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Editorial

Food Allergy in Early Childhood: Are We Overdiagnosing or Underdiagnosing?

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Food allergy (FA) in early childhood has emerged as one of the most relevant and challenging conditions in contemporary pediatrics. This is not only due to the apparent increase in its prevalence, but also because of its significant clinical, nutritional, psychological, and socioeconomic implications. In daily clinical practice, pediatricians are increasingly confronted with a paradox: while some children are incorrectly diagnosed and subjected to unnecessary dietary restrictions, others remain underdiagnosed, potentially exposing them to avoidable complications. This dual phenomenon raises a critical question: are we witnessing a true rise in disease incidence, or rather a distortion driven by diagnostic inaccuracies?

From an epidemiological perspective, several studies suggest that the prevalence of food allergy has increased over recent decades, particularly in industrialized countries. However, this perception requires careful interpretation. Prevalence estimates based on self-report or clinical suspicion may reach up to 10%, whereas food allergy confirmed through oral food challenges rarely exceeds 2 - 3%. This discrepancy highlights a significant gap between perceived and actual disease burden, which lies at the core of the current diagnostic dilemma.

Overdiagnosis of food allergy is largely driven by the misinterpretation of nonspecific symptoms. In infants, manifestations such as perioral erythema, transient facial rash, regurgitation, infant colic, or mild gastrointestinal disturbances are frequently attributed to allergic mechanisms without clear pathophysiological justification. In many cases, these symptoms reflect normal developmental processes, gastrointestinal immaturity, or local irritative reactions, particularly during the introduction of new foods.

Healthcare system pressures and increasing parental concern play a pivotal role in this context. Food allergy has gained substantial media attention, amplifying risk perception among caregivers. Consequently, there is a growing demand for diagnostic testing, even in the absence of robust clinical indications. In this setting, tools such as skin prick tests and serum-specific IgE measurements are often used indiscriminately.

However, these tests have well-recognized limitations. While they are highly sensitive, their specificity is limited, leading to a considerable rate of false-positive results. Importantly, immunological sensitization (i.e. the presence of specific IgE) does not necessarily equate to clinical allergy. This distinction is critical, yet frequently overlooked in practice. Interpreting test results in isolation can lead to erroneous diagnoses and, consequently, unnecessary dietary elimination.

The consequences of overdiagnosis are far from negligible. Nutritionally, the exclusion of essential foods such as milk, eggs, or cereals can compromise growth and development, particularly during critical periods such as infancy. Additionally, restrictive diets often impose a financial burden on families and complicate daily feeding practices.

From a psychosocial standpoint, the impact is equally significant. Labeling a child as food-allergic can generate considerable anxiety among caregivers, restrict participation in social activities, and foster a constant state of vigilance. In some cases, this perception persists for years, even in the absence of true allergy, due to lack of diagnostic reassessment.

Conversely, underdiagnosis represents an equally important, albeit less visible, challenge. Non-IgE-mediated food allergies, such as allergic proctocolitis, food protein-induced enteropathy, or food protein-induced enterocolitis syndrome (FPIES), often present with subtle and heterogeneous symptoms. The absence of reliable biomarkers and the limited utility of conventional allergy tests complicate their identification.

In such cases, diagnosis relies heavily on clinical history and the response to elimination and reintroduction of the suspected food. However, limited awareness or familiarity with these conditions among healthcare providers may lead to delayed diagnosis, repeated medical consultations, and unnecessary treatments. Persistent symptoms can adversely affect nutritional status and overall well-being.

Another factor contributing to this complexity is the evolving paradigm regarding the introduction of allergenic foods. Historically, delayed introduction of foods such as egg or peanut was recommended in high-risk infants. However, recent evidence indicates that early introduction may have a protective effect against the development of food allergy. This paradigm shift has not been uniformly adopted in clinical practice, leading to inconsistencies in recommendations and potentially contributing both to overdiagnosis and to a genuine increase in disease incidence.

Limited access to gold-standard diagnostic tools, particularly oral food challenges, constitutes an additional barrier. Although these tests remain the definitive method for confirming food allergy, they require specialized resources, time, and clinical expertise, which restricts their availability in many settings. As a result, many diagnoses are made based solely on indirect tests or clinical suspicion, without definitive confirmation.

In this context, adopting a structured, evidence-based clinical approach is essential. A detailed clinical history remains the cornerstone of diagnosis. Key elements include the temporal relationship between food ingestion and symptom onset, reproducibility of reactions, and the nature of clinical manifestations. Diagnostic tests should be used judiciously and always interpreted within the clinical context.

Continuous medical education in pediatric allergy is crucial to improving diagnostic accuracy. Furthermore, the implementation of updated clinical guidelines and standardized protocols may help reduce variability in practice. A multidisciplinary approach involving pediatricians, allergists, gastroenterologists, and dietitians is key to optimizing patient management.

Parental education is another fundamental pillar. Providing clear, evidence-based information can help caregivers understand the distinction between sensitization and true allergy, as well as the risks associated with both overdiagnosis and underdiagnosis. Effective communication is essential to reduce anxiety and improve adherence to medical recommendations.

In recent years, novel diagnostic tools have emerged that may enhance accuracy in food allergy diagnosis. Among these, component-resolved diagnostics allow the identification of specific allergenic proteins and, in some cases, help predict reaction severity. Although not yet universally available, these techniques represent a promising advancement in pediatric allergology.

Additionally, the development of biomarkers and artificial intelligence-based predictive models may, in the future, facilitate better risk stratification and more personalized clinical decision-making. Nevertheless, no diagnostic tool can replace sound clinical judgment.

An often-overlooked aspect is the need for periodic reassessment of children diagnosed with food allergy. Many allergies, particularly to milk and egg, tend to resolve over time. Failure to reevaluate patients may result in unnecessarily prolonged dietary restrictions, with

associated negative consequences. Supervised oral food challenges are essential to confirm the development of tolerance and to improve quality of life.

From a public health perspective, promoting evidence-based primary prevention strategies is essential. Early introduction of allergenic foods, encouragement of breastfeeding, and avoidance of unnecessary dietary restrictions during pregnancy and lactation are measures that may contribute to reducing the incidence of food allergy.

In conclusion, food allergy in early childhood represents a complex diagnostic challenge characterized by the coexistence of overdiagnosis and underdiagnosis. Both extremes carry significant clinical, nutritional, and psychosocial consequences. Addressing this issue requires a rigorous, evidence-based clinical approach that prioritizes clinicopathological correlation, avoids unnecessary interventions, and ensures timely identification of true cases. Only through a balanced, multidisciplinary, and patient-centered strategy can optimal care be achieved in this rapidly evolving field [1-12].

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