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FUNCTIONAL UROLOGY

Do urologists need an orthodontist in order to optimize the treatment of nocturnal enuresis?

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Nocturnal enuresis (NE) is a common disease that can be troubling for children and their families. The etiopathogenesis of NE is multifactorial and complex. Over the past few decades, extensive research on NE has been performed; however, many queries remain unclear regarding its exact pathophysiology [1]. The most probable pathomechanisms of NE should be considered as follows: 1) the lack of vasopressin release leading to nocturnal polyuria, 2) the reduction of nocturnal functional urinary bladder capacity, and 3) the impairment of the arousal response to urinary bladder fullness during sleep. The obstruction of the upper airway tracts as a factor in NE development has been discussed previously and, recently, several papers mentioned NE as a common symptom among patients with sleep apnea and other breathing abnormalities [2].

Since there are a few studies investigating the effects of rapid maxillary expansion (ME) on NE, the authors of the paper, entitled “Effects of maxillary expansion and placebo effect of appliances on nocturnal enuresis – preliminary results”, evaluated the effect of slow ME and placebo effect of the removable appliances on NE. The results presented seem to be relevant, since they discuss the association of ME with a positive effect on NE treatment [3].

ME is a routine procedure in orthodontics, with its main aim to expand the maxilla in children with transverse maxillary constriction and a deep palatal

vault. ME has no negative side effects and complications. Moreover, ME has a positive effect on breathing pattern, conductive hearing loss and NE in some growing children [4]. According to data from the literature, ME has a positive effect on reducing and/or ceasing NE in about 70% of children [5]. Different potential mechanisms describing the healing effect of ME on NE were described. Firstly, ME results in improvement in breathing and blood oxygen saturation due to an increase in nasal and nasopharyngeal airway dimensions. Secondly, ME improves nasal breathing and reduces apnoic episodes leading to better lymphatic circulation and increases the antidiuretic function of the pituitary gland. Thirdly, ME improves breathing capacity and provides better oxygen saturation, which might have a beneficial effect on sleep and it may cause the children to wake up more easily because of bladder fullness. Fourthly, more sufficient blood oxygenation may have a positive effect on neuromuscular coordination and control of bladder sphincter during sleep. Moreover, ME may have a placebo effect [5–8].

When all above-mentioned potential mechanisms of nocturnal enuresis development are taken into consideration, it can be seen that orthodontists should be involved in the treatment process of nocturnal enuresis resistant to standard urological treatment options (e.g. supportive, alarm and medication treatment).

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