

Dental Diseases in Premature Infants: A Pilot Study on Delayed Tooth Eruption During the First 12 Months of Life



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Abstract

Introduction Preterm birth is one of the leading causes of neonatal morbidity and mortality globally. Premature infants have a higher risk of developing a range of complications, including dental conditions. This pilot study aims to examine delayed tooth eruption in premature infants in the first twelve months of life, in order to identify any correlations between prematurity and early dental problems.

Materials and Methods A longitudinal study was conducted on premature infants of the Fondazione IRCCS Cà Granda Ospedale Maggiore Policlinico, Regina Elena Clinic, Milan, Italy comparing 2 groups of patients. The group of premature infants (group test) was evaluated between 6 and 9 months (T1) and at 12 months (T2), compared with a second group (control group) of healthy infants, born at term, between 6 and 12 months. Data were collected through clinical examinations, considering variables such as gestational age and birth weight. A descriptive statistical analysis was conducted by calculating the mean, mode, median, and standard deviation for variables such as corrected age, chronological age, and the number of teeth in both groups (premature and full-term infants). The Mann-Whitney U test was also used to verify significant differences in the median between the test and control groups.

Results and Discussion The preliminary results show a delay in tooth eruption in premature infants compared to their full-term peers. This delay is more pronounced when considering the chronological age of the children, i.e. the age based on the actual date of birth. However, the delay appears milder when the correct age is used, i.e. the age calculated from the expected date of delivery. A correlation was also observed between the degree of prematurity and the extent of the delay in dental eruption, with more marked delay in extremely premature infants. The observed delay can be attributed to various factors, including metabolic and nutritional disorders. The study emphasises the importance of including a dental evaluation in the follow-up of premature infants from the first months of life.

KEYWORDS Premature birth, Preterm infants, tooth eruption delay, early diagnosis, oral health.

Introduction

Preterm birth, defined as birth before 37 weeks of gestation, is one of the most frequent causes of neonatal morbidity and mortality globally. According to the World Health Organization (WHO), approximately 15 million newborns are born prematurely each year, with incidence rates increasing in many countries, both developed and developing [Hendson et al., 2022]. According to a UNICEF-WHO-PMNCH report, an estimated 13.4 million infants were born prematurely in 2020 and nearly 1 million died due to

complications due to preterm birth [Blencowe et al., 2013]. In addition to a significant contribution to mortality, the effect of preterm birth, among some survivors, can continue throughout the life span impairing neurodevelopmental functioning, increasing the risk of cerebral palsy, learning disabilities, visual disturbances, cardiovascular disease, infectious, renal, pulmonary, gastrointestinal and metabolic disorders, affecting long-term physical health with a higher risk of disease [Rogers and Velten., 2011]. Preterm birth, in fact, in particular extremely premature birth, occurs in critical and delicate phases of organ development. Organs such as the lungs, kidneys, brain, and heart, reach full maturity during the last trimester of pregnancy, when early intrauterine and postnatal environments can permanently alter organ structure and metabolism [Nuyt et al., 2017]. Current WHO guidelines for the management of premature babies emphasise the importance of targeted interventions both during pregnancy and after birth to improve survival rates and reduce long-term complications. These guidelines are therefore essential to reduce mortality and complications associated with preterm birth [Glass et al., 2015; Muglia and Katz., 2010; Mitrogiannis et al., 2023]. Premature infants by gestational age, i.e. born before 37 weeks of gestation, are referred to as premature; premature infants by birth weight (less than 2500 g) are more accurately described as low birth weight (LBW), while infants born weighing less than 1500 g have a very low birth weight (VLBW). Newborns at birth can only be classified by gestational age, by birth weight only, or by birth weight in relation to gestational age [Hendson et al., 2022]. Preterm infants can be classified also according to their gestational age and birth weight. As for gestational age, infants born before 28 weeks are considered extremely preterm, while those born between 28 weeks and 31 weeks and 6 days are defined as very preterm. Infants born between 32 weeks and 33 weeks and 6 days fall into the category of moderately preterm, while those born between 34 weeks and 36 weeks and 6 days are considered late preterm. When considering birth weight, however, newborns weighing less than 1000 grams are classified as newborns with an extremely low birth weight. Those weighing between 1000 and 1499 grams are then defined as newborns with a very low birth weight, while a weight between 1500 and 2500 grams indicates a low birth weight [Hendson et al., 2022]. Finally, Premature infants are generally identified by chronological age and correct age. Among the many complications associated with prematurity, dental pathologies in premature infants represent an area of growing interest and concern [Cianetti et al., 2017; Cianetti et al., 2017]. Scientific literature has shown that children

