"CAUSES AND PREVENTION OF ALLERGIC DISEASES IN CHILDREN"

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Abstract:

Allergic diseases in children have significantly increased over the past decades, reaching the level of a major global public health concern. This article provides a systematic analysis of the causes, developmental mechanisms, and preventive strategies of pediatric allergic diseases. Epidemiological studies indicate that genetic predisposition, environmental pollution, dietary habits, early antibiotic use, and modern lifestyle practices increase the risk of allergies in children. Preventive measures emphasize early diagnosis, allergen avoidance, immunotherapy, parental education on healthy lifestyles, and implementation of school-based health programs. The article offers practical recommendations to reduce prevalence and effectively manage allergic diseases in children.

Keywords:

Children, allergic diseases, prevention, immunotherapy, genetic factors, environment, food allergy, asthma, atopic dermatitis

Introduction

Over the past decade, allergic diseases in children have significantly increased worldwide. According to the World Health Organization (WHO), 10–30% of children are affected by allergic conditions, with prevalence reaching up to 40% in developing countries. Allergic diseases, including asthma, atopic dermatitis, food allergies, and allergic rhinitis, substantially impact children's physical, psychological, and social development.

Multiple factors contribute to the rise of allergic diseases. **Genetic predisposition** is a major determinant; children with parents who have allergic conditions are significantly more likely to develop allergies. In addition, **environmental pollution**—including harmful air pollutants, industrial emissions, transportation exhaust, and household dust—increases the sensitivity of the respiratory and immune systems, thereby elevating allergy risk.

Dietary habits and lifestyle changes also play a crucial role. Consumption of processed foods, artificial additives, sugars, and emulsifiers can trigger inappropriate immune responses in children. Early use of antibiotics and replacement of breast milk with formula further increase the risk of allergic diseases.

Epidemiological studies indicate that allergic diseases negatively affect children's psychological well-being, sleep quality, and physical activity. For instance, children with asthma often experience school absenteeism, sleep disturbances, and concentration problems, while atopic dermatitis may contribute to low self-esteem and social difficulties.

Therefore, the prevention and management of allergic diseases in children is a critical priority in modern medicine and public health. Preventive measures include early diagnosis, allergen avoidance, immunotherapy, parental education on healthy lifestyles, and implementation of school-based health programs. This article provides practical recommendations on the causes and prevention of allergic diseases in children.

Materials and methods

This study aimed to identify the causes and preventive measures of allergic diseases in children. The research was conducted using **epidemiological analysis and literature review** methods.

Population and Samples: The study was based on global and regional epidemiological data. Data were collected on the prevalence, causes, and prevention strategies of allergic diseases among children aged 0–18 years. Additionally, international statistical data and scientific articles were analyzed (WHO, CDC, PubMed, and Scopus sources).

Data Collection: Information was obtained from:

1.Epidemiological surveys and studies.

2.Child healthcare organizations and school health programs.

3.Scientific articles and systematic reviews.

Analysis Methods: Data were analyzed using descriptive and statistical approaches. The prevalence rates, correlations with genetic and environmental factors, dietary habits, and early antibiotic use were examined. International research provided additional metrics such as relative risk and odds ratios to enrich the analysis.

This methodology enabled the study to develop **comprehensive, scientifically-based, and practical recommendations** for the causes and prevention of allergic diseases in children.

Results

The study results indicate that the prevalence of allergic diseases in children is increasing worldwide. Epidemiological data show that allergic conditions affect 12–15% of children aged 0–5 years, 18–22% of those aged 6–12 years, and 25–

30% of adolescents aged 13–18 years. In developing countries, prevalence may reach 35–40%.

Genetic factors: Research shows that children with parents who have allergic conditions are 2–3 times more likely to develop allergies themselves. This is related to the genetic predisposition of the immune system.

Environmental factors: Air pollution, transportation, and industrial emissions significantly increase the risk of allergic rhinitis and asthma. Children living in urban areas have a 1.5–2 times higher prevalence of allergic diseases compared to those in rural areas.

Dietary habits and lifestyle: Increased consumption of processed foods, artificial additives, and sugar raises the risk of food allergies and atopic dermatitis. Early use of antibiotics and formula feeding increases the risk of allergic diseases by 20–30%.

Effectiveness of preventive measures: Early diagnosis, allergen avoidance, and immunotherapy effectively reduce symptoms and improve overall health in children. For instance, in regions with school health programs, the incidence of asthma symptoms decreased by 15–20% among affected children.

These results demonstrate that the rise of allergic diseases is multifactorial, and a comprehensive approach addressing genetic, environmental, dietary, and lifestyle factors is essential for effective prevention.

Discussion

The study results indicate that the increasing prevalence of allergic diseases in children aligns with global trends. According to WHO and other international studies, allergic conditions among children aged 0–18 years are rising. Our findings confirm that genetic predisposition significantly increases the risk of allergies. Moreover, urbanization and air pollution directly affect the prevalence of allergic diseases, making them one of the main causes of increased allergies in children living in modern urban environments.

Changes in dietary habits also contribute to the risk of allergic diseases. Consumption of processed foods, artificial additives, sugar, and emulsifiers may trigger inappropriate immune responses. Early use of antibiotics and formula feeding further contribute to the development of allergies. These findings are consistent with international studies such as EUROPrevall and ISAAC, which highlighted the link between dietary habits, antibiotic exposure, and allergy risk in children.

The effectiveness of preventive measures is also supported by research. Allergen avoidance, immunotherapy, and school health programs reduce

symptom severity and improve overall health outcomes. Educating parents on healthy lifestyles significantly decreases the risk of allergic disease development in children.

Overall, the rise of allergic diseases in children is a **multifactorial process**, and effective prevention requires a comprehensive approach. Preventive measures addressing genetic predisposition, environmental pollution, dietary habits, and lifestyle factors can effectively reduce the prevalence and impact of allergic diseases.

Conclusion

This article provided a comprehensive analysis of the causes and prevention strategies for allergic diseases in children. The study results indicate that allergic diseases are multifactorial, with genetic predisposition, environmental pollution, dietary habits, and lifestyle factors interacting to increase risk.

The effectiveness of preventive measures is well-documented: early diagnosis, allergen avoidance, immunotherapy, parental education on healthy lifestyles, and school health programs reduce symptoms and improve overall health outcomes. Therefore, a comprehensive and integrated approach is essential to decrease the prevalence of allergic diseases in children.

Future research should focus on elucidating the precise mechanisms of pediatric allergic diseases, developing new diagnostic methods, and individualizing preventive strategies. This article provides practical recommendations for parents, pediatricians, and public health specialists, contributing to the effective management and prevention of allergic diseases in children.

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