

Evaluation of Serum Vitamin D Level in Babies Followed with the Diagnosis of Laryngomalacia

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Abstract

Background: The connection between vitamin D and laryngomalacia is not entirely understood. We wanted to find out if there was any connection between laryngomalacia and vitamin D in our study. Materials and procedures In our study, we enrolled 32 patients under the age of one with a diagnosis of laryngomalacia without any other condition. A flexible endoscope was used for an amnestic, physical, and endoscopic evaluation. Laboratory tests were performed on the two groups' serum calcium, parathormone (PTH), and vitamin D levels.

Results: Infants in the experimental group had significantly lower serum vitamin D levels than newborns in the control group ($p=0.002$). Serum calcium and parathormone levels did not change significantly (calcium $p=0.089$, PTH $p=0.689$).

Conclusion: In our research, newborns' vitamin D levels were infants with laryngomalacia were observed to have greater rates than the control group. Serum calcium and parathormone levels, however, were the same. We propose that the incompletely understood aetiology of laryngomalacia may be caused by vitamin D deficiency. Infants with laryngomalacia were observed to have greater rates than the control group. Serum calcium and parathormone levels, however, were the same. We propose that the incompletely understood aetiology of laryngomalacia may be caused by vitamin D deficiency.

Introduction

The inward collapse of the supraglottic area during respiratory intake is referred to as laryngomalacia [1]. It accounts for 45% to 75% of newborns under one year of age who experience stridor symptoms, making it the most prevalent congenital

laryngeal abnormality [2]. The most significant symptom is noisy breathing that gets worse when you breathe. Crying, breastfeeding, and lying down make breathing difficulties worse. The first signs arise soon after birth and typically go away after two years [1,3]. Although laryngomalacia is typically thought of as a disease with minor symptoms in the first 24 months of life in infants, followed by a diagnosis of laryngomalacia, a very tiny percentage of infants may experience respiratory distress necessitating surgery [2]. One makes the diagnosis using On flexible laryngoscopic inspection, supraglottic collapse was noted [4]. Although surgery is not frequently contemplated in infants with laryngomalacia, it can be required if the infant is not growing and is experiencing severe respiratory failure [4,5]. Laryngomalacia's actual cause and pathogenesis are still unknown. Regarding the aetiology of laryngomalacia, various theories are taken into account. The most frequent causes include refluxes, abnormalities of the neurological and muscular systems, and incomplete cartilage growth [5-7]. Studies in this area are ongoing since these hypotheses fall short of explaining the cause and pathophysiology of laryngomalacia. Many studies have been conducted on vitamin D. Although being a crucial cellular vitamin, vitamin D insufficiency has been linked to a number of illnesses [8-10]. In the literature, there are articles that seek to determine the impact. (11, 12) of vitamin D. There were few studies on vitamin D connected to the larynx and trachea, and it was noted that the majority of these studies were on disorders of the extremities. Although congenital stridor is known to be related with vitamin D deficiency [13,14], an etiological connection between vitamin D and laryngomalacia has not yet been discovered. Another problem is that studies have looked into the connection between chondromalacia and serum vitamin D levels [15,16]. We evaluated these research and concluded that it was crucial to look into the relationship between vitamin D and laryngomalacia. In our investigation, we sought to determine whether there was a connection between laryngomalacia patients and blood levels of vitamin D. This investigation sought to determine whether blood levels of vitamin D are low in babies that have laryngomalacia. The Declaration of Helsinki and Good Clinical Practice guidelines were followed when conducting this study.

Patients from paediatric outpatient clinics who sought advice or were admitted to the otorhinolaryngology outpatient clinic were the subjects of this case-controlled, nonrandomized study. 32 infants (21 boys and 11 girls) younger than one year

of age, born during a regular birth week, without a congenital illness, and identified by endoscopy as having laryngomalacia were included in the study group. Other hereditary conditions of the respiratory system, like vocal haemangiomas. Wheezing after birth (history of croup and dependence on mechanical ventilation), infectious or nervous system illnesses, and infants suspected of having genetic diseases were deemed to be exclusion criteria. 38 healthy newborns (28 boys and 10 girls) under the age of one who showed no symptoms of laryngomalacia served as the control group. The patient underwent a thorough anamnesis, systemic physical examination, flexible laryngoscopic examination, and laboratory tests for 25-OH vitamin D, calcium, and parathormone (PTH). In the thorough anamnesis, it was questioned whether wheezing was present with breathing and whether lying down or breastfeeding made respiratory distress worse. The presence of suprasternal retraction was checked during a physical examination. In the otorhinolaryngology outpatient clinic, a flexible laryngoscope was used to conduct a laryngoscopic examination. The statistical data were calculated using the IBM SPSS Statistics 20 (Statistical Package for Social Sciences v.21, IBM, Chicago, IL) application. Using the mean and standard deviation, data were expressed (SD). The means of the cases and controls were compared using the Student's t-test, with a p-value of .05 being deemed statistically significant. The Kolmogorov-Smirnov test was used to examine 25-hydroxy vitamin D, calcium, and parathormone. Table 1 displays the vitamin D levels of newborns without laryngomalacia and healthy infants. 49 boys and 21 girls made up the 70 newborns in our study. The age was 4.83 ± 1.23 months on average. Infants with laryngomalacia were not significantly different from healthy newborns, it was discovered. Compared to the infants in the control group, blood 25-hydroxy vitamin D levels significantly decreased (Table 2, $p=0.002$). Serum calcium and parathormone levels did not change significantly (p for calcium and p for PTH, respectively).

Discussion

Laryngomalacia is a laryngeal abnormality that develops from birth. It is the most frequent reason for stridor in newborns. The supraglottic collapse that characterises its appearance is present. It is still unclear what causes the etiopathogenesis [1-3]. Very few articles in the literature examine the relationship between vitamin D and baby laryngomalacia. In our research, we looked for a connection between vitamin D and laryngomalacia in kids. Infants in the control group were found to have higher vitamin D levels than infants who had laryngomalacia. Many studies have also demonstrated that healthy children have higher serum vitamin D levels than

infants with laryngomalacia [3,19]. In our study, infants in the control group had greater serum vitamin D levels.

Conclusions

In this study, we hypothesise that the incompletely understood aetiology of laryngomalacia may be caused by vitamin D insufficiency. The etiopathogenesis of laryngomalacia with low vitamin D insufficiency in newborn babies may also be explained by looking into serum vitamin D deficiency in pregnant women.

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