The role of the sensory trick in gating multimodal afferents in adult-onset idiopathic focal dystonia

Investigator:	Dr. Florian Brugger, PD Dr. Georg Kägi
Status:	Recruiting
Project Start:	2018
Project End:	2020
Trial Design/Class:	Monocenter, cross-sectional study, neuroscience project
Number of Patient:	>30 Patients with cervical dystonia, 15 healthy control persons
Funding:	Baasch-Medicus-Foundation (Dr. Florian Brugger), Forschungskommission Kantonsspital St. Gallen, Switzerland

Summary:

The 'sensory trick' (ST) refers to a particular manoeuver e.g. slightly touching the face, which is capable of significantly ameliorating the abnormal head posture in patients with cervical dystonia (CD) (synonym: torticollis). The benefit is sometimes quite impressive thus underpinning the need of a better understanding of this intriguing phenomenon, particularly with regard to developing alternative treatment approaches. It has been proposed that the benefit from a ST might reflect normalisation of a demonstrably abnormal processing of sensory information from the neck muscles in this condition. Unfortunately the ST often gets lost as the disease progresses.

In a previous study, we could show that CD patients with a ST (CD+ST) are as responsive to sensory information from the neck muscles as healthy volunteers, whereas patients without a ST (CD-ST) were much less sensitive. This effect, however, was more of a general trait rather than a ST specific effect. Hence it must be assumed that additional mechanisms come into play, when an effective ST is performed. Since information from the vestibulum seems to be widely unaffected in CD patients it is hypothesized that for head posture control the ST shifts the emphasis from sensory information from the neck muscles towards vestibular information. Because the ST is linked to a particular manoeuvre, it is also assumed that specific sensory information from the arm muscles is an additional prerequisite for the benefit from the ST.

In this project we will use the established paradigms of body sways induced by dorsal neck muscle vibration and galvanic vestibular stimulation as models for vestibular and sensory information processing, respectively, to test these hypotheses. Furthermore, vibration of the arm muscles will be used to modulate sensory information from the limb during the use of the ST. 15 CD+ST, 15 CD-ST and 15 healthy controls will be recruited and will be investigated by the means of a balance analysis. The study will start at the beginning of 2018 and will last until 2020. The study is supported by the Baasch-Medicus-Foundation.

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