born prematurely are at greater risk of developing enamel defects, abnormalities in the tooth eruption sequence, malocclusions and a greater predisposition to dental caries. These problems can result from a combination of systemic and local factors, including metabolic and nutritional disorders, and mechanical trauma during the neonatal period [Maspero et al., 2018; Cenzato et al., 2024; Cenzato et al. 2023; Paglia et al., 2017]. Facial bones and dentition, like other tissues and organs, can be affected by premature birth. Several studies have shown that premature birth can cause enamel defects, which manifest as quantitative enamel loss (hypoplasia), qualitative change in enamel translucency (MIH - Molar and incisor hypomineralisation), or a combination of both. These effects are most common in deciduous teeth, which are mineralising around the time of premature birth, but can also affect permanent teeth [Ebrahim and Paulsson, 2017; Zaidi et al., 2015; Bensi et al., 2020; Savić Pavićin et al., 2016]. Premature birth and the consequent adaptation to extrauterine life then influence dental occlusal development by acting on the onset of asymmetries and malocclusions [Farronato et al., 2012; Zaidi et al., 2015]. Infants born prematurely also have a higher risk of developing caries. This increased predisposition can be attributed both to a deficit of mineralisation of the hard tissues of the teeth, accompanied by a reduced immune response, and to poor eating habits [Cui et al., 2023; Koberova et al., 2021]. Finally, various factors such as reduced gestational age, degree of prematurity, severity of neonatal disease, low birth weight and nutritional deficiencies, can contribute to the development of an altered tooth eruption [Zaidi et al., 2015; Devraj et al., 2023]. In fact, there are numerous studies that correlate premature age with eruptive delays, especially for extremely premature infants. The central hypothesis is that impaired calcium homeostasis, due to systemic diseases that begin at conception and continue into the postnatal period, negatively affects dental development. In addition, medical interventions such as endotracheal intubation and mechanical ventilation can contribute to the manifestation of dental pathologies. The lack of considering the dental evaluation in the follow-up of premature infants makes necessary the relevance of a dental consultation to early intercept dental pathologies and to include this area within the infant follow-up. The importance of subjecting premature infants to dental check-ups from the first months of life is in fact crucial to implement effective prevention and mitigate the future risks to which they may be exposed. We here describe a multidisciplinary approach between the Department of dentistry and the Department of neonatology of the Fondazione IRCCS Cà Granda, Ospedale Maggiore Policlinico of the University of Milan where premature infants from six months of age have been visited to intercept any dental disorders in advance. Specifically, this research was designed as a prospective observational pilot study to evaluate tooth eruption delays in premature infants. The aim is to compare tooth eruption in preterm infants with those born at term, using a control group. Eruptive delays can in fact be early indicators of other possible dental complications [Neto et al., 2014; Cenzato et al., 2024]. In detail, this study examines a sample of children aged between six and nine months, subjected to a re-evaluation at twelve months, compared with a control group of full-term infants, evaluated between six and twelve months. However, for a complete diagnosis and effective prevention, it is essential that dental check-ups continue in the long term, in order to detect and prevent further dental pathologies that may emerge later.

