(Cost-)effectiveness of personalised multimodal physiotherapy compared to surgery in patients with cervical radiculopathy: a systematic review

Klein Heerenbrink S, Coenen P, Coppieters MW, van Dongen JM, Vleggeert-Lankamp CLA, Rooker S, ter Meulen BC, Bosboom JLW, Bouma GJ, Lutke Schipholt IJ, Sleijser-Koehorst MLS, de Vries R, Ostelo RWJG, Scholten-Peeters GGM

Introduction

Cervical Radiculopathy

CR is a clinical condition with signs and symptoms of neurological deficits and often accompanied by radicular pain due to nerve root inflammation and/or compression[1] (Figure 1)

Current management CR

- Initially conservative[2]
- Surgery when conservative management fails or with severe/progressive neurological signs[3,4]

Personalised multimodal physiotherapy is a promising conservative strategy as alternative for surgery[5,6]

Evidence on the (cost-)effectiveness of PMPT compared to surgery is lacking

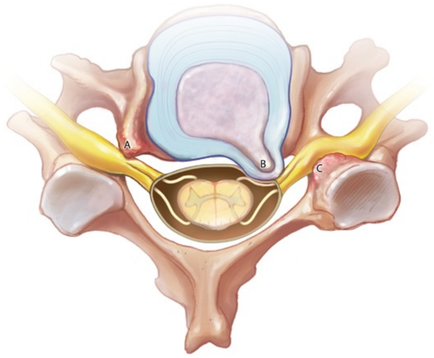

Figure 1. Nerve compression causing CR

Objective

To systematically summarise the literature on the (cost-)effectiveness of personalised multimodal physiotherapy compared to surgery with or without post-operative physiotherapy in patients with cervical radiculopathy

Methods

Search

Databases were searched from inception to 1st of March 2023

Included

RCTs comparing PMPT (at least 2/3: exercise, patient education, manual therapy) vs surgery with/without post-operative PT in patients with CR

Primary outcomes

Effectiveness regarding arm pain intensity, disability and costs

Secondary outcomes

Neck pain intensity, perceived recovery, QoL, neurological symptoms, ROM, return-to-work, medication use, (re)surgeries, adverse events

Review

Two independent reviewers performed/determined:

- Study selection
- Data-extraction
- RoB assessment
- Certainty of evidence

Using Cochrane RoB 2[7] and GRADE[8]

Results

Study selection

- 2,109 records » 8 papers from 2 original studies were included[9-16]
- 117 participants in total

Primary outcomes

Low certainty evidence showed:

- No significant differences on arm pain intensity (4, 6, 12, 24 mo. and 5-8 yrs.) and disability (4, 6, 12, 24 mo.)
- Except 'heavy work' related disability (12 mo.) and disability and 5-8 yrs. in favour of surgery
- Cost-effectiveness not assessed

Secondary outcomes

Low certainty evidence showed:

- Physiotherapy improved significantly less on neck pain intensity (5-8 yrs.), sensory loss (4 mo.) and perceived recovery (24 mo.) compared to surgery
- No significant differences on numbness (4, 16 mo.), range of motion, medication use, and quality of life (3, 6, 12, 24 mo. and 5-8 yrs.)
- No adverse events were reported

Conclusions

Considering the clinical importance of accurate management recommendations and the current low level of certainty, high-quality cost-effectiveness studies are needed to recommend one intervention over the other

Abbreviations

*CR – Cervical Radiculopathy
*PMPT – Personalised multimodal physiotherapy
*RCT – Randomised Clinical Trial
*QoL – Quality of Life
*ROM – Range of Motion
*RoB – Risk of Bias
*GRADE – Grading of Recommendations, Assessment, Development and Evaluation
*yrs. – years
*mo. – months

Corresponding author
Sebastiaan Klein Heerenbrink
s.kleinheerenbrink@vu.nl

References