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Commentary

Effective Immunization of Triple Antigen Vaccine in Infants

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DESCRIPTION

The number of immunizations given to infants has reached frightening proportions. One of the goals of all those responsible for disease prevention in children is to reduce the number of injections required to produce full and effective immunization. The effectiveness of immunization procedures against diphtheria, tetanus, and whooping cough has been demonstrated in recent years. The goal of this study was to show that infants as young as three months old can be effectively immunized against diphtheria, tetanus, and pertussis by administering a combined prophylactic. There are positive reports, particularly from on the successful immunization of infants with a combined vaccine.

Earlier reports show that young infants can be protected against pertussis and diphtheria, especially when an adsorbed antigen is used. It should be noted right away that no studies on the antibody content of the infants' blood prior to immunization were conducted in this trial. We used a combined antigen adsorbed on aluminium phosphate because studies have shown that antigens adsorbed on aluminium hydroxide produce a better immune response in infants than plain suspensions of bacterial and fluid toxoids. The only requirements for participation in the scheme were that the infant be healthy at the time of inoculation and that there is no family history of epilepsy or childhood convulsions. So far, 200 babies have been immunized.

The first injection was given at the age of three months, the second a month later, and the third four to five months after the second. The reason for postponing the third injection was to use it as a "booster" before the child was exposed to the additional risks of infection during his or her second year of life. To avoid superimposition, the antigen was injected intramuscularly into the upper and outer quadrants of the buttock, alternating the side used at each injection. A new needle was used after drawing up the fluid in the syringe to ensure that no vaccine was injected into the subcutaneous tissue (which might be a possible cause of abscess formation). Similarly, inserting the needle obliquely reduced leakage back along the injection track.

Local reaction in the form of edema and erythema was common, lasting sometimes two or three days but usually no more than 24 hours. In one case, a local abscess formed in the subcutaneous tissue; when cultured, the aspirated fluid was sterile. A single aspiration was all that was required to cure the patient. Many infants showed signs of constitutional upset. The most common symptom was anxiety for a few hours after the injection, which in some cases lasted two days. Some vomited one or two feeds after being inoculated, but quickly recovered and fed normally. Drowsiness was occasionally reported up to 12 hours after the injection.

Immunity duration

Diphtheria and tetanus toxoids provide decreasing protection over time, necessitating booster doses in childhood, adolescence, and adulthood. Cellular pertussis vaccine also provides less protection over time. Several case-control studies were conducted during a state wide pertussis outbreak to assess the efficacy of cellular pertussis vaccines. Receiving five doses of DTP vaccine was associated with a lower risk of pertussis (odds ratio 0.11, 95% CI 0.06-0.21); the estimated vaccine effectiveness was 89 percent (95% CI 79-94 percent) in the largest study (682 cases). Vaccine effectiveness, however, decreased with increasing time since the last DTP dose (from 98% in the first 12 months to 71% after 60 months).

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