Materials and methods

Description of the study

A longitudinal comparative study has been conducted on

premature infants of the Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Regina Elena Clinic, Milan, Italy during a one-year period between June 2023 and June 2024 following strobe checklist. Two groups were considered: Group 1, infants born prematurely, i.e. before 37 weeks of gestation; Group 2, infants born at term, i.e. between 37 and 42 weeks of gestation. Data were therefore collected over time considering dental eruption by comparing a test group of premature children and a control group of children born at term.

Description of the population

The sample size estimate was made by considering the average age of first tooth eruption in children born at term and preterm. In fact, a sample of 44 children (25 males) born prematurely, between 6 and 9 months of correct age, was considered, re-evaluated after a second stage at 12 months of correct age. Indeed, in the first 24 months of age, visits for the assessment of growth and progress in neurological development are scheduled according to the correct age of the child, i.e. the one calculated from the expected date of delivery (40 weeks of gestation). Only then will reference be made to the chronological age, i.e. the age calculated from the actual date of birth. The control group included 60 full-term infants, 34 males, evaluated between 6 and 12 months, selected through the SICUPP group (Italian Society of Paediatric Primary Care) and examined at the Conscious Sedation Department of the Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy. Exclusion criteria included children with genetic diseases, systemic infectious diseases, endocrine disorders, and known syndromes. The asymmetric distribution of participants between groups was designed to optimise the efficiency of the study while minimising costs. In addition, a larger sample in the control group was needed to reduce the influence of potential confounding variables and ensure a solid comparative basis.

Description of the variables

During each visit, several variables related to the group of preterm and full-term infants were assessed, including eruption timing, as well as the number of erupted teeth. Dental eruption timing is therefore considered a dependent variable based on the birth term. The moment when preterm infants first showed signs of dental eruption was analysed and compared with the eruption timing of full-term infants, who represent the expected physiological period for dental eruption. The primary objective of the study is therefore to calculate the number of teeth present at the time of the visit at 6, 9, and 12 months in premature infants, comparing it with a control group of full-term infants (Fig. 1). Finally, secondary objectives were considered, such as any eruptive difficulties, additional relevant clinical signs, and the assessment of extremely premature infants with a birth weight of less than 1000 g and born at less than 28 weeks of gestation. The intraoral examination was done using a disposable oral mirror and a tongue depressor under natural light. For the purposes of the study, a tooth was considered erupted if any part of the tooth penetrated the gum mucosa, which can be seen or felt.

Statistical analysis

A descriptive statistical analysis was conducted on the data collected, with the aim of synthesising and understanding the main characteristics of the sample studied. Given the small sample size, statistical parameters calculated were, respectively: the median, representing the central value in the distribution of the data, dividing the sample into two equal halves providing a robust measure of the central tendency, less influenced by

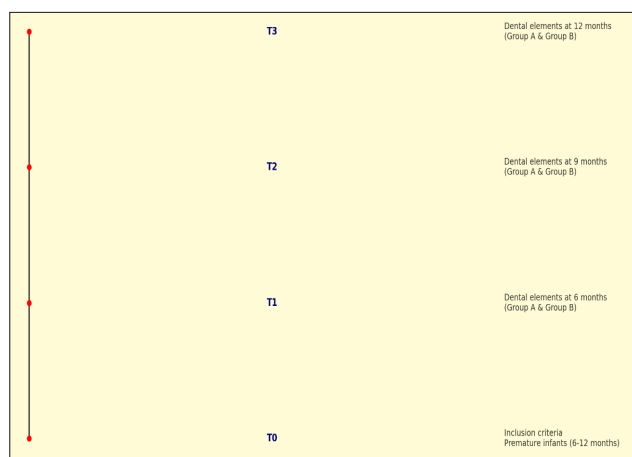


FIG. 1 Temporal representation of the key points of the study.

extreme values. Additionally, the minimum, maximum, and first and third quartiles were reported for each group at each time point. These parameters allow to obtain a clear and detailed view of the distribution of erupted teeth in premature and full-term babies, thus facilitating the comparison between the two groups. The results are visually represented through graphs for easier interpretation. To further assess the differences between groups at each time point, a non-parametric statistical test, specifically the Mann-Whitney U test, was employed to compare medians. Finally, to evaluate the presence of correlation between number of teeth and weight in the test group, a scatter plot was used.

