THE EFFICACY OF MANUAL THERAPY AND EXERCISE FOR DIFFERENT STAGES OF NON-SPECIFIC NECK PAIN A SYSTEMATIC REVIEW

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INTRODUCTION

- Neck-pain represents 25% of patients' visit in physiotherapy (Gonzalez-Iglesias et al 2009;Jette et al. 1994).
- Once in their life, 70% of people suffer from neck-pain, with men less likely to be affected than women (Lau et al.2011; Madson et al. 2010).
- Neck-pain results in enormous health-costs (Bronfort et al. 2001;Palmgren et al. 2006).
- More and more therapists perform Manual Therapy (MT) interventions in developed countries and many countries included MT in national guidelines for treating musculoskeletal disorders (Lau et al. 2011; Martel et al. 2011; Hidalgo et al. 2013).
- Manual therapy is a specialized area of physical therapy (www.ifompt.com; Hidalgo et al. 2013):
  - where various passive neuro-musculo-skeletal mobilizations / manipulations are used
  - combined with different forms of exercise
  - with clinical reasoning based on the bio-psycho-social model and evidence based practice

METHOD

- This systematic-review (SR) was conducted in accordance with:
  - the Cochrane Collaboration Back Review Group and PRISMA updated guidelines for SR (van Tulder et al. 1997, 2003; Furlan et al. 2009)
  - and based on the methodology and design of a previous SR :

    "The efficacy of manual therapy and exercise for different stages of non-specific low back pain: an update of systematic reviews"

    by Hidalgo B., Detrembleur C., Hall T., Mahaudens P. and Nielens H. in press J. Man Manipul Ther 2013.

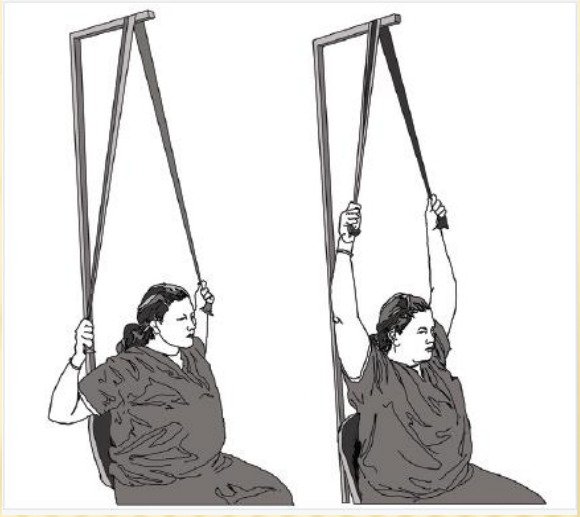
METHOD

- **Search strategy :** in 5 electronic databases; RCTs published in English and covered the period between January 2000 until September 2013
- **Inclusion criteria (PICOS):**
  - **P**: Acute (<6weeks) and subacute (6-12 weeks) or chronic (>12 weeks) non-specific NP from QTF 1-3
  - **I**: MT1 (HVLA thrust), MT2 (mobilization and soft-tissue-techniques), MT3 (MT1+MT2) with the addition or not of exercises (general or specific) and UMC
  - **C**: the control group received no treatment, placebo, UMC, or exercise
  - **O**: Pain, function, overall-health and quality of life
  - **S**: only low risk of bias RCTs

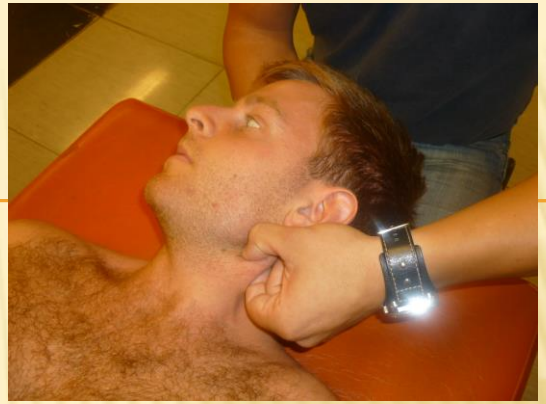
Illustration of Intervention techniques

Cervical thrust manipulation (MT1) or mobilisation (MT2)

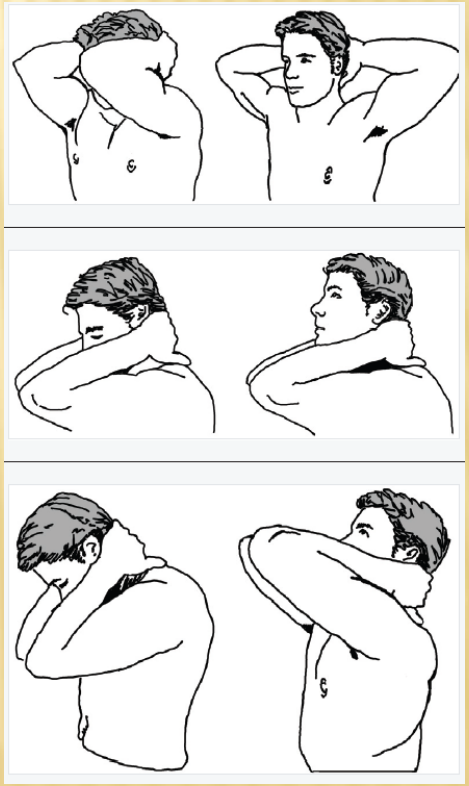
Thoracic spine thrust manipulation (MT1)



