

The effect of COPD on Laryngopharyngeal Sensitivity and Swallow Function

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ABSTRACT

The relationship between COPD and laryngopharyngeal sensitivity has not been previously determined. Limited research into the relationship between COPD and swallow function suggests that patients with COPD are at increased risk of aspiration. One possible mechanism for this is a reduction in laryngopharyngeal sensitivity (LPS). Reduced laryngopharyngeal sensitivity (LPS) has been associated with an increased risk of aspiration in pathologies such as stroke, however impaired LPS has not been examined with respect to aspiration risk in COPD. The Aims of this study were to investigate the effect of COPD on laryngopharyngeal sensation using Laryngopharyngeal Sensory Discrimination Testing (LPSDT) and to determine whether a relationship between LPS and swallow function in patients with proven COPD exists. Method: 20 patients with proven COPD and 11 control subjects underwent LPSDT utilising an air-pulse stimulator (Pentax AP4000) via a nasendoscope (Pentax FNL10AP). The threshold of laryngopharyngeal sensation was measured by the air pressure required to elicit the laryngeal adductor reflex (LAR). A number of further examinations were also completed for COPD subjects. These included respiratory function testing, self-reporting questionnaire on swallowing ability (SSQ), bedside clinical examination of swallowing (MASA) and endoscopic assessment of swallowing (EAS). Results: subjects with COPD had a significantly higher LAR threshold when compared to their normal healthy counterparts ($p < 0.001$). Positive correlations were identified for the relationships between MASA score and EAS results for presence of laryngeal penetration / aspiration ($p < 0.04$), vallecular residue ($p < 0.01$) and piriform residue ($p < 0.01$). Conclusion: Patients with COPD have significantly reduced mechanosensitivity in the laryngopharynx. Patients with COPD also have impaired swallow function characterised primarily by pharyngeal stasis. These changes may place patients with COPD at increased risk of aspiration.

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