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Cervical computed tomography in patients with obstructive sleep apnea: influence of head elevation on the assessment of upper airway volume

Shailendra Singh Rana[1], Om Prakash Kharbanda[1]

We read with great interest the article by Souza et al.[1] describing cervical CT in patients with obstructive sleep apnea (OSA) and the influence of head elevation on the assessment of upper airway volume. We congratulate the authors for choosing such a meaningful topic and using cone beam CT. In their study,[1] CT scans were obtained with the head of the patient in two positions (neutral and at a 44° upward inclination). Polysomnography was used for diagnosing the patients with OSA. During polysomnography, the nasal pressure transducer channel or the thermistor channel (oral or nasal) are used for monitoring airflow from the nasal cavity. The nasal cavity is bounded anteriorly by the nostrils and posteriorly by the posterior border of the nasal septum (choanae).[2] The nasal airway comprises nearly two thirds of airway resistance during normal breathing,[3] and engorgement of nasal turbinate blood vessels, septum deviation, polyps, and other mucosal abnormalities due to chronic inflammation worsen nasal obstruction.[4]

The anatomical definition of upper airway includes both the pharynx and the nasal cavity.[5] The combination of nasal obstruction and that of the oropharynx leads to a two-fold increase in the risk of having OSA, when compared with patients with no nasal obstruction.[6] In the study by Souza et al.,[1] airway volume was measured from the hard palate to the base of the epiglottis using CT images, which means that the nasal volume was not considered. These methodological limitations of the study would lead to an erroneous representation in the title of the study and in the discussion of the results. The authors may like to dwell upon this inconsistency for the benefit of readers.

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1. Division of Orthodontics and Dentofacial Deformities, Centre for Dental Education and Research, All India Institute of Medical Sciences, New Delhi, India.