Original Article

The effect of nutritional status of an individual over the eruption of permanent teeth among school children in Chennai

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Abstract

Aim: To correlate the nutritional status of an individual with the timing of the eruption of permanent teeth. **Materials and Methods:** 963 students from a Government school and a Private school between the age group of 4 and 14 years were selected based on the availability of their birth certificates and consent from parents. Their oral cavity was examined for the eruption of permanent teeth. **Observations and Results:** It has been observed that there is no correlation of timing of the eruption of permanent teeth with the nutritional status of an individual.
Keywords: Nutritional status, socioeconomic backgrounds, eruption of permanent teeth.

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INTRODUCTION

Estimation of the age in living individuals both in civil and criminal cases is one of the most important task for the forensic practitioner especially in developing countries where birth records are not well maintained[1]. The age of the living individual can be estimated from eruption of teeth, ossification of bones, secondary sexual characteristics and physical features[2]. Among these, teeth are the best parameters to determine the age of an individual, because in most living individuals the age of eruption of the tooth is pretty constant and remain in the narrow range[3].Eruption of different teeth has a definite pattern and it occurs at different ages[4].The three types of human dentition (deciduous, mixed and permanent) follows a periodic sequence which can be utilized for more or less accurate estimation of the age [5]. Dental age assessment can be done by both radiological examination and clinical examination of the eruption of the tooth. Of these, clinical visualization of teeth eruption is more suitable since it does not require any special equipment, expertise and is more economical[6]. As a rule, teeth eruption is influenced by several factors which include nutritional, hormonal, hereditary or genetic factors. Socioeconomic and nutritional factors, caries conditions and the secular trend have also been found to have some effect on the eruption of permanent teeth. Hence, nutritional deficiencies can delay the process of teeth eruption. Malnutrition and poor nutrition in early childhood affects tooth eruption and results in the delayed emergence of the teeth[7] Regarding socioeconomic factors, in a number of studies it has been found that children from higher socioeconomic backgrounds show earlier tooth emergence than children from lower socioeconomic classes, the reason behind that is children from higher socioeconomic class get better health care, nutrition and these factors influence earlier development of dentition[8]. Henceforth, while fixing tooth eruption as an age criteria, the nutritional status of the individual should be considered. In this study, an attempt was made to find out the influence of nutritional status of an

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individual through economic background of the student over the timing of the eruption of permanent teeth.

MATERIALS AND METHODS

In this study 963 children of age group 4 years to 14 years were selected based on the availability of the birth certificate and consent from parents. Of these, 490 students from a government school and 473 from a private school to represent Low and High socioeconomic status. Their teeth were examined visually in good light using probe, spatula and mouth mirror for eruption. A tooth was considered erupted, if it has pierced through gums and visible in oral cavity.

RESULTS

In this study, First molar erupted in 285 students. Of these,87(30.52%) from High socio economic status and 198 (69.47)from Low socio economic status. Central Incisor erupted in 300 students. Of these, 94 (31.33%) belongs to High socio economic status 206 (68.66%) belongs to Low socio economic status. Lateral Incisor erupted in 214 students. Of these, 67 (31.30%) are members of High socio economic status group 147 (68.69%) are members of Low socio economic status group. First Premolar erupted in 231 students. Of these,82 (35.34%) represents High socio economic status group 150 (64.65%) represents Low socio economic status group. Second Premolar erupted in 214 students. Of these,73 (34.11%) students are associated with High socio economic status group 141 (65.88%) students are associated with Low socio economic status group. Canine erupted in 217 students. Of these, 70 (32.25%) students are from High socio economic status group 147 (67.74%) students are from Low socio economic status group.

Table 1: Eruption status of permanent teeth

Name of the permanent tooth	Age group (in years)	Total erupted	High socio economic status		Low socio economic status	
			No. of cases	Percentage%	No.of cases	Percentage%
First Molar	4-8	285	87	30.52	198	69.47
Central Incisor	4-9	300	94	31.33	206	68.66
Lateral Incisor	4-10	214	67	31.30	147	68.69
First Premolar	7-13	231	82	35.34	150	64.65
Second Premolar	8.5-13.5	214	73	34.11	141	65.88
Canine	9-14	217	70	32.25	147	67.74

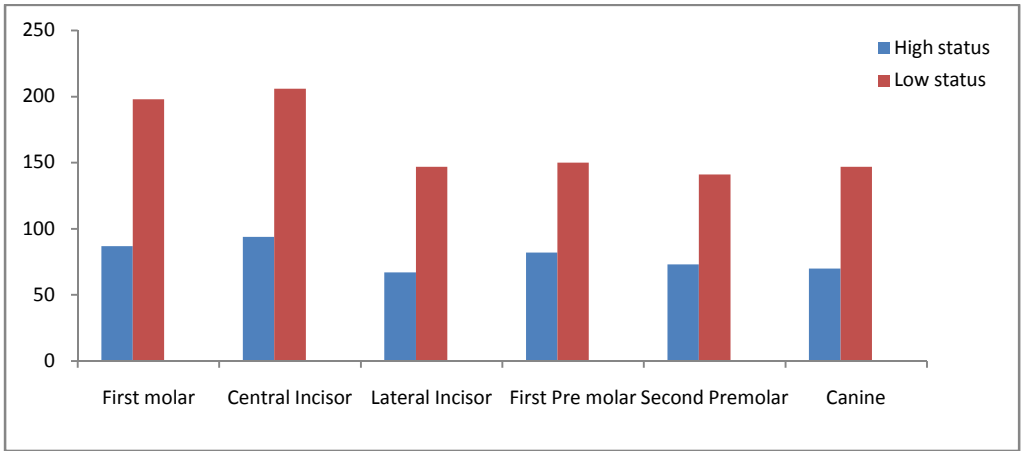

Figure 1: Relationship between Eruption of permanent teeth and socio economic status

DISCUSSION

In majority of studies, it has been shown that the nutritional status of the individual is directly proportional to the timing of the eruption of permanent tooth. This emphasizes the fact that the nutritional status of an individual cannot be excluded while estimating the age of living individual by using eruption of permanent teeth. However, results of this study revealed that there is no correlation of timing of the eruption of permanent teeth with the nutritional status of an individual which correlate the earlier studies by B. S. Manjunatha *et al*[9], Sushil B Naik *et al*[10]

CONCLUSION

From this study, it has been concluded that there is no correlation of timing of the eruption of permanent teeth with the nutritional status of an individual. Hence, economic back ground of living individual is not necessary while estimating age by dentition.

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