The effectiveness of Mulligan techniques on cervicogenic headache: clinical applications and research evidence

Poster · November 2014

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Technological Educational Institute of Lamia
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The effectiveness of Mulligan techniques on cervicogenic headache: clinical applications and research evidence

Zacharias Dimitriadis[1,2,3], Physiotherapist, PhD, MSc, MT, NDT

[1] Laboratory collaborator at TEI Athens

[2]Scientific collaborator at the European University of Cyprus

[3]Lecturer at Athens Metropolitan College (collaboration with the University of East London)

What is cervicogenic headache?

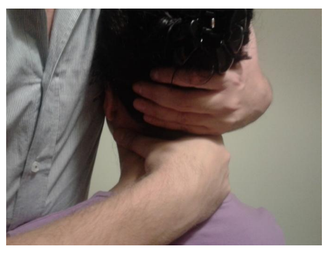
Cervicogenic headache can be defined as the pain experienced in head but the real source is found on the cervical spine. It is a secondary headache and its aetiology is different from the aetiology of migraine or tension-type headache although the differential diagnosis is frequently difficult.

The main mechanism is believed to be the convergence of C1, C2 and C3 nerves at the neurons of the dorsal horns of spinal cord which also accept afferents from the trigeminal nerve. This fact leads the pain which is associated with the C1, C2 and C3 nerves to be experienced in body areas which are innervated by the trigeminal nerve (Bogduk and McGuirk, 2006).

Which is the philosophy of Mulligan method and which techniques are suggested for the cervicogenic headache?

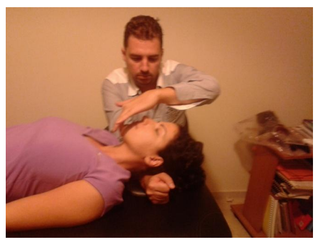
Mulligan techniques began at the 1970 decade in New Zealand. The applications were based on the theory that injuries may lead to positional faults of a joint causing restriction and pain during physiological movements. Therefore, the correction of this deviation was considered to be the base of the intervention. Typical techniques of the Mulligan method are the Mobilization With Movement (MWM), Natural Apophysial Glides (NAGs), Sustained NAGs (SNAGs) as well as self-treatment techniques such as the self-SNAGs (Exelby, 2002). The same rationale was followed by Brian Mulligan in order to develop a number of techniques for the management of cervicogenic headache focusing on the relative anatomical structures (Mulligan, 2006).

SNAG at C2



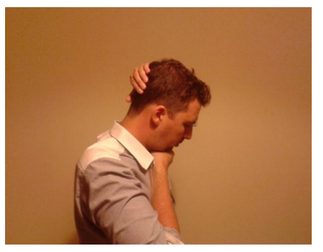
Reverse SNAG at C2

Rotatory SNAG C1-C2

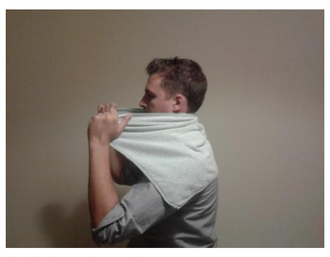


Traction of upper cervical spine

Tractions, SNAGs and self-SNAGs



Grip traction



Self-SNAG at C2

Reverse self-SNAG

Self-SNAG for C1-C2 rotation

What is the evidence about the effectiveness of these techniques on cervicogenic headache?

Until now, it seems that two studies have been published being in agreement that Mulligan techniques can lead to reduction of cervicogenic headache. These studies are presented at the following table:

Study	Design	Sample	Intervention	Results regarding headache
Hall et al (2007)	Randomized Control Trial	Self-SNAG group: 16 individuals with cervicogenic headache (11 women), 38±14 years, 6±3 years headache, chronicity, 52±10 headache severity Control group: 16 individuals with cervicogenic headache (8 women), 33±11 years 6±4 years headache chronicity, 51±19 headache severity	Self-SNAG group: Application of C1-C2 rotatory self-SNAG (3 trials and 2 normal repetitions,, they were asked to apply this technique two times per day for 1 year) Control group: Placebo mobilization at C1-C2 level (Similar mobilization to the self-SNAG group but without head rotation, they were asked to apply this technique two times per day for 1 year)	The self-SNAG group presented with a statistically significant improvement of the headache severity index at the 4th week and especially at the first year ($p<0.05$). This improvement was more pronounced than the improvement observed for the control group at both 4 weeks and 1 year ($p<0.05$)
Shin and Lee (2014)	Randomized Control Trial	SNAG group: 20 women with cervicogenic headache,,48,2±7,79 years Control group: 20 women with cervicogenic headache, 48.05±6.81 years	SNAG group: Rotatory cervical SNAG (10 applications, 20 minutes totally, 3 times per week for 1 month) Control group: Placebo SNAG through hand contact and pressure at the affected side, same treatment frequency as the SNAG group	Both groups presented with a significant reduction of their headache intensity and duration ($p<0,05$), but this improvement was significantly better for the SNAG group ($p<0.05$).

Conclusions

Although the evidence is limited, the existing studies agree that the Mulligan techniques are effective for the management of cervicogenic headache. This fact in parallel with the safe context underlying their application and the opportunity for self-management render these techniques some of the most preferable therapeutic techniques for the management of cervicogenic headache.

Acknowledgement

I would like to thank my colleague and wife Evangelia Tsipra for her assistance to the completion of this poster and my teacher in Mulligan method Dr Athanasios Adamidis for the inspiration to me, through his teaching, for the beginning of this project.

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