Results

For the study, 44 children born prematurely were selected; of these, 19 were females, while 25 males. Six premature infants from the group have not been evaluated in the second stage. The reasons for non-participation are attributed to logistical and family-related factors, unrelated to any clinical condition. Each child was assessed between 6 and 9 months of corrected age, considering a corrected mean age of 7.35 months and 9.70 months of age. At the re-evaluation all children were evaluated at 12 months of corrected age, with an average of 14.32 months of chronological age. The control group of full-term infants included healthy infants between 6 and 12 months, with a mean age of $8.60 \text{ months} \pm 2.37 \text{ (SD)}$. Data was collected and analysed to identify differences between the two groups in terms of correct age and dental eruption time, as well as the impact of extreme premature birth. Corrected 6-month-old infants had a mean age of $8.39 \text{ months} \pm 0.50 \text{ (SD)}$ with a mean tooth count of $0.06 \pm 0.24 \text{ (SD)}$, 0-tooth mode, and median 0, compared to the control group of full-term infants who had a mean tooth count of $1.20 \pm 0.77 \text{ (SD)}$ with a 2-tooth mode, and median 1. Children with a corrected age of 7 months had a mean age of $9.14 \text{ months} \pm 0.69 \text{ (SD)}$. In this group, the mean number of teeth was $1.86 \pm 2.04 \text{ (SD)}$, with a mode of 2 teeth and a median of 2. In comparison, the control group of full-term infants had an average tooth count of $2.13 \pm 1.64 \text{ (SD)}$, with a mode of 2 teeth and a median of 2. Children with a corrected age of 8 months, on the other hand, had an average age of $10 \text{ months} \pm 0.0 \text{ (SD)}$. In this group, the mean number of teeth was $3.33 \pm 2.31 \text{ (SD)}$, with a mode of 2 teeth and a median of 2. By comparison, the control group of full-term infants had a mean tooth count of $2.64 \pm 1.57 \text{ (SD)}$, with a mode of 2 teeth and a median of 2. In this case, the number of teeth appears higher in preterm infants due to the limited size of the analysed sample. Corrected 9-month-old

infants had a mean age of $11.47 \text{ months} \pm 0.64 \text{ (SD)}$ with a mean tooth count of $4.40 \pm 5.00 \text{ (SD)}$, 2-tooth mode, and median 2, compared to the control group of full-term infants who had a mean tooth count of $5.00 \pm 2.00 \text{ (SD)}$ with a 4-tooth mode, and median 4. Finally, children with a corrected age of 12 months had an average age of $14.32 \text{ months} \pm 0.60 \text{ (SD)}$. In this group, the mean number of teeth was $5.18 \pm 4.22 \text{ (SD)}$, with a mode of 8 teeth and a median of 4. In comparison, the control group of full-term infants had a mean tooth count of $5.76 \pm 2.28 \text{ (SD)}$, with a mode of 8 teeth and a median of 6. In addition, it was seen that infants weighing less than 1000 g and born before 28 weeks of gestation had an average number of teeth of $1.6 \pm 1.49 \text{ (SD)}$, compared to other premature infants in the same age group who instead had an average number of teeth of $5.80 \pm 5.28 \text{ (SD)}$. No eruptive difficulties or additional relevant clinical signs were observed, either. Results relative to descriptive statistics for test and control group are shown in Table 1 and Table 2 and visualised on the graph in Figure 2. Results relative to Mann Whitney U test between group test and control are shown in Table 3. The comparison is significant ($p < 0.05$) for the comparisons at 9 months and 12 months, meaning there is a significant difference between the medians of the control and test groups at these time points. Table 4 shows the frequency distribution in percentage of the number of teeth in the test and control groups at the different time points, and the graphs reported in Figures 2, 3 and 4 represent a visual evaluation of the same percentages. The scatterplot revealed no correlation between number of teeth and body weight for the test group, as shown in Figure 5.

