Master thesis research ready-to-use for direct clinical application

Pericranial tenderness in females with posture-related headache versus healthy controls

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Aim

Clinically oriented master thesis research can add evidence-based value to the physiotherapy practice. Within this respect the clinical relevance of the thesis topic is crucial. An attempt was made taking in account that physiotherapists are regularly consulted by patients suffering from headache. Especially women were targeted because of their predisposition to develop chronic pain. In this regard the pericranial 'Total Tenderness Score (TTS)' could be useful in detecting female patients with posture-related headache at risk of chronification. Master theses were therefore launched to compare the TTS between females with posture-related headache and asymptomatic matched controls.

Methodology

Design. Single-blind, cross-sectional comparison of pericranial tenderness between 20 females with posture-related headache (PRH) and 20 age- and gender-matched asymptomatic controls (AC).
Subjects. Twenty female students (29.4±13.2 y) with PRH and 20 age- and gender-matched AC (30.1±13.7 y) were recruited.
Measurements. Pericranial tenderness was bilaterally measured in seven muscle-insertions (suboccipital, temporal, frontal, masseter, trapezius descendens, levator scapula and sternocleidomastoid muscles). Tenderness was compared between groups for the cephalic (temporal, frontal, masseter) and the cervical (suboccipital, trapezius descendens, levator scapula, sternocleidomastoid) region. By using the TTS, scores from 0 (no pain) to 3 (serious pain) were given. All scores were converted to a 3-point scale.
Ethics approval. Approval by the Medical Ethical Committee of the 'Ziekenhuis Oost-Limburg' (B371201423025).
Funding. No funding.

Results

A. General tenderness scores

Table 1. Comparison of the mean (SD) pericranial, cephalic and cervical tenderness scores between the PRH-group and the AC

Measurement	PRH	AC	p
Pericranial TTS	1.25 (0.89)	0.62 (0.70)	0.0001*
Cephalic TS	1.18 (0.88)	0.68 (0.74)	0.0001*
Cervical TS	1.30 (0.90)	0.57 (0.70)	0.0001*

PRH = posture-related headache, AC = asymptomatic controls, TTS = 'Total Tenderness Score', TS = tenderness score , * = significant; p<0.05.

B. Participant-specific tenderness scores

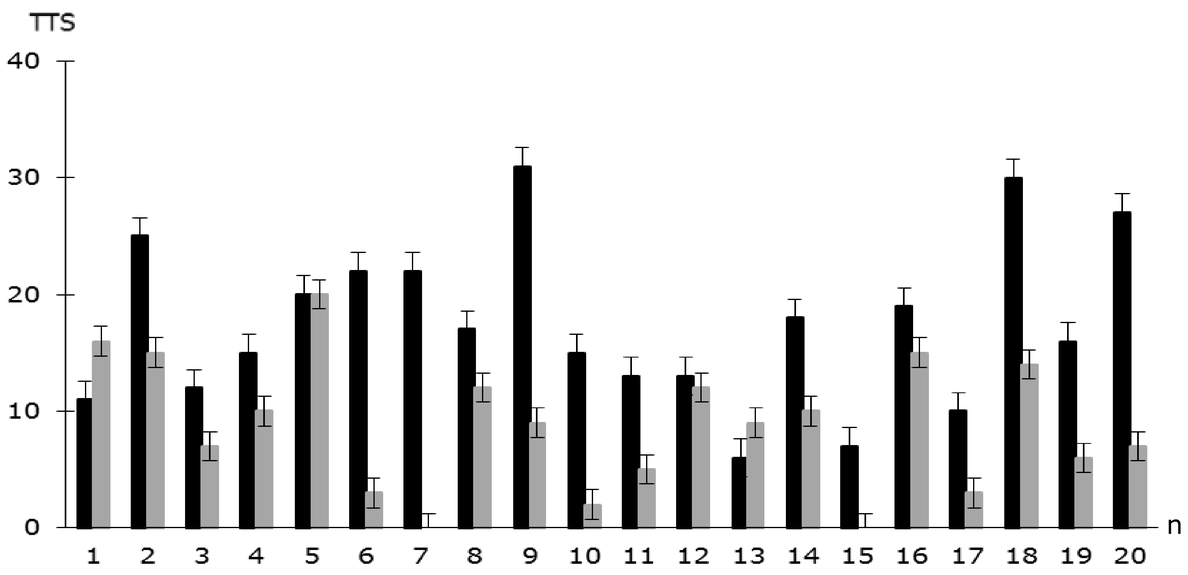

Figure 1. Individual differences in the mean 'Total Tenderness Scores' between the PRH-group and the AC (n = participants, PRH = posture-related headache = black, AC = asymptomatic controls = grey, TTS = 'Total Tenderness Score').

