

CLINICAL CONFERENCE

GASTROINTESTINAL FOOD ALLERGY IN INFANTS

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GASTROINTESTINAL ALLERGY as a clinical entity has been amply documented. It is frequently suspected in regard to certain gastrointestinal problems in infancy, but less often confirmed. In general, two types of manifestations are recognized. In one, the symptoms are violent following a small ingestion of the involved food and include severe vomiting, diarrhea, anaphylactoid states, urticaria and shock. Positive results of skin tests are common. Various foods may be involved—often milk, eggs, fish and nuts—and symptoms may be regularly produced by introducing the offending food.

In the second category, the symptoms are delayed or cumulative and the relationship to a specific food is more difficult to demonstrate. The symptoms occur in infancy during the early months of life, sometimes extending past the first year and include colic, diarrhea and vomiting, often associated with failure to gain weight and with frequent respiratory infections. On the other hand, all these symptoms may be caused by conditions unrelated to allergy. It is important therefore that the diagnosis of allergy is made only on positive evidence of allergy and that it should not be a diagnosis of exclusion.

DIAGNOSIS OF GASTROINTESTINAL ALLERGY

The following criteria are used in the diagnosis of the gastrointestinal allergy:

Trial Diet

Symptoms should occur when the infant is receiving the questionable food, disap-

pear when the food is withdrawn, and recur promptly after the food is reintroduced. However, not all food intolerance is on an allergic basis, *e.g.*, the milk intolerance in galactosemia, and the wheat intolerance in celiac disease.

Skin Tests

While opinions differ as to the reliability of skin tests in early infancy, it has been demonstrated that the skin of young infants can react with unequivocal results.¹ Demonstration of clearly positive results of skin tests in the case of suspected food allergy gives considerable support to the diagnosis, particularly if the suspected food gives positive results on trial diets.

The Presence of Other Allergic Manifestations

The presence of other well-recognized allergic conditions such as atopic eczema, allergic bronchitis, allergic rhinitis, urticaria and bronchial asthma may support the diagnosis of gastrointestinal allergy.

The Presence of a Positive Family History

In the study of 59 infants who had evidence of gastrointestinal allergy, 83% had a positive family history of allergic manifestations in the immediate family.

Study of Stool Cytology

There appears to be little difficulty in demonstrating eosinophils in the mucus in the stool.² However, the significance of these cells in the stool is difficult to access. An increase of eosinophils in the nasal and stool secretions in newborn infants and in

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infants up to 3 to 4 months of age is normal and not necessarily a sign of allergy. However in infants past this age, a large number of eosinophils in the stool, particularly associated with symptoms, is more significant.

REVIEW OF CASE HISTORIES

We have recently reviewed the history from birth of 65 children who are apparently under management for severe allergic problems. All of these children have been followed by us since early infancy. Of the 65 records reviewed, 31 revealed a history of gastrointestinal symptoms in early infancy. In 13 these symptoms were severe, in 11 moderate, and in 7 slight. We found that 47% of these children had some manifestation of gastrointestinal disturbance in infancy. Of those severely affected, many had multiple manifestations, including diarrhea (requiring hospitalization in two), vomiting in six, and colic in six. These same children now show an increased incidence of asthma (eight), pollinosis (nine), and hay fever (two), again showing multiple allergic manifestations. Thus nearly 50% of this group of children were observed to have infantile gastrointestinal problems, a rate much higher than that seen in the average pediatric practice. In another group of 20 patients who were diagnosed as having gastrointestinal allergy in early infancy, subsequent follow-up reveals that 50% have evidence of other allergic manifestations. This again supports the concept that early gastrointestinal symptoms may be allergic in nature.

SUMMARY

Gastrointestinal allergy has been established as a definite entity. Criteria have been suggested for establishing the diagnosis of gastrointestinal allergy in infants and children. Studies of patients in early infancy tend to indicate that a high percentage with evidence of gastrointestinal allergy develop other allergic manifestations later. In another group of allergic children, a substantial number revealed a history of gastrointestinal problems.

DISCUSSION

DR. A. MATHESON: I should like to stress the necessity of establishing proper criteria for the diagnosis of milk allergy in infants. Such a diagnosis is made too often with insufficient evidence. Improvement in clinical symptoms, whether gastrointestinal or dermatologic, by using a milk substitute, does not necessarily imply that such disturbances are due to milk allergy. Other clinical states may improve on removing cow's milk from the diet, e.g., galactosemia. Cow's milk has other natural or foreign substances that may produce gastrointestinal disturbances and skin rashes.

Several years ago in one area of Chicago, there occurred an unusual incidence of diarrhea, skin urticaria and angio-edema in infants. There was no evidence of infection. In many instances these were ascribed to milk allergy. A trip to a dairy farm demonstrated similar disturbances in the cows. Careful investigation revealed that at that time of year (October) the cows were fed food that had been stored in the silos for months and that this silage food contained an urticariogenic substance. A prepared extract and scratch tests produced local urticaria on normal infants and children.

Labeling an infant allergic is a responsibility. It has been repeatedly stressed by others, as well as by us, that a large number of babies with true allergy to foods develop major allergic disease in later life. It is the responsibility of the physician to use all available means to determine whether or not such clinical disturbances are a result of an antigen-antibody reaction. The allergist or dermatologist who sees these patients as a consultant seldom ascribes such gastrointestinal or skin disturbances as allergy to food. On the other hand, the pediatrician who observes these patients as young infants frequently may make such a diagnosis with insufficient evidence. It would appear that each child must be individually and carefully studied.

VISITING PHYSICIAN: If the S_7 and S_{10} protein do not show up until several weeks of age, how can you attribute episodes of acute allergies before that period—in the infant?

DR. MATHESON: There are several assumptions to this question. First, while the S_7 and S_{10} globulin cannot be demonstrated early in the neonatal period, it does not follow that they are not there in minimal quantities not demonstrable with present techniques. The second assumption is that the skin sensitizing antibody present in these globulins is *beyond doubt* responsible for the allergic reaction. Although the results of experimental work favor this assumption, it is not certain. Finally, while it is true that the young infant does not form an appreciable amount of gamma-globulin until about 8 weeks of age, it does not follow that he is incapable

of an immunologic reaction. Furthermore, if skin sensitizing antibodies are not transmitted through the placenta, why is it that a young atopic infant with eczema so frequently shows a positive result of a skin test to egg white (particularly an atopic dermatitis candidate) long before ingestion of egg. To complicate the answer to the question a little more, I believe that a good many so called allergic reactions in the first few weeks of life may not be true antigen antibody reactions. The great majority

of allergic disease in infants occur at about the time gamma-globulin synthesis begins.

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