Discussion

The eruption of deciduous teeth and their exfoliation, followed by the eruption of permanent dentition, is an orderly, age-specific sequential event that is considered an important milestone in child development. The process of tooth eruption is influenced by genetic and environmental factors acting during odontogenesis. Environmental factors include prenatal and maternal conditions, disease, nutritional deficiencies, socioeconomic status, and climate [Zaidi et al., 2015]. Prenatal nutritional deficiencies and neonatal factors play an important role in the growth, development, and eruption of deciduous teeth. Neonatal factors such as gestational age, degree of prematurity, severity of neonatal disease and birth weight are generally related to the eruption of deciduous teeth [Devraj et al., 2023]. Infants born prematurely represent, therefore, a group of particular interest regarding the timing of the dental eruption. Generally the first teeth which erupt are the lower central incisors, followed by the upper central incisors, the lower lateral incisors and the upper lateral incisors. In fact, the eruption of the incisor group usually occurs between 6 and 12 months of age [Hendson et al., 2022]. In particular, the typical sequence of eruptions of deciduous teeth begins with the lower central incisor, which erupts between 6 and 8 months, and the upper central incisor, which follows between 8 and 10 months. The inferior lateral incisor emerges from 10 months, while the upper lateral incisor appears between 10 and 12 months. Subsequently, between 13 and 19 months, the first four molars appear, while between 16 and 22 months, the four canines erupt. Finally, between 24 and 30 months, the four second molars appear. Although there is a typical sequence, the eruption of primary teeth can vary from child to child. Usually, teeth tend to erupt symmetrically, meaning that one tooth on the right and one on the left of the dental arch emerge at about the same time [Hendson et al., 2022]. This study focused on the analysis of tooth eruption delays in premature infants compared to a control group

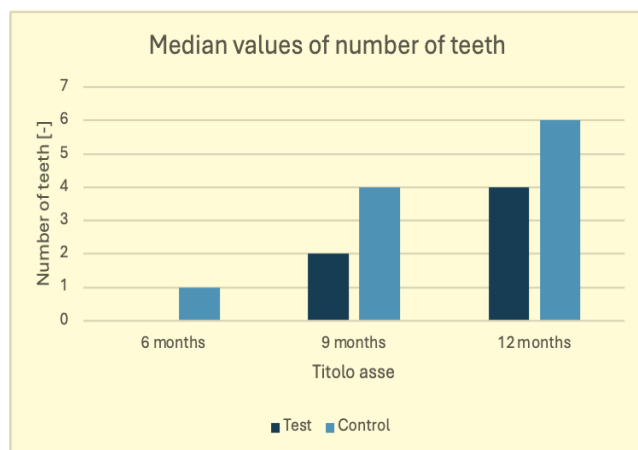


FIG. 2 Visual comparison of the median values of number of teeth between Test and Control groups.

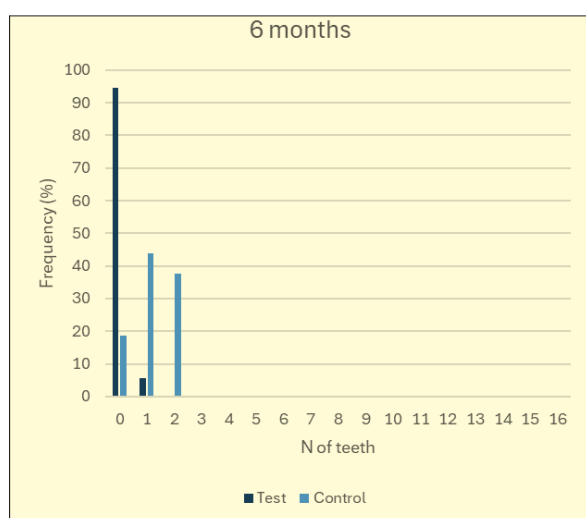


FIG. 3 Frequency distribution in percentage of the number of teeth in the test and control groups at 6 months.

