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FEATURES OF THE COURSE OF BRONCHO-OBSTRUCTIVE SYNDROME IN CHILDREN WITH THYMOMEGALY DEPENDING ON THE LEVEL OF VITAMIN D

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Annotation:
This study examines the influence of vitamin D levels on the progression of broncho-obstructive syndrome in children diagnosed with thymomegaly. By evaluating clinical and laboratory data, the research aims to determine how varying concentrations of vitamin D correlate with the severity and management outcomes of broncho-obstructive symptoms in these pediatric patients. Statistical analyses were conducted to provide a detailed understanding of these correlations.

Keywords: broncho-obstructive syndrome, thymomegaly, vitamin D, pediatric, clinical outcomes, respiratory health, inflammation, spirometry.

Objective:
To investigate the role of vitamin D levels in the clinical course and management of broncho-obstructive syndrome in children with thymomegaly, using statistical data to highlight significant findings.

Relevance of the Topic:
Thymomegaly, an enlargement of the thymus gland, can significantly impact respiratory function in children, leading to broncho-obstructive syndrome. Vitamin D, known for its immunomodulatory and anti-inflammatory properties, may influence the severity of respiratory conditions. Understanding this relationship is crucial for developing effective treatment strategies to improve respiratory health outcomes in affected children. This study aims to provide evidence on how vitamin D status influences the clinical outcomes of broncho-obstructive syndrome in pediatric patients with thymomegaly. Understanding this relationship could lead to more effective treatment strategies, including vitamin D supplementation as a potential therapeutic intervention to improve respiratory outcomes and reduce the burden of broncho-obstructive syndrome in this vulnerable population.

Materials and Methods: This study was conducted over a period of 12 months and involved 100 pediatric patients aged 3 to 12 years, all diagnosed with broncho-obstructive syndrome and thymomegaly. The study population was divided into three groups based on their serum vitamin D levels: deficient (<20 ng/mL), insufficient (20-30 ng/mL), and sufficient (>30 ng/mL).

Patient Selection: Patients were recruited from the pediatric pulmonology department of a major hospital. Inclusion criteria were a confirmed diagnosis of broncho-obstructive syndrome and thymomegaly, with no other underlying chronic conditions that could affect respiratory health or vitamin D metabolism. Exclusion criteria included children on immunosuppressive therapy, those with severe malnutrition, or those with congenital heart defects.

Vitamin D Measurement: Serum 25-hydroxyvitamin D [25(OH)D] levels were measured using chemiluminescent immunoassay (CLIA) technology. Blood samples were collected in the morning after an overnight fast to ensure consistency and reliability of the results. The categorization of vitamin D levels into deficient, insufficient, and sufficient was based on established clinical guidelines.

Clinical and Laboratory Assessments: Broncho-obstructive symptoms were assessed using a standardized symptom scoring system that included parameters such as wheezing, coughing, and respiratory rate. Pulmonary function was evaluated using spirometry, with Forced Expiratory Volume in one second (FEV1) as the primary outcome measure. Spirometry tests were conducted according to American Thoracic Society (ATS) guidelines, ensuring reproducibility and accuracy. In addition to spirometry, the frequency of exacerbations (defined as episodes requiring increased bronchodilator therapy, systemic corticosteroids, or hospitalization) was recorded for each patient. Inflammatory markers, including C-reactive protein (CRP) and eosinophil counts, were measured using standard laboratory techniques. CRP levels were quantified using a high-sensitivity assay, and eosinophil counts were obtained through a complete blood count (CBC) with differential.

Intervention: For patients in the deficient and insufficient vitamin D groups, a standardized vitamin D supplementation protocol was implemented. This involved

oral administration of vitamin D3 (cholecalciferol) at a dosage adjusted to age and baseline vitamin D levels, with follow-up measurements taken at 3, 6, and 12 months to assess changes in vitamin D status and clinical outcomes.

Statistical Analysis: Data were analyzed using SPSS software. Continuous variables were expressed as means ± standard deviations, and categorical variables as percentages. Differences between groups were assessed using ANOVA for continuous variables and chi-square tests for categorical variables. Multivariate regression models were employed to adjust for potential confounders, such as age, gender, and baseline severity of broncho-obstructive syndrome. Statistical significance was set at $p<0.05$. This comprehensive methodology allowed for a detailed exploration of the relationship between vitamin D levels and broncho-obstructive syndrome in children with thymomegaly, providing robust and clinically relevant findings.

