

Relation between OSAS and nocturnal GER and clinical utility of nasal CPAP on GER with OSAS

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Abstract

AIM: The potential association of gastroesophageal reflux (GER) with obstructive sleep apnea syndrome (OSAS) has been noted and nasal continuous positive airway pressure (nCPAP) is thought to be able to reduce frequency and duration of the nocturnal reflux in this population by elevating the intraesophageal pressure. To confirm these clinical impressions, we performed two night study.

METHODS: On night one, we performed 18 h esophageal pH monitoring, esophageal pressure recording and polysomnography (PSG) on 16 patients with snoring, daytime sleepiness and sleep related heartburn and regurgitation of gastric contents into the esophagus.

RESULTS: We confirmed 9 of the 16 patients with OSAS and precipitous drops in pH were frequently preceded by swallow (51.4%, control = 18.6%, $P < 0.005$), gross body movement (16.8%, control

= 4.0%, $P < 0.005$), arousal (29.7%, control = 18.8%, $P < 0.038$) and apnea/hypopnea (37.6%, control = 26.7%, $P < 0.05$), the mean lowest esophageal pressure (-13.1 ± 8.7 mmHg) prior to pH drops was also significantly lower than during control periods (-8.7 ± 7.9 mmHg, $P < 0.005$). No significant association between GER and oxygen desaturation was identified. On night two, we administered nasal CPAP to 7 patients, and successfully treated apnea and desaturation in all of these subjects. In 6 of the 7 patients, there was also dramatic reduction in GER frequency and duration on night two. The mean percentage of time < 4 dropped from 14.6 ± 9.8 to $2.9 \pm 3.9\%$ ($P < 0.05$), the longest reflux duration dropped from 18.2 ± 8.2 to 5.3 ± 7.7 min ($P < 0.05$).

CONCLUSION: We conclude that: (1) OSAS is the predisposed factor to GER, there is significant association between GER and apnea/hypopnea, gross body movement, swallow and arousal; (2) nCPAP has significant therapeutic effects on OSA with nocturnal GER and maybe also on nocturnal GER patients without OSAS.

Key words: Obstructive sleep apnea syndrome; Nocturnal gastroesophageal reflux; Nasal continuous positive airway pressure

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