consisting of healthy infants born at term, in a period between 6 and 12 months of age. The data collected and presented in the tables show a delay in eruption in premature infants, particularly evident when considering the chronological age compared to the correct age. It is evident that, compared to the correct age, premature infants had a slight delay in the eruption, which is much more marked if the chronological age is compared. The data also showed also that infants with extremely low birth weight (< 1000 g) and born at less than 28 weeks gestation had greater eruptive delays than those born after 28 weeks and with a birth weight greater than 1000 g. In particular, the average number of teeth was 1.6 ± 1.49 (SD) compared to other premature infants in the same age group [average number of teeth 5.80 ± 5.28 (SD)]. There are several hypotheses that can explain this delay. First, premature infants often face neonatal complications that can affect growth and development, such as respiratory problems, infections, and nutritional difficulties. These factors can have a direct or indirect impact on dental development [Cenzato et al., 2024]. In addition, premature infants tend to have a lower birth weight and a lower reserve of nutrients, including those essential for tooth mineralisation, such as calcium and phosphorus [Zaidi et al., 2015]. The correct age, i.e. the chronological age minus the prematurity period, is an important factor to consider. If the correct age is used rather than

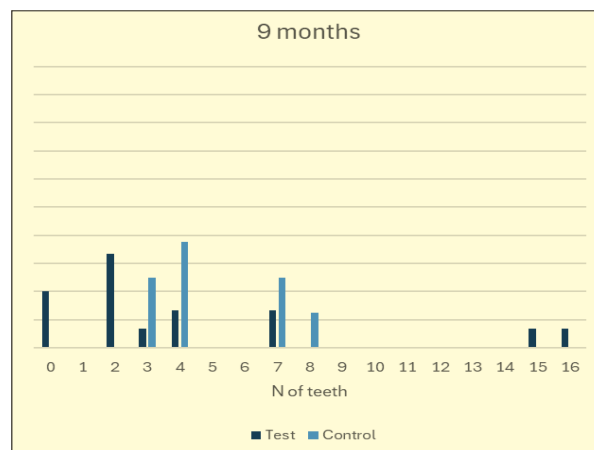


FIG. 4 Frequency distribution in percentage of the number of teeth in the test and control groups at 9 months.

chronological age, the delay in tooth eruption is reduced, suggesting that dental development follows a path more related to overall gestational age rather than chronological age alone. The results of this study are consistent with what has been reported previously by other Authors. For example, a study conducted by [Devraj et al., 2023] found that the central mandibular incisor showed a statistically significant difference in the average age of eruption between full-term babies compared to preterm babies [Farronato et al., 2009; Mysore et al., 2022]. Viscardi et al. [1994] also examined the relationship between delayed eruption of the first tooth and neonatal factors in premature babies. The results indicated a delay in the eruption of the first tooth even after chronological age correction. According to a study conducted in India in 2022, the average age of eruption of deciduous teeth in preterm babies was significantly delayed compared to full-term infants [Mysore et al., 2022]. When premature babies were corrected for prematurity, there was still a delay in the eruption of all teeth, but only the maxillary and mandibular incisors and second molars had a statistically significant delay [Mysore et al., 2022]. According to a study conducted in China in 2019, the eruption of the first deciduous tooth in preterm infants occurred significantly later than in full-term infants, with an average of 8.4 months versus 7.3 months. In addition, the number of teeth in premature babies with low body weight was significantly lower than in normal-weight infants between 12 and 18 months and between 24 and 30 months [Zhe Wang et al., 2019]. In another study, infants with extreme birth weight and birth length had a delay in eruption of the maxillary and mandibular central incisors and maxillary lateral incisors in both the term and preterm groups. However, the effect was meaningful only among premature infants. Similar results were observed by Lam et al., [Devraj et al., 2023; Abate et al., 2020]. Seow et al. [1988] then compared the eruption time in children with low and normal birth weight concluding that eruption of the first tooth occurred significantly earlier in the normal birth weight group. The results of the present study support the fact that delay in emergence in low-birth-weight infants could be related to reduced gestation time [Devraj et al., 2023]. A 2014 study also found that the average age of tooth eruption in full-term infants was 7.97 ± 2.62 (SD) months, while in premature infants it was 9.32 ± 1.48 (SD) months. For infants with low birth weight (<1.5 kg), the mean age of eruption was 9.81 ± 1.47 (SD) months. In comparison, in infants with a birth weight of ≥ 1.5 kg, the mean age of eruption was 8.03 ± 2.63 (SD) months [Khalifa et al., 2014]. Considering the chronological