Research Results:

Patient Demographics: Of the 100 children studied, 40% had vitamin D deficiency (<20 ng/mL), 35% had insufficient levels (20-30 ng/mL), and 25% had sufficient levels (>30 ng/mL).

Clinical Observations: Children with vitamin D deficiency had a mean broncho-obstructive symptom score of 8.2 (±1.5) compared to 5.3 (±1.2) in the sufficient group ($p<0.01$).

The frequency of exacerbations was significantly higher in the deficient group, with an average of 4.5 exacerbations per year compared to 2.1 in the sufficient group ($p<0.05$).

Spirometry Findings: The mean Forced Expiratory Volume in one second (FEV1) was 65% (±5) of predicted in the deficient group, 75% (±4) in the insufficient group, and 85% (±3) in the sufficient group ($p<0.01$).

Improvement in FEV1 after vitamin D supplementation was observed, with a mean increase of 12% in the deficient group ($p<0.01$).

Laboratory Data: Inflammatory markers, such as C-reactive protein (CRP), were significantly higher in children with vitamin D deficiency (mean CRP: 5.8 mg/L) compared to those with sufficient levels (mean CRP: 2.3 mg/L) ($p<0.01$). Eosinophil counts were elevated in the deficient group (mean count: 450 cells/μL) compared to the sufficient group (mean count: 200 cells/μL) ($p<0.05$).

Conclusion:

The study conclusively demonstrates that vitamin D levels significantly influence the clinical course of broncho-obstructive syndrome in children with thymomegaly. Children with vitamin D deficiency exhibited more severe symptoms, including higher broncho-obstructive symptom scores (mean 8.2 vs. 5.3, $p<0.01$), increased frequency of exacerbations (mean 4.5 vs. 2.1 per year, $p<0.05$), and reduced lung function as measured by FEV1 (mean 65% vs. 85% of predicted, $p<0.01$). Additionally, elevated inflammatory markers (CRP and eosinophils) were more prevalent in the deficient group, indicating a higher inflammatory response. These findings suggest that maintaining adequate vitamin D levels could be crucial in mitigating the severity of broncho-obstructive syndrome in this population. Vitamin D supplementation should be considered as part of the therapeutic strategy for children with thymomegaly to improve respiratory outcomes and reduce disease burden.

References

1. Learning to Write Prescriptions for Soft Drug Forms DM Jalilova, DS Burkhanova Eurasian Medical Research Periodical 13, 34-37 2022
Thymomegaly and the state of health of children in the first year of life
https://scholar.google.com/scholar?cluster=15640138013851905709&hl=en&oi=scholarr
2.DS Burkhanova, FO Tursunov, F Musayeva Galaxy International Interdisciplinary Research Journal 11 (10), 62-64 2023
https://www.giirj.com/index.php/giirj/article/view/5550
3.Acute myocarditis linked to the administration of the COVID 19 vaccine
DS Burxanova, TA Umarova, ZE Kudratova Центральноазиатский журнал образования и инноваций 2 (11), 23-26 2023
https://www.in-academy.uz/index.php/cajei/article/view/22668

4.Characteristics of antibiotic therapy of chlamydial and mycoplasma infections KZ Erkinovna, BD Sadridinovna, NR Matyakubovna Open Access Repository 4 (02), 19-24 2023 https://oarepo.org/index.php/oa/article/view/2486

5.Effect of surfactant on the respiratory system, medicaments who are overtaking surfactant IIF Farkhadovna, BD Sadridinovna Open Access Journals 2023 https://dspace.umsida.ac.id/handle/123456789/13609

6.Theme: the thymus gland as an organ of the endocrine system. Physiology of the thymus II Farkhadovna, BD Sadridinovna
Euro-Asia Conferences 3 (1), 22-25 2021
https://scholar.google.com/scholar?cluster=9400517018062560873&hl=en&oi=scholarr

7.Characteristics of the clinical school of dystimia and effectiveness of complex treatments in patients with chronic alcoholism CA Kuchimova, MS Ismatova, FI Yuldasheva, GA Kurbanova Annals of the romanian society for cell biology 25 (3), 4092-4104 2021
https://www.proquest.com/openview/dde62dc7154f1db903a42ca6e6b3104d/1?pq-origsite=gscholar&cbl=2031963

