

Nasopharyngeal morphometry in adults with cleft lip/palate and obstructive sleep apnea: analysis by cone beam computed tomography and 3D reconstruction.

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Background: Obstructive sleep apnea (OSA) is characterized by intermittent obstruction of the upper airways. Nasopharyngeal geometry in OSA is still poorly

known. Individuals with cleft lip and/or palate (CL/P), due to an altered nasopharyngeal morphophysiology, constitute a group specially prone to OSA development.

Aims: To

evaluate nasopharyngeal airway (NPA) morphometry internal dimensions, such as

volumes, perimeters, cross sectional areas (CSA), depth and width, of the inferior and

superior segments of adults with cleft lip/palate (CL/P); verifying its correlation with

obstructive sleep apnea (OSA) severity, and comparing the findings to those with CL/P

without OSA (N-OSA) and with OSA without craniofacial anomalies (N-CL/P).

Methods: Three groups, not matched by age/sex, were constituted: G1) CL/P OSA

(n=6, 3♂, 38.70±10.20years); G2) CL/P N-OSA (n=11, 8♂,

24.80±3.00years); G3) NCL/P OSA (n=13, 4♂, 50.40±9.70years). Cone-beam computed tomography (CBCT)

images were used for 3D reconstruction and morphometric analysis. **Results:**

Volume

of NPA (8624/2744mm³) was larger in G1 than in G3 (p=0.03). Length

(1.79+0.51cm),

inferior (3.24+0.44cm) and superior (1.33+0.18cm) width, inferior depth

(2.77+0.41cm), inferior (4.86+1.18cm²) and superior (4.79+1.47cm²) areas, and

inferior perimeter (1.01+0.14cm) of G1 NPA did not differ from G2 or G3.

Whereas,

superior perimeter (1.33+0.18cm) of G1 NPA differed significantly from G3

(p=0.01).

Severity of OSA did not differ between G1 (median=8.90 apnea-hypopnea

index

events/h) and G3 (median=15.50 oxygen desaturation index events/h).

Morphological

NPA variables and OSA severity did not correlate. **Conclusion:** The NPA

volume of

CL/P OSA patients is increased when compared to the OSA without CLP group.

Nasopharyngeal dimensions in patients with CLP do not seem to constitute a

risk factor

for OSA in this special group of patients. Despite differences found among the groups

regarding NPA, no morphological characteristics was correlated to OSA severity.

Keywords: Cleft Palate. Nasopharynx. Sleep Apnea, obstructive. Cone-Beam Computed Tomography.