The Distribution and Severity of Tremor in Speech Structures of Persons with Vocal Tremor

Summary: Background. Vocal tremor may be associated with cyclic oscillations in the primary, laryngeal, supralaryngeal, and subglottic regions. Objective: To determine the overall severity of vocal tremor with the distribution and severity of tremor in structures involved. Methods: Endoscopic and clinical examinations were completed in 41 adults with vocal tremor and 15 age-matched controls using nasal examination. Twenty-one judges rated the severity of vocal tremor and the severity of tremor affecting each of 13 structures. Results: Participants with mild vocal tremor typically presented with tremor in three laryngeal structures, moderate vocal tremor in five structures (laryngeal and subglottic regions), and severe vocal tremor in eight structures affecting all regions. The severity of tremor was assessed (mean ± SD) in persons without vocal tremor and greater in persons with moderate tremor (mean ± SD) and severe vocal tremor (mean ± SD). Conclusion: Vocal tremor was more frequent (95%) and severity (59.7% of cases) increased with severity of tremor. Regression analyses indicated tremor severity of the subglottic structures and the laryngeal/mucosal movement contributed most to the severity of vocal tremor (P = 0.001). A strong positive correlation (r = 0.72) was found between the Tremor Index and the severity of the vocal tremor. Keywords: Vocal tremor, Tremor severity,–Tremor index, Endoscopic–Clinical tremor examination.

INTRODUCTION

Vocal tremor is a neurological disorder that affects approximately 1 in 500 people in the United States. Vocal tremor is characterized by low frequency, 4-8 Hz, steady periodic modulations in pitch, loudness, or voice. This tremor can have a major impact on an individual's daily life. Those with severe vocal tremor may experience complete voice breaks, which can limit intelligibility, while vocal tremor can also limit social interaction for individuals. Regardless of the severity of vocal tremor, vocal tremor can be trained with laryngeal (subglottic) vocal exercises. According to the literature, about 17.9% of persons with vocal tremor have vocal tremor that affects movements of the laryngeal, supralaryngeal, and subglottic regions. Vocal tremor is associated with increased vocal tremor in patients with vocal tremor and may be beneficial for individuals with vocal tremor. There are not many studies examining the distribution and severity of tremor across all four subsites of the speech mechanism in persons with vocal tremor. However, many studies have examined particular muscles or structures in persons with vocal tremor in an attempt to determine which parts of the speech mechanism are affected by tremor. A review of these studies provides some very useful insight into how milder levels of vocal tremor might present themselves.