Corrected age [months]	min	Q1	Median	Q3	max
6	0	0	0	0	1
9	0	2	2	7	16
12	0	2	4	8	16

TABLE 1 Descriptive statistics relative to number of teeth for premature infant test group. Min: minimum value, Q1: Lower quartile, Q3: Upper quartile, max: maximum value.

Age [months]	min	Q1	Median	Q3	max
6	0	1	1	2	2
9	3	3	4	7	8
12	1	4	6	8	8

TABLE 2 Descriptive statistics relative to number of teeth for control group of full-term infants. Min: minimum value, Q1: Lower quartile, Q3: Upper quartile, max: maximum value.

test-control comparison			
	6 months	9 months	12 months
p-value	2,00E-05	0,124	0,345

TABLE 3 Results relative to Mann Whitney U test between group test and control for each time instant: Significance at 6 months with $p > 0.05$.

age in preterm infants, the study showed a delay in the time to eruption of the first deciduous tooth in preterm infants compared to term infants with a statistically significant difference. However, when the correct age is considered, no statistically significant difference was found. The results were similar to those of previous studies presented by [Ramos et al., 2006] in 2006 that compared the onset of first deciduous tooth eruption in premature infants with that of full-term infants. In a study conducted by [Sajjadian et al., 2010] in 2010, a negative linear correlation between birth weight and the time of first eruption of deciduous teeth was demonstrated, suggesting that deciduous teeth erupt earlier in higher birth weight infants. This result is similar to that of [Fadavi et al., 1999] in 1999 and [Lawoyin et al., 1996] in 1996, who found that birth weight and infant age were inversely related at the time of the first dental eruption. It has also been observed, by several studies, that when prematurity is accompanied by a very low birth weight, the delay in tooth eruption can be even more pronounced. In addition, conditions that impair adequate nutrition and reduce calcium absorption, such as limited intrauterine growth, being small for gestational age, exclusively parenteral nutrition, and metabolic bone disease, can further accentuate the delay in eruption of deciduous teeth [Neto et al.,

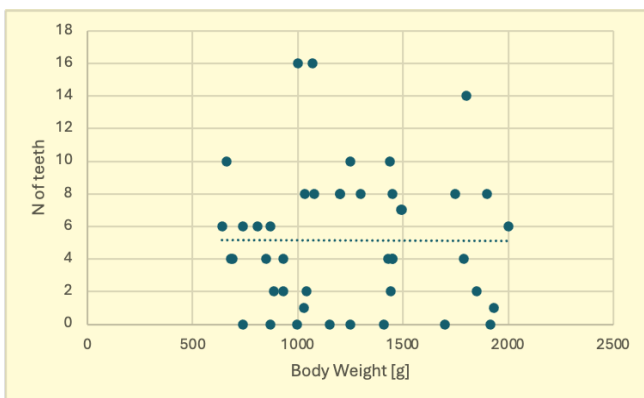


FIG. 5 Correlation between number of teeth and body weight for the test group.

