

Laterolateral teleradiography of the skull as a screening method for OSA / OSAS, in patients in orthodontic treatment

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Aim: Obstructive sleep apnea syndrome (OSAS) is the most common type of sleep apnea and it is caused by complete or partial obstruction of the upper airway. Adenotonsillar hypertrophy, obesity, cranio-facial anomalies and neuromuscular diseases are the main risk factors for the development of OSAS in the pediatric age. Specially several studies identify the relationship between respiratory disorders in sleep and obesity, and, in particular, between OSAS and obesity, designing a prevalence of OSAS among obese subjects between 14 and 78%.¹ The diagnosis of OSAS in the child is of great importance as it can lead to neurocognitive and behavioral complications, growth retardation, systemic arterial hypertension, pulmonary hypertension, cardiovascular disease and metabolism.

The WHO (World Health Organization) has established the new criteria for the classification of Obesity on the basis of BMI and the risk of comorbidities, identifying a moderate risk for underweight subjects, a very low risk for normal weights and an increased risk from severe to severe for overweight and obese individuals respectively.

According to that the aim of this study is to evaluate the correlation between obstructive sleep apnea syndrome and cephalometric variables in children considering age and BMI.

Materials and methods: Children aged 7–10 years and 11-14 years with no genetic syndrome, previous otorhinolaryngologic or orthodontic therapy treatments are being selected from our Departments of Paediatric Dentistry, University of Palermo, and from the Department of Orthodontics, University of Messina (Italy).

All patients so far recruited and visited for orthodontic problems were in mixed or early permanent dentition phase, with the first upper molars fully erupted and presented to the history of several symptoms of Osas, such as recurring episodes of shallow or paused breathing during sleep, waking up frequently to urinate, morning headaches, memory or learning problems and not be able to concentrate or feeling irritable.

Dental records and lateral cephalometric radiographs were obtained for all of the patients and than they have been subjected to paediatric, otolaryngology and polysomnography visits.

Subject with a positive diagnosis of Osas were studied and they were divided in group based on their BMI.



In all groups the inter-molar distance in dental records was measured, and the cephalometric traces have been calculated. As reported by the study by Galeotti et al. the cephalometric measurements analysed are S-PNS, ad1-PNS, and ad2-PNS for the nasopharynx; p-pp and pa for oropharynx; H-H' for the Hyoid bone; SNA for the maxilla; SNB; ANB and Go-Me for the mandible; S-Go, N-Me and P-A for facial Height; SN for cranial base; SN-MP and PP-MP for the typology, and angle ArGoMe for Growth prevision.

At the time that children are still in the way of recruitment the results may not yet be defined; however it is necessary to emphasize the importance of the study, because in the child respiratory disturbances in the sleep, and in particular the OSAS, are often underestimated, despite representing the third place between the threats of health after the smoke and the excess of weight.³

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