Precocious Puberty and Dental Development

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Puberty marks a significant biological transition, encompassing physical, hormonal, and psychological changes that signify the shift from childhood to adulthood. This process culminates in the development of secondary sexual characteristics and reproductive capability. Precocious puberty occurs when this transition begins earlier than usual, typically defined as onset occurring at 2-2.5 standard deviations ahead of the mean. In girls, precocious puberty may present with breast development before age 8, while in boys, it may manifest as testicular enlargement before age 9. This phenomenon can be categorized into central precocious puberty (CPP), resulting from premature reactivation of hypothalamic gonadotropin-releasing hormone (GnRH) secretion, and peripheral precocious puberty, characterized by excessive sex hormone secretion from tumoral or exogenous sources.
CPP accounts for 80% of precocious puberty cases and can be triggered by various factors such as intracranial pathology, exposure to high levels of sex steroids, or environmental risks, although many cases remain idiopathic. Treatment typically involves the use of a gonadotropin-releasing hormone analogue, aimed at increasing adult height and delaying the development of secondary sexual characteristics to align more closely with peers.
Meanwhile, between the ages of six and seven, as puberty has yet to commence, mixed dentition begins, where deciduous teeth are gradually replaced by permanent ones. The timing of precocious puberty diagnosis is crucial in dental development studies, as it marks a significant milestone. Numerous studies have explored the relationship between precocious puberty and dental development, including tooth eruption, growth, and jaw development. However, this relationship remains contentious due to variations in these parameters even among individuals without precocious puberty. Nonetheless, several studies have examined the correlation between dental development and precocious puberty during this period.

Profile

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