Journal of Bodywork & Movement Therapies (2015) 19, 389–390

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EDITORIAL

Manual therapies and hypoalgesia: What are the mechanisms?

In the April 2015 issue of *Manual Therapies* a systematic review by Voogt et al., considered the analgesic effects of manual therapies, in relation to spinal or peripheral joints.

They note that: "A total of 13 randomized trials were included in the review. In 10 studies a significant effect was found. Pressure pain thresholds increased following spinal or peripheral manual techniques. In three studies both a local and widespread analgesic effect was found".

The modalities/methods that were employed in the studies included in the review involved: High velocity thrust manipulation, passive accessory mobilization (Maitland), Mobilization With Movement (Mulligan), and other forms of joint mobilization including lateral cervical glide, and antero-posterior glide.

Unlike earlier reviews — for example that of Millan et al. (2012) where analgesic effects of manual treatment was assessed in relation to experimentally induced pain, this review focused on analgesia involving painful clinical conditions.

The authors report that the results support a neurophysiological explanation of the positive effects of manual therapy, applied to joints in a clinical setting, despite no further insights being gained as to what spinal and/or central mechanisms might be responsible?

They concluded that the clinical relevance of these analgesic effects remains contradictory, and therefore unclear.

A further observation by in Voogt et al. paper deserves consideration:

> *"... in clinical practice manual therapy articular mobilizations and/or manipulations are seldom being used as an isolated intervention. In most instances they are embedded in treatment plans which contain myofascial techniques, therapeutic exercises and/or forms of communication as well. One could assume that combining various strategies imparts a synergistic effect on the brain-orchestrated analgesic system."*

The difficulty of unpicking specific effects, when a veritable cocktail of methods are employed in any given clinical session, remains at the heart of the problem of identifying mechanisms associated with outcomes.

Other possible hypoalgesic mechanisms?

A question nevertheless arises: what, apart from neurophysiological explanations might be associated with the analgesic effects of manual treatment?

- Both high and low-intensity isometric contractions — as utilized in Muscle Energy Techniques and Proprioceptive Neuromuscular Facilitation, have been shown to result in analgesic effects. For example Bement et al. (2011) compared pain ratings and thresholds in people with a diagnosis of fibromyalgia, after isometric contractions of the elbow flexors, of varying intensities & duration. Significant bodywide analgesic effects were noted in *some* FMS patients, after long-duration, low-intensity contraction, sustained until failure, with most benefit being experienced by younger women (±39) who had the lowest pain thresholds at outset.
- Langevin et al. (2005) demonstrated that in-vivo mechanical stretching of subdermal fibroblasts — as occurs in many manual therapy methods - alters interstitial osmotic pressure and increases transcapillary blood flow, reducing concentrations of pro-inflammatory cytokines, potentially resulting in hypoalgesic effects.
- McPartland et al. (2005) measured levels of the endocannabinoid Anandamide (AEA) levels pre- and post application of Myofascial Release, Muscle Energy Technique, & high velocity manipulation. They reported that shear and stretching load [associated with all of these modalities] upregulates AEA with subjects experiencing analgesic/euphoric cannabimimetic effects, that correlated with an increase in serum AEA levels (more than double pre-treatment levels). Neither cannabimimetic effects, nor changes in AEA levels, occurred in control subjects.
- Degenhardt et al. (2007) reported little change in AEA levels, but showed significant augmentation of the short-chain analog of AEA, N-palmitoyl-ethanolamine (PEA), following manual osteopathic treatment of patients with chronic low back pain. Concentrations of several

http://dx.doi.org/10.1016/j.jbmt.2015.05.001

circulatory pain biomarkers were altered after osteopathic treatment, and the degree and duration of these changes was greater in subjects with chronic LBP than in control subjects without the disorder.

Manual therapists regularly receive patient feedback involving pain reduction, and questions remain as to mechanisms? The Voogt et al. paper helps to clarify what remains to be understood. Evidence from their paper, and others, appears to point to a combination of neurophysiological, biochemical and fluid-dynamic hypoalgesic influences.

References

Bement, M., et al., 2011. Pain perception after isometric exercise in women with fibromyalgia. Arch. Phys. Med. Rehabil. 92, 89—95.

Degenhardt, B., et al., 2007. Role of osteopathic manipulative treatment in altering pain biomarkers: a pilot study. J. Am. Osteopath. Assoc. 107 (9), 387—400.

Langevin, H., et al., 2005. Dynamic fibroblast cytoskeletal response to subcutaneous tissue stretch ex vivo and in vivo. Am. J. Physiol. Cell. Physiol. 288, C747—C756.

McPartland, J., et al., 2005. Cannabimimetic effects of osteopathic manipulative treatment. J. Am. Osteopath. Assoc. 105, 283—291.

Millan, M., et al., 2012. The effect of spinal manipulative therapy on experimentally induced pain: a systematic literature review. Chiropr. Man. Ther. 10, 26.

Voogt, L., et al., 2015. Analgesic effects of manual therapy in patients with musculoskeletal pain: a systematic review. Man. Ther. 20 (2), 250—256.

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