CPAP-induced Aerophagia May Precipitate Gastroesophageal Reflux

Authors response to Snapp M, Sharma S. Aerophagia may not cause gastroesophageal reflux. *J Clin Sleep Med* 2013;9:631.

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We appreciate the interest shown in our paper by Snapp and Sharma¹ but disagree with their suggestion that the findings in two previous studies to which they refer^{2,3} contradict our own.⁴ Both these other studies investigated reflux events in individuals who were awake and upright. Our study was of new symptoms of aerophagia and reflux in individuals commenced on continuous positive airway pressure (CPAP) therapy for obstructive sleep apnea. This therapy, which is known to be associated with aerophagia, is applied overnight when the subjects are predominantly recumbent and asleep. In the Bredenoord et al.² study, aerophagia was induced by infusing 600 mL of air into the stomachs of individuals with and without gastroesophageal reflux disease (GERD). In the Sifrim et al.³ study, a meal was used to induce postprandial reflux in healthy young volunteers. It is unclear what relevance, if any, the findings of these studies have to questionnaire responses regarding GER symptoms in obstructive sleep apnea patients following commencement of CPAP.

Comparing findings between studies in upright and recumbent subjects is unproductive. Several studies have reported that reflux episodes which occur in the upright position are primarily gas episodes, while the majority of those which occur in the recumbent position are liquid in nature.⁵⁻⁷ This is likely due to the esophago-gastric junction being “submerged” in liquid stomach contents when recumbent, whereas the junction is in air when upright. In the sleeping subjects of our study, the CPAP therapy associated aerophagia will occur almost exclusively in the recumbent position, increasing the likelihood of liquid reflux episodes and therefore GER symptoms.

In our paper we recognize the difficulty in assigning directionality to an association between GER and aerophagia symptoms referred to by Snapp and Sharma and state clearly that our data cannot direct-

ly answer whether it is aerophagia that precipitates GER or the reverse. Our sub-analysis of individuals before and after CPAP treatment showed that reflux that pre-exists CPAP does not predispose to aerophagia when on CPAP. However the occurrence of GERD symptoms after institution of CPAP is associated with a significant increase in aerophagia symptoms. On this basis we speculated that CPAP-induced aerophagia might precipitate GER, particularly overnight. We reiterate that the association we found between symptoms of aerophagia and symptoms of GER in those on CPAP therapy is strong and warrants further attention.

CITATION

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DISCLOSURE STATEMENT

The authors have indicated no financial conflicts of interest.