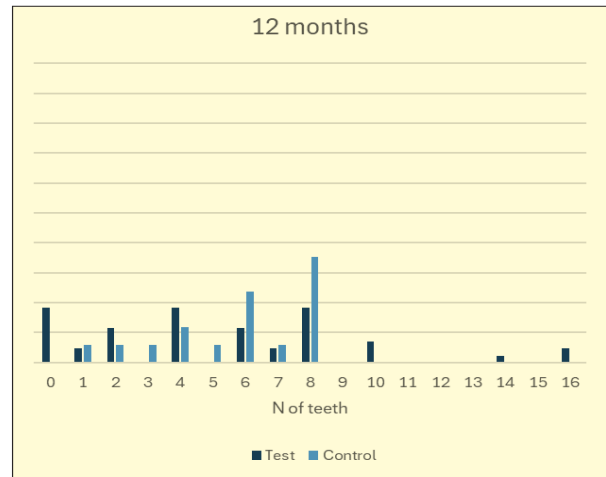


FIG. 6 Frequency distribution in percentage of the number of teeth in the test and control groups at 12 months.

2014]. In addition, previous studies have shown that the delay can persist in subsequent years, with a possible reduction in the overall number of erupted teeth within the first three years of life. These findings underscore the importance of continuous and careful monitoring of dental development in premature babies, with a focus on infants who have additional risk factors such as low birth weight and very early birth. The data obtained may have important clinical implications. Paediatricians and paediatric dentists should, in fact, be aware of the potential delay in tooth eruption in premature babies and monitor their dental development closely. In addition, parents of premature infants should be reassured about any delays, indicating that such delays are common and not necessarily indicative of more serious problems. Regular surveillance and proper oral hygiene remain essential to prevent dental complications regardless of the time of tooth eruption.

Frequency distribution(%)						
N of teeth	premature			control		
	6 months	9 months	12 months	6 months	9 months	12 months
0	94	20	18	19	0	0
1	6	0	5	44	0	6
2	0	33	11	38	0	6
3	0	7	0	0	25	6
4	0	13	18	0	38	12
5	0	0	0	0	0	6
6	0	0	11	0	0	24
7	0	13	5	0	25	6
8	0	0	18	0	13	35
9	0	0	0	0	0	0
10	0	0	7	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	2	0	0	0
15	0	7	0	0	0	0
16	0	7	5	0	0	0

TABLE 4. Percentage frequency distributions of number of teeth for Test vs control groups.

Study limitations

Despite the results obtained in our study, the sample may not be representative of all populations of premature infants, as there may be geographical and socioeconomic variables that influence the results. In addition, other possible influences such as genetics and specific neonatal medical conditions that could modulate tooth eruption timing were not considered in the study. It is currently not possible to determine functional impacts related to delayed tooth eruption in preterm infants due to the limited data available and the time constraints of the study. We believe it will be possible to establish a correlation by extending the study duration and increasing the sample size.

Conclusion

The study confirms that premature infants have a delayed tooth eruption compared to those born at term. This delay is influenced by multiple factors related to prematurity and requires careful clinical management. It is essential that child health professionals take these delays into account in their monitoring and care programs, providing adequate support to parents. The inclusion of dental consultation in the follow-up of premature infants would not only monitor dental development of the oral cavity but it permits also the possibility to an early promptly treatment in case of abnormalities or disorders. This preventative approach is crucial for ensuring a better quality of life for premature infants, reducing the risk of dental complications that could affect their overall development. Further research is needed to fully understand the underlying mechanisms and to develop specific clinical guidelines for the management of dental problems in premature infants. It is in fact essential to continue the study to understand eruptive delays and other dental complications that can affect children born prematurely.

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Institutional Review Board Statement and ethical approval

The study was conducted in accordance with the Declaration of Helsinki, and authorised by the Ospedale Maggiore Policlinico, Current Research, Operative Unit 420/425, Progressive number project 3.

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Conflicts of Interest

The authors declare no conflict of interest.

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