KASA Knowledge-Based Assessment: Voice and Resonance

1a. Describe (in 2-3 pages) the physiologic events that occur when a normal adult speaker produces the utterance /papi/ in modal voice register at a normal conversational intensity with respect to

i. respiration,
ii. phonation (including current models of vocal fold vibration),
iii. velopharyngeal movement,
iv. motor innervation of laryngeal and velopharyngeal muscle movements, and
iv. acoustic output.

Please use formal anatomic/linguistic terminology. (IV.B.1, IV.B.2, IV.B.3)

1b. Briefly describe (1 page) how these speech production events, acoustic output, and perceived speech output would differ in a 6-year-old child with a history of repaired complete bilateral cleft of the lip and palate, and a diagnosis of severe velopharyngeal insufficiency with compensatory articulation and pressed phonation. (IV.B.3)

2. Briefly describe (1-2 pages) variations across sociolinguistic, racial/ethnic and cross-cultural groups that could possibly occur with regard to

a. voice use patterns, i.e. pitch, loudness, resonance, and vocal quality, (IV.B.4), and
b. incidence/prevalence of voice and resonance disorders and their etiologies. (IV.C.2)

3a. Using a table or grid, provide a practical clinical classification system for voice disorders, including velopharyngeal/resonance disorders. Please include

a. basic clinical characteristics/signs,
b. a rationale for your choice of categories, and
c. a comment on the challenge in creating mutually exclusive categories. (IV.C.1)

4. Case Study

Your patient is a 32-year old Chinese male from the People's Republic of China, who is a graduate student in Mathematics. As part of his education he teaches two lower division courses in trigonometry and calculus. These classes are lecture format and require that he speak loudly without amplification. He is not a native speaker of English, but has a good command of English and tries hard to be as intelligible as possible. The classes take place in the evenings after long days on campus, and he rarely gets to eat a full meal until late at night. His previous medical history is unremarkable.

He reports that he had a "throat cold" early in the semester, with several weeks of coughing afterwards. During this period he became increasingly hoarse, then mostly aphonic. He was referred by a laryngologist for a voice evaluation. Videostroboscopic evaluation revealed moderate-severe erythema on the arytenoid mucosa, moderate edema of the true vocal folds, and bilateral pre-nodular swellings at the midpoint of the membranous vocal folds. His reported symptoms include poor voice in the mornings, bitter acid taste sensation upon waking, frequent spells of dry coughing, effortful phonation, and increasing vocal fatigue over the course of a working day. You hear a voice that sounds moderately hoarse with a moderately strain-strangled quality and mild breathiness; you note a shallow breathing pattern, and breath holding before phonatory initiation/harsh glottal onsets. You also notice significant muscle tension in the jaw/neck area, shoulders that are rounded and sloped forward, and a anteriorized carriage of the head.

4a. What recommendations would you make regarding vocal hygiene and voice conservation? (IV.D.1)

4b. What non-instrumental clinical assessment tasks would you choose to evaluate his vocal function? Provide a rationale for each task. What would you expect to find? (IV.D.2)

4c. Briefly describe instrumental options for visual-perceptual, acoustic, aerodynamic, and physiologic measures of vocal function. What trends would you expect in these measures? (IV.D.2)

4d. Based on the reported information and your expected results from your assessment, what etiological factors may be causing his voice disorder? Which clinical signs/symptoms led you to your conclusion? (IV.D.3)

4e. Please state two primary goals and objectives for therapy. What management procedures/strategies you might use to address these goals/objectives? Include appropriate referrals to other clinical professionals. (IV.D.4, IV.D.5)

4f. Your patient speaks Chinese in many social contexts, using a perceptually high fundamental frequency. In his teaching, and exchanges with English-speaking students and colleagues, he speaks English with a lower fundamental frequency. Would you try to lower the F_0 in his spoken Chinese to a more "optimum pitch"? Provide a rationale for your response, including relevant research findings on this issue. (IV.D.5)

4g. Please describe (in 1-2 pages) four important principles of motor learning relevant to effectively facilitate and habituate new vocal production behaviors. Include definitions of types of cueing and describe a hierarchy (most preferred to least preferred) for cueing clients to sensory information based on motor learning principles. (IV.D.6)

5. Briefly describe (1 page) evidence-based research that would support your choice of Lee Silverman Voice Therapy over traditional articulation and pacing therapy for treating a client with mild-moderate idiopathic Parkinson's Disease (IV.F.1).

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