Rowing and pulling down with Thera-bands



Myofascial trigger point



Active movements of elbows and head

3 fingers exercise for cervical rotation

RESULTS

- 311 articles from the search strategy in the databases
- 289 records excluded because of duplicates, don't meet inclusion criteria (PICOs) and low methodological quality (≤ 6/ 11 criteria of Cochrane list)
- 22 RCTs of low risk of bias (≥ 7 / 11) included in this SR
- 4 level A (double blind = evaluator and patient blinded) and 17 level B (single blind = evaluator blinded) studies

RESULTS FO ACUTE NECK PAIN

Categories of MT intervention vs. Comparison care	Number of studies and patients	Overall level of evidence of efficacy on outcome overtime
For acute-subacute neck pain:		
MT1 thoracic spine + Electro/thermal therapy (ETT) vs. ETT alone	2 level B RCTs (Gonzalez-Iglesias et al. Man Ther 2009, JOSPT 2008) n=90	**Moderate evidence in favor of intervention group (IG)** in term of pain reduction, improvements of function and cervical ROM at very-short-term.
MT1 thoracic spine + MT2 cervical spine with home ROM exercise vs. MT2 cervical spine with home ROM exercise	1 level B RCT (Masarachio et al. JOSPT 2013) n=64	**Limited evidence in favor of IG** in terms of pain reduction and function improvements at short-term.
MT1 cervical spine with exercises vs MT1 thoracic spine with exercises	1 level B RCT (Puentedura et al. JOSPT 2011) n=24	**Limited evidence in favor of IG** on all outcome measures at short to intermediate-terms
MT1 vs. UMC (medication) vs Home Exercises	1 level B RCT Bronfort et al. (Ann Int Med 2012) n = 272	**Limited evidence in favor of IG** on all outcomes in short-term to long-term. **Limited evidence of no-difference between MT1 and Home Exercises.**
MT2 with myotensive and myofacial techniques) vs. MT2 (myotensive alone)	1 level B RCT (Nagrale et al. JMMT 2010) n=60	**Limited evidence in favor of IG** in term of pain reduction, functional and lateral flexion improvements at very-short-term.
MT2 (trigger points) vs. Sham Ultrasound (SU)	2 level B RCTs (Gemmell et al. ; Blikstad et al. Clin Chiro 2008) n=90	**Moderate evidence** in no difference on all outcomes at very-short-term.
MT3 with exercise vs. Behavioral Graded Activity (BGA)	1 level B RCT (Pool et al. Sine 2010) n=146	**Limited evidence in no difference** on all outcomes from short-term to long-term.

RESULTS FO CHRONIC NECK PAIN

MT1 cervical spine vs. MT1 thoracic spine	1 level B RCT (Martinez et al. JOSPT 2012) n = 90	**Limited evidence in no difference between interventions** at very-short-term on pain and function.
MT1 upper cervical and thoracic spine vs MT2 at the same levels	1 level B RCT (Dunning et al. JOSPT 2012) n = 107	**Limited evidence in favor of the IG** at very short-term for all outcome measures.
MT1 cervical spine vs Kinesiotape	1 level B RCT (Saavedra et al. JOSPT 2012) n = 80	**Limited evidence of no difference** for pain, function and CROM
MT3 with exercise vs. UMC	1 level B RCT (Walker et al. Spine 2008) n = 98	**Limited evidence in favor of IG** in term of pain reduction from a very-short-term to a short-term.
MT3 with exercise vs. Exercise vs Home exercise	1 level B RCT (Evans et al. Spine 2012) n = 270	**Limited evidence in favor of IG and Exercise** as compared to Home exercise on all outcomes at short-term.
MT3 + Sham Ultrasound (SUS) vs. SUS	1 level A RCT (Schwerla et al. Forsch Komplementmed 2008) n = 41	**Moderate evidence in favor of IG** in terms of function recovery and overall improvements from very-short-term to short-term.
MT1 thoracic spine + Infrared radiation therapy (IRR) vs. IRR alone	1 level B RCT (Lau et al. Man Ther 2011) n = 120	**Limited evidence in favor of IG** on all outcomes from short-term to intermediate-term.
MT3 with exercise vs. MT3 alone MT3 with exercise vs. MedX exercise (medical exercises with electronic machine)	2 level B RCTs (Evans et al. Spine 2002; Bronfort et al. Spine 2001) n = 191	**Moderate evidence in no difference** between the interventions on all outcomes from very-short to long-term.
MT2 vs. Sham MT2	3 level A RCTs (Kanlayanaphotporn et al. APMR 2009; Aquino et al. JMMT 2009; Schomacher et al. JMMT 2009) n = 294	**Strong evidence in no difference** between interventions in term of pain reduction at the very-short-term.
MT2 vs. No treatment	1 level B RCT (Sherman et al. Clin J Pain 2009) n = 64	**Limited evidence in no difference** between interventions on all outcomes from short-term to intermediate-term.

DISCUSSION

- For ACUTE NP:
  - **Moderate evidence in favor of MT1 on the cervical spine** (combined or not with MT1 on the thoracic spine) **and exercises .**
- For CHRONIC NP:
  - **Strong evidence of no efficacy of MT2**
  - **Moderate evidence in favor of MT3 with exercises** in comparison to UMC and sham US
  - **Moderate evidence in favor of MT1** on the thoracic spine

In conclusion, MT1,3 have a better efficacy on neck pain disorders when exercises (general or specific) are combined with the hands-on techniques.

The risk-benefice of MT1 on the upper-cervical spine should always be considered due to serious adverse events in this area.

- We certify that all persons who have made substantial contributions to the work are reported in this oral presentation and are included as authors. We also certify that no other persons have made substantial contributions to this study. We declare that there was no conflict of interest in the present study. This article is supported by internal grants from University of Louvain, Brussels, Belgium.

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