children required treatment with intramuscular adrenaline and oral antihistamines. Two cases were associated with single-component measles vaccine with an incidence of 12.0 cases per 100,000 doses. Three cases were associated with human papillomavirus vaccine with an incidence of 1.4 cases per 1 million doses. Several of the children who had adverse reactions to human papillomavirus had underlying food allergy or idiopathic anaphylaxis. No anaphylactic events were reported due to routine infant and preschool immunizations despite 5.5 million vaccines being administered over the 13-month period.

CONCLUSIONS. Anaphylaxis due to immunization is a very rare adverse event. No cases of anaphylaxis after routine vaccination of infants and preschool children were reported over the 13-month period in which more than 5.5 million vaccines were administered. When anaphylaxis does occur, it may be delayed for some children, especially those who have concurrent allergic disease.

REVIEWER COMMENTS. This study is a valuable addition to the existing evidence concerning vaccine safety. It provides reassurance for both health care professionals and families that an adverse event such as anaphylaxis is quite rare.


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Evaluation of a National Institute of Allergy and Infectious Disease/Food Allergy and Anaphylaxis Network Criteria for the Diagnosis of Anaphylaxis in Emergency Department Patients


PURPOSE OF THE STUDY. To retrospectively assess the diagnostic accuracy of the National Institute of Allergy and Infectious Disease/Food Allergy and Anaphylaxis Network Criteria (NIAID/FAAN) criteria for the diagnosis of anaphylaxis in the emergency department (ED).

STUDY POPULATION. ED patients (20% children overall) who were diagnosed with an allergic reaction or anaphylaxis by the emergency care provider. A subset of patients with related diagnoses was also included.

METHODS. This was a retrospective cohort study of patients presenting to Saint Mary’s Hospital ED in Minnesota, through April 2008 and October 2008. Electronic medical records were reviewed and data were collected on inciting allergen, timing of symptoms onset, presenting signs and symptoms, and allergic history. Individual records were reviewed by 2 experienced board-certified allergists who were blind to the results regarding NIAID/FAAN criteria. The final consensus diagnosis by the 2 allergists was considered the reference standard for the diagnosis of anaphylaxis.

RESULTS. Two hundred fourteen patients participated in the study with a median age of 36 years (~25% were <18 years old). About 40% of patients met NIAID/FAAN criteria for anaphylaxis. Emergency physicians diagnosed anaphylaxis in about 26%, of whom 27% were not considered to have anaphylaxis by the allergists. Compared to diagnosis by allergists, the sensitivity of the criteria was 96.7% (95% confidence interval [CI], 88.8%–99.1%), the specificity was 82.4% (95% CI, 75.5%–87.6%), positive predictive value was 68.6% (95% CI, 58.2%–77.4%), and negative predictive value was 98.4% (95% CI, 94.5%–99.6%). Other diagnoses made in those not meeting criteria were indeterminate reaction, NSAID drug reaction, other medication reaction, allergic reaction, asthma exacerbation, anxiety, carcinoid syndrome, post-viral syndrome, oral allergy syndrome.

CONCLUSIONS. This study demonstrated that by using expert diagnosis as the reference standard, the NIAID/FAAN criteria for making a diagnosis of anaphylaxis in the ED is highly sensitive but less specific.

REVIEWER COMMENTS. Underdiagnosis of anaphylaxis in the ED is becoming less of a problem with more education and better-defined criteria. However, this study demonstrated that emergency physicians continued to miss over a third of cases that would have been considered anaphylaxis by an allergist. The NIAID/FAAN criteria are highly sensitive and have a high negative predictive value that might makes it useful in preventing underdiagnosis, although a substantial rate of false-positive results continue. The limitation here was that the standard reference was expert opinion, and interrater agreement among allergists was not ideal (κ = .77). Further prospective studies in other populations are needed to validate this study.


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SKIN DISEASE


PURPOSE OF THE STUDY. To study fear of topical corticosteroid use among patients with atopic dermatitis (AD) by looking at adherence to treatment regimens and the association with beliefs and attitudes.
Low Neonatal Toll-like Receptor 4-Mediated Interleukin-10 Production Is Associated With Subsequent Atopic Dermatitis


PURPOSE OF STUDY. To determine whether decreased Toll-like receptor (TLR)-mediated cytokine production at 1 month of age is associated with development of atopic dermatitis (AD) or respiratory syncytial virus lower respiratory tract infection (RSV LRTI). The first month of life is a period of rapid development of the TLR system, and disruption of this development early in life may lead to dysfunction of innate and adaptive immunity and predispose to atopy.

STUDY POPULATION. Healthy term neonates (N = 291) from a birth cohort study in the Netherlands. Subjects were enrolled prospectively and followed for 12 months.

METHODS. At 1 month of age, subjects’ serum concentrations of immune cells were measured by absolute leukocyte count and flow cytometry. After TLR stimulation in vitro, cytokine responses were measured via ELISA. Subjects were assessed for subsequent development of AD and RSV LRTI during the first year of life. AD diagnosis was determined by physician questionnaire at 1 year, and RSV LRTI was determined by reported respiratory symptoms and RSV-positive nasal-throat sample.

RESULTS. Overall, 15% of subjects developed AD and 14% developed RSV LRTI during the first year of life. AD was significantly associated with increased natural killer cells, decreased basophils, and dendritic cells and a 1.8-fold lower TL4-mediated interleukin (IL)-10 production (P < .001). RSV LRTI was not associated with either significant changes in the innate immune cell profile or TLR-mediated cytokine production.

CONCLUSIONS. This study found the development of AD, but not RSV LRTI, to be associated with distinct differences in the innate immune system early in life. Decreased TLR-4-mediated IL-10 production may have a causal role in development of AD.

REVIEWER COMMENTS. IL-10 is a key regulatory cytokine of the immune system. This study hypothesizes that decreased IL-10-mediated regulation of innate responses may contribute to development of atopic skin disease. Further studies are needed to validate these results and investigate the basic mechanisms of neonatal TLR-mediated IL-10 production, as doing so may identify potential targets for prevention and/or treatment of AD.

Chronic Urticaria: Etiology and Natural Course in Children


PURPOSE OF THE STUDY. Chronic spontaneous urticaria (CSU) in childhood is infrequent, and information about the disease is limited. The study investigated its etiologic factors, natural course, and predictors of prognosis.

STUDY POPULATION. All children aged 18 years or younger in a cohort from Turkey who were diagnosed with CSU during during an 8-year period.

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