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Characteristics of the genioglossus and musculus uvulae in sleep apnea hypopnea syndrome and in snorers.

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Genioglossus (GG) activity has been extensively studied by electromyographic recordings in the investigation of the pathophysiology of sleep apnea-hypopnea syndrome (SAHS). However, the effective force developed by this upper airway (UA) dilator muscle depends on its metabolic and histochemical characteristics. The aim of this study was to compare the metabolic and fiber type characteristics of two UA dilator muscles, musculus uvulae (MU) and GG, in 17 patients with SAHS and in 11 nonapneic snorers. MU and GG samples were obtained during uvulopalatopharyngoplasty. Anthropomorphic characteristics were similar in snorers and patients with SAHS, who differed only in the presence of sleep-related breathing abnormalities. MU glycolytic, glycogenolytic, and anaerobic enzyme activities were significantly greater in patients with SAHS than in snorers. These differences were not observed for GG. MU and GG enzyme activities differed only in snorers. The proportion of type I muscle fiber was greater in GG than in MU, but it was similar in patients with SAHS and snorers for each muscle. Type IIA and IIB muscle fibers were, respectively, in greater and smaller proportions in patients with SAHS than in snorers. We conclude that (1) the differences in metabolic characteristics between patients with SAHS and snorers are not observed in all UA muscles, and (2) similar histochemical differences are observed in GG and MU between these two groups, thus suggesting that these differences may be implicated in the pathophysiology of SAHS.

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