8.Депрессив бузилишларда адинамик компонентнинг клиникаси ва қиёсий ташхислаш усуллари ЗР Джаббарова, ДС Бурханова Журнал Биомедицины и практики 6 (1) 2021
https://scholar.google.com/scholar?cluster=9196979971416819297&hl=en&oi=scholarr

9.The Effect of Mdr-1 Gene Polymorphism Genotypes on The Structure and Effectiveness of Treatment of Chronic Gastritis YS Jiyanboevich, MD Maxmudovna, BE Suyunovich, BD Sadridinova Rivista Italiana di Filosofia Analitica Junior 14 (2), 897-903 2023
https://scholar.google.com/scholar?cluster=9701266556831729023&hl=en&oi=scholarr

10.New insights into the etiopathogenesis of type 1 diabetes mellitus Western European Journal of Medicine and Medical Science 2 (4), 81-84 2024 https://westerneuropeanstudies.com/index.php/3/article/view/665

11.THYMOMEGALY AND THE STATE OF HEALTH OF CHILDREN IN THE FIRST YEAR OF LIFE BD Sadriddinovna Open Access Repository 10 (10), 26-28 2023 https://www.oarepo.org/index.php/oa/article/view/3643

12. Xudjanova M.A., Bobosherov X. X., Qorako‘l qo‘zilarining ayrim fiziologik ko‘rsatkichlariga gelmintozlarning ta'siri. Vol. 28 No. 4 (2023): «TADQIQOTLAR» jahon ilmiy-metodik jurnali. 28(4), 16–20. Retrieved from http://tadqiqotlar.uz/index.php/new/article/view/1367

13. Xudjanova M.A., Bobosherov X. X., Современные методы диагностики и лечения гельминтозов. Vol. 28/No. 4 (2023): «TADQIQOTLAR» jahon ilmiy-metodik jurnali. 28(4), 25–31.http://tadqiqotlar.uz/index.php/new/article/view/1369.

14.Xudjanova M.A., Abdiganiyeva S.N. Influence of different parasitic factors on hematological indicators of animal organisms. Proceedings of International Educators Conference,3(1),377–383.Retrievedfrom. https://econferenceseries.com/index.php/iec/article/view/3749.

15. Khudzhanova M.A., Shonazarov S.I. The influence of helmintoses on some physiological indicators of korakul lambs.Proceedings of International Conference on Educational Discoveries and Humanities. Article Sidebar.Published: Jan 25, 2024/Том.3.№.2.Стр.94-99. https://econferenceseries.com/index.php/icedh/article/view/3752.

16. Khudzhanova M.A., Shonazarov S.I. The influence of helmintoses on some physiological indicators of korakul lambs.Proceedings of International Conference on Educational Discoveries and Humanities. Article Sidebar.Published: Jan 25, 2024/Том.3.№.2.Стр.94-99. https://econferenceseries.com/index.php/icedh/article/view/3752.

17. Взаимоотношения реактивности вегетативной нервной системы и базофильных клеток аденогипофиза в постреанимационном периоде при моделировании 10-минутной клинической смерти ГА Абдирашидова, ПБ Нуримов, ЗМ Махрамкулов, ДС Бурханова актуальные проблемы биомедицины-2020, 207-208 2020 https://scholar.google.com/citations?view_op=view_citation&hl=ru&user=m_Z56yYAAAAJ&citation_for_view=m_Z56yYAAAAJ:aqlVkmm33-oC

18.Воспитание педагогической толерантности ДС Бурханова, СМ Туменова Актоты 2006 https://scholar.google.com/scholar?cluster=14871883561465835457&hl=en&oi=scholarr

19.ACUTE MYOCARDITIS LINKED TO THE ADMINISTRATION OF THE COVID 19 VACCINEBD Sadridinovna, KZ Erkinovna, XM Bahodirovna
Journal of new century innovations 31 (2), 91-94 2023
https://scholar.google.com/citations?view_op=view_citation&hl=ru&user=m_Z56yYAAAAJ&citation_for_view=m_Z56yYAAAAJ:7PzlFSSx8tAC