Committee on Infectious Diseases

Family History of Convulsions in Candidates for Immunization With Pertussis-Containing Vaccines (Diphtheria, Tetanus, Pertussis)

Family history of convulsions is not presently a contraindication to the use of pertussis vaccine. It was suggested in a recent report that there might be an increased risk of seizures following diphtheria, tetanus, pertussis (DTP) vaccination in individuals who have a “family history of convulsions.” Unfortunately, the degree of relatedness was not specified in the questionnaire from which these results were derived. A subsequent questionnaire specifying relatedness only to siblings and parents also indicated an increased risk. A family history of convulsions was obtained in 17.3% and 16.7% of children who had febrile and nonfebrile convulsions, respectively, following DTP vaccine as compared with 4.8% in vaccinees who had nonneurologic complications following DTP vaccination (Centers for Disease Control, unpublished data, 1987).

The risk of seizures following DTP vaccination is approximately one in 1,750 doses. These are usually febrile seizures. Follow-up of these patients had indicated that they rarely, if ever, have sequelae. Convulsions of this type (DTP vaccination induced) are differentiated from encephalopathy which occurs once in about 1:140,000 doses, one third of which result in permanent sequelae. Recent studies have demonstrated that the administration of acetaminophen, 15 mg/kg per dose, at the time of immunization with DTP and four and eight hours later, reduces febrile reactions. Although this study was too small to allow determination of the effect on seizures following DTP, it is reasonable to expect that reduction in fever also would decrease the likelihood of febrile seizures following DTP.

Local pertussis epidemics in the United States occur in unpredictable fashion. The disease causes significant morbidity, particularly in young infants. A strategy of waiting until an epidemic to occur prior to immunizing against pertussis is untenable. The initial dose of DTP produces a minimal antibody response and even two doses leave the majority of infants poorly protected against disease. A minimum of three doses in the first year of life is required to give protection. It is unlikely that an adequate number of doses could be given after an outbreak has been recognized to protect against disease. The prophylactic effect of erythromycin is not well established, and long-term administration is often difficult because of gastrointestinal side effects. Pertussis immune globulin is not effective and no longer is manufactured.

It would be ill-advised to deny protection against pertussis by withholding vaccine from the substantial numbers of children with family histories of seizures, because seizures in these children are infrequent and rarely result in permanent sequelae.

The Advisory Committee on Immunization Practices has reviewed these data and concluded that a family history of convulsions in parents and siblings is not a contraindication to pertussis vaccination and that children with such family histories should receive pertussis vaccine according to the recommended schedule.

RECOMMENDATIONS

1. Children with a family history of convulsive disorder should be immunized the same as children without such a history. There is no reason to treat these children or children with a family history of “neurologic disease” any differently from children without such a history.

2. The risks and benefits of immunizing children who may be at increased risk should be discussed with the parents and advice provided prior to immunization about how medical care should be obtained in the unlikely event that a seizure occurs.
3. Children with a family history of convulsive disorder might benefit from receipt of 15 mg/kg per dose of acetaminophen given at the time of immunization and every four hours during the time the child is awake for a total of three doses.

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