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A polysomnographic study on masticatory and tongue muscle activity during obstructive and central sleep apnea.

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Masticatory and tongue muscle activity was examined polysomnographically in 14 patients with sleep apnea syndrome and six snorers. The all-night polysomnographic recordings included electromyograms (EMG) of the genioglossal, the masseter and the inferior head of the lateral pterygoid muscles, nasal airflow and thoracoabdominal respiratory effort. The apneas were defined and classified into three types (obstructive, central and mixed). EMG amplitudes of each muscle were measured before, during and after the obstructive and central apneas. In the apnea patients the three muscles showed significantly lower EMG amplitudes during the obstructive apnea than before the apnea, and then significantly higher amplitudes after the apnea. These findings indicate that the hypotonia of the muscles during sleep can result in obstructive apnea. There was no significant difference in the pattern of muscle activity during obstructive apnea between the apnea patients and the snorers. On the other hand, a decrease in the mean EMG amplitude during the central apnea was not observed. It is suggested that central apnea occurs independently of masticatory and tongue muscle activity.

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