

Does a change in afferent input to the third occipital nerve produce nystagmus?

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Purpose: The purpose of this study was to determine if nystagmus is produced by a change in afferent input from the third occipital nerve (TON).

Relevance: Dizziness can cause disability, handicap and distress in patients suffering from symptoms. To provide appropriate treatment strategies for these individuals, one must first be able to accurately diagnose the cause of the problem. A diagnosis of cervicogenic dizziness is typically a diagnosis of exclusion. The central and vestibular systems cause characteristic patterns of nystagmus, often in conjunction with dizziness. Nystagmus has been reported in animals following cervical injections. As symptoms are often felt following TON blocks, if a characteristic pattern of nystagmus occurs it may aid in the diagnosis of cervicogenic dizziness.

Materials and Methods: A single item Numeric Pain Rating Scale (0-10) and Dizziness scale (0-10) was used to measure the subjects' pain intensity and dizziness before and immediately following the TON block. Electronystagmography (ENG) measures of spontaneous nystagmus were taken before, during and 20 minutes following the procedure.

Analysis: A Friedman's ANOVA was used to determine if there was a significant difference between pre, during and post procedure measures of nystagmus using SPSS 12.0. A paired t-test was used to determine if there was a significant difference between pre and post measures of reported pain and dizziness.

Results: There was a statistically significant change in pain before and after the TON block ($p < .001$). There was no significant change in dizziness ($p = .930$) or nystagmus measures ($p = .549$). Interestingly, three of twelve subjects (25%) who participated in the study had nystagmus of >6 degrees/second following the TON block. Two subjects (16.7%) had nystagmus 20 minutes following the procedure. The direction of the nystagmus varied and was not consistent.

Conclusions: Some nystagmus was noted following the TON block but it was not significant and the direction varied. Although this study provided some evidence that there may be an association between a change in afferent input to the TON and nystagmus, future studies utilizing larger samples are needed.