LISTENER IMPRESSIONS OF VOICE, SPEECH, AND PERSONALITY
FOLLOWING SUPRACRICOID LARYNGECTOMY

Paul Evitts 1,2, Kim Webster2, Heather Starmer2, Rachel Carlberg1, Julia Miller1, Sarah Bean1, Mallory Butler1, Rebekah De La Paz1, Amy Hum1, Aleece Roehl1, & Shelby Schnitker1
1Department of Audiology, Speech Pathology & Deaf Studies, Towson University, Towson MD
2Department of Otolaryngology, Head and Neck Surgery, Johns Hopkins Medical Institute, Baltimore, MD

ABSTRACT: Recent research suggests that the supracricoid laryngectomy (SCL) has been shown to be an effective treatment option for laryngeal cancer (e.g., Deganello et al, 2008) and may result in higher quality-of-life compared to total laryngectomy (e.g., Schindler et al, 2006). However, there is minimal information on how listeners perceive the voice and the speaker following the SCL. The purpose of this study was to provide further information on how listeners perceive the paralinguistic features of speech and voice quality following SCL and to provide initial information on listener attitudes toward the individual with SCL. Overall results suggest that IWL are perceived as less favorable than typical, laryngeal speakers and that there are minimal differences between SCL and other modes of AL speech. Finally, results suggest that ES speech had the least favorable voice quality in either mode of presentation.

INTRODUCTION

Previous studies have shown that listeners have negative impressions of people with various speech and hearing disorders based on the sound of their speech. For instance, Blood, Mahan, and Hyman (1979) reported listeners’ impressions of adults with a voice disorder were more negative than those without a voice disorder. McKinnon, et al. (1986) showed that college students reacted more negatively to speech disorders than normal speech. Lass, Rosseu, and Lakawicz (1988) also showed that listeners reacted more negatively to listeners with dysarthria than normal speakers.

These studies, however, are based on laryngeal speakers and may not reflect listeners’ impressions of an individual with a laryngectomy (IWL). The limited research that is available on alaryngeal speakers shows less consistent results. For example, Gilmore (1974) found that listeners had negative impressions of IWL but Evitts, Gabel, and Searl (2007) showed that listener ratings were more neutral for all modes of alaryngeal speech. More recent results suggest that the inclusion of audio-visual information, relative to audio-only, may improve listener perceptions of IWL and that there are significant differences among modes of alaryngeal speech (Evitts, Van Dine, & Holter, 2006). Just as the initial research discussed above was based on laryngeal stimuli and thus should not be generalized, these results are based on voice following TL and may not reflect listeners’ impressions of alternative surgical approaches, specifically those forms of surgery aimed at laryngeal preservation (i.e., conservation surgery).

One approach to functional laryngeal preservation, the SCL, has been shown to be an effective treatment option for laryngeal cancer (e.g., Deganello et al, 2008) and may offer better local control for some lesions than other forms of treatment (Lai, 2008). One of the more positive outcomes of the SCL is the lack of a permanent stoma that is required following TL. The presence of a stoma is often related to negative respiratory sequelae that have been cited as affecting quality-of-life in patients with a TL (e.g., Hilgers et al, 1990). With regard to quality-of-life (QOL) measures, studies have shown that the SCL results in more favorable QOL than TL (e.g., Marquez et al, 2004, 2007; Schindler et al, 2006). Although the SCL may result in higher QOL measures relative to TL, the limited research that is available on the voice quality of SCL suggests less than favorable voice relative to TL (e.g., Di Nicola et al, 2006; Torrejano & Guimarães, 2009). In addition, there is no information on listener attitudes (i.e., personality) toward the person with an SCL.

METHODS

1. 12 male laryngeal speakers (3 from each mode of speech; TE, ES, EL, SCL (2 CHEP, 1 CHP)) and 3 age: and gender-matched typical laryngeal speakers. Each speaker was considered to be ‘typical’ by two experienced SLPs.

Audio-visual: All comparisons were significantly different (F values ranged from 29.17 = 494.35*, p<.001).

Factor 1 - Normal more favorable than all four AL modes.

Factor 2 - Normal more favorable than all four AL modes

Factor 3 - Normal more favorable than all four AL modes

*Highest F values for Factor 3 (voice quality)

RESULTS

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RESEARCH QUESTIONS

1. Is there a difference in listener’s perceptions based on presentation mode (audio-only vs. AV)?

2. Within mode of presentation, is there a difference in listener’s perceptions based on mode of speech?

3. Within mode of speech, is there a difference in listener’s perceptions based on mode of presentation?

RESULTS (CONT’D)

Data Analysis

-2 x 5 factorial design with mode of presentation and mode of speech as within-subjects repeated measures. Mode of presentation was divided into audio-only and audio-visual.

Audio and visual-recordings were made of each speaker producing The Grandfather Passage.

Any acoustic or visual information related to the sentence production (e.g., injection of air, stoma position, digital exclusion of stoma) occurring at the beginning or end of the sentence production was included.

25 naïve listeners (10 female, 6 male, mean age 21.4 yrs) were randomly presented with audio-only and audio-visual recordings of all 15 speakers (total 30 stimuli).

Ratings obtained using 10 cm visual analog scale (0 mm = more favorable, 100 mm = less favorable).

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DISCUSSION

Overall, results suggest the following: IWLS are viewed more favorably in the audio-visual mode; Normal speakers are viewed more favorably than all modes of AL speech; ES had the least favorable voice quality; and there may be inherent visual information associated with ES which may be perceived as more negative (e.g., Evitts et al, 2009, 2010).

Finally, results suggest minor differences in listener perceptions among modes of AL speech, including SCL. Considering the improved QoL following SCL relative to other modes of AL speech (e.g., Marquez et al, 2004, 2007; Schindler et al, 2006), current results support the increased utilization of SCL as a surgical treatment for laryngeal cancer.

References