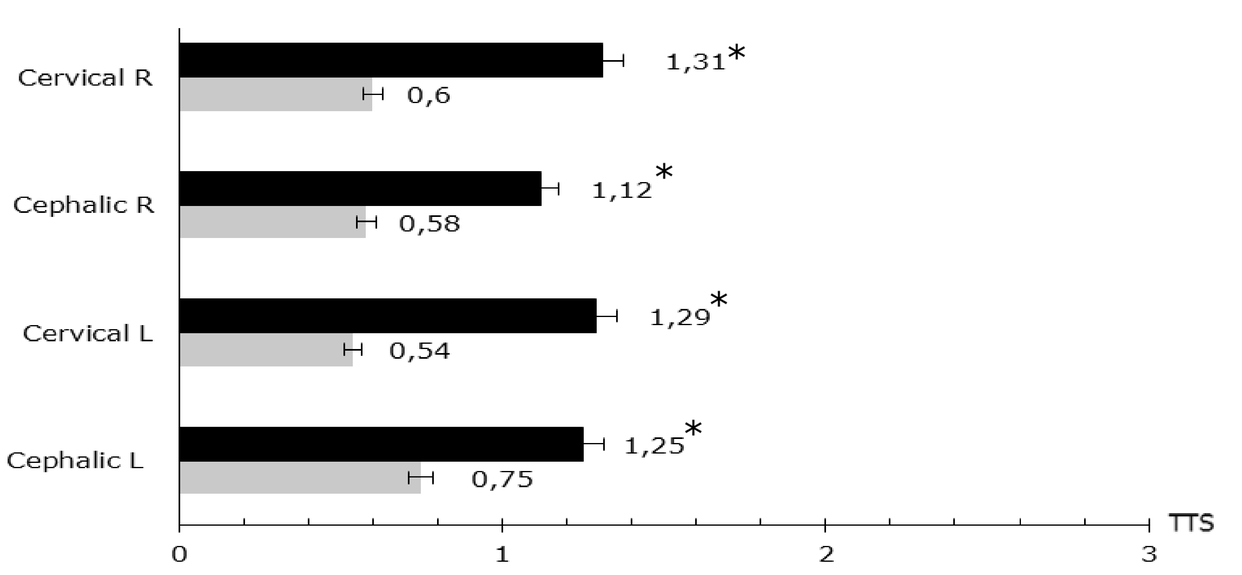

Figure 2. Regional differences in cervical and cephalic mean tenderness scores between the PRH-group (black) and the AC (grey) (R = right, L = left, PRH = posture-related headache, AC = asymptomatic controls, * = p<0.05 between groups, scores converted to 0-3).

