. *et al. Arch. Phys. Med. Rehabil.* 83, S40–S47 (2002)
- [10] Childs, J. D. *et al. Clin. Biomech.* 19, 44–9 (2004)
- [11] Ibarra, J. M. *et al. J Pain* 12, 1282–8 (2011)
- [12] Rahou-El-Bachiri, Y. *et al. J. Clin. Med.* 9, (2020)
- [13] Stieven, F. F. *et al. J. Manipulative Physiol. Ther.* (2021)
- [14] Dor, A. *et al. J Bodyw Mov Ther* 21, 642–647 (2017)

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TREATMENT KNOWLEDGE AND PREFERENCES FOR BLACK PEOPLE WITH HIP AND KNEE OSTEOARTHRITIS: A SYSTEMATIC LITERATURE REVIEW AND META-ANALYSIS

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Background: Black people are less likely to undergo total joint arthroplasties, despite reporting more severe symptoms. (1) While racial disparities exist in treatment utilization for osteoarthritis, comprehensive studies of the treatment preferences of Black people have not been conducted.

Objectives: The purpose of this manuscript is to systematically review the literature and identify Black osteoarthritis patients' treatment preferences to understand how they may contribute to racial differences in the utilization of different treatment options.

Methods: Searches ran on April 8, 2019 and April 7, 2020 in the following databases: Ovid MEDLINE (ALL - 1946 to Present); Ovid EMBASE (1974 to present); and The Cochrane Library (Wiley). Using the Patient/Population-Intervention-Comparison/Comparator-Outcome (PICO) format, our population of interest was Black people with hip and/or knee osteoarthritis, our intervention was preferences and opinions about treatment options for osteoarthritis, our comparator was white people with hip and/or knee osteoarthritis, and our outcome was preferences of osteoarthritis therapies. The protocol was registered under the PROSPERO international register, and the Preferred Reporting Items of Systematic reviews and Meta-Analyses (PRISMA) guidelines were followed.

Results: Searches across the chosen databases retrieved 10,894 studies after de-duplication, 182 full text, and 31 selected for inclusion in this review. Black people were less likely to use NSAIDs or narcotic analgesics compared to white people. (Figure 1) Black people were more likely than white people to use spirituality and prayer, as well as topical treatments. Utilization of meditation, supplement/vitamin use, and hot/cold treatments was not significantly different between groups. Black people were less willing than white people to consider or undergo joint replacements, even if the procedure was needed and recommended by a physician.

Conclusion: Racial differences persist in OA care across the spectrum of options. Future interventions should focus on providing accessible information surrounding treatment options and targeting perceptions of the importance of joint health.

Figure 1. Mean and standard error of VAS scores over time in the DN and SN group