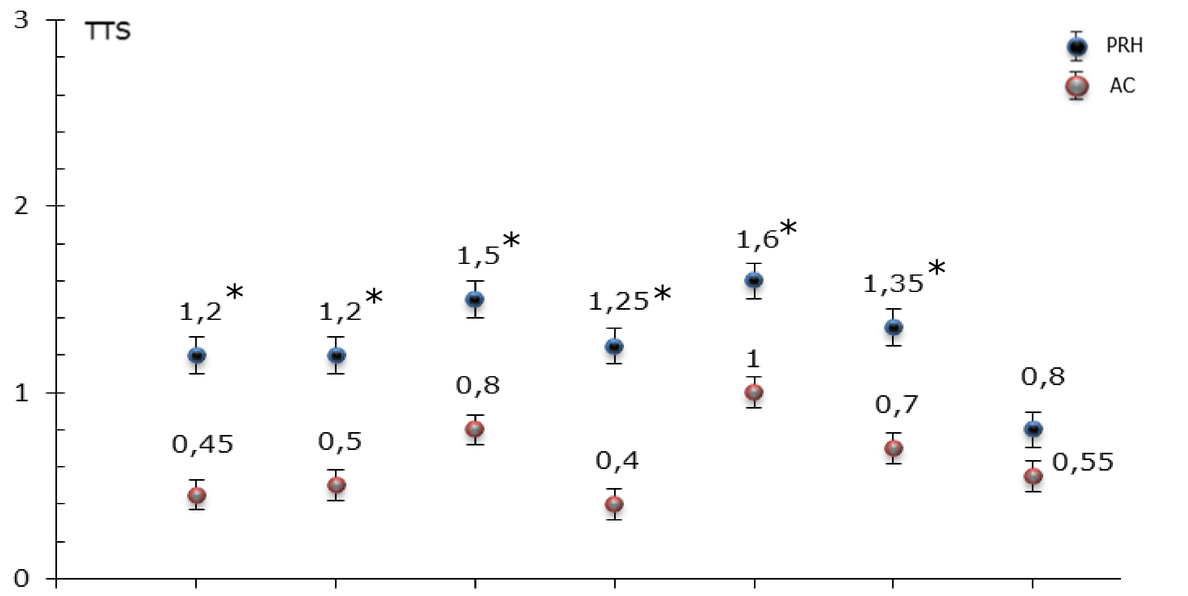

Figure 3. Summary of the mean left muscular tenderness scores for the PRH-group and the AC (PRH = posture-related headache, AC = asymptomatic controls, Levator = levator scapula, Suboccip = suboccipital, SCM = sternocleidomastoid, Trap desc = trapezius descendens, p* = p < 0.05, scores converted to 0-3).

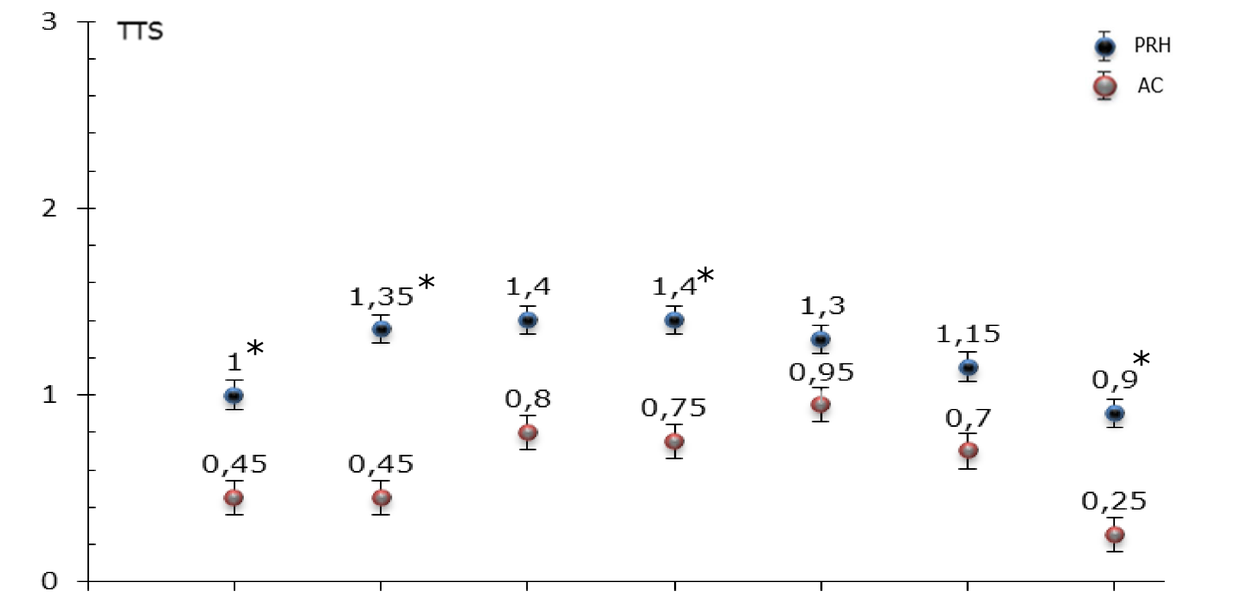

Figure 4. Summary of the mean right muscular tenderness scores for the PRH-group and the AC (PRH = posture-related headache, AC = asymptomatic controls, Levator = levator scapula, Suboccip = suboccipital, SCM = sternocleidomastoid, Trap desc = trapezius descendens, p* = p < 0.05, scores converted to 0-3).

Conclusion

- In the PRH-group the pericranial 'Total Tenderness Score' was twice as high compared to the AC
- The PRH-group scored significantly higher (p<0.05) on the total, cervical and cephalic tenderness scores
- Higher pericranial tenderness in patients with PRH suggests involvement of sensitization in the pathophysiological process
- Clinically oriented and feasible master theses topics could benefit multiple parties
    - Provide answers to clinical questions in the field and strengthen the interaction between educators, research and practitioners
    - Motivate and satisfy students since their experience can be directly applied in future practice

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