

# False contraindications to childhood immunization

JOAN KINDER

LOUISE TEARE

MALA RAO

GAIL BRIDGMAN

ANNE KURIAN

**SUMMARY.** An immunization advisory clinic was set up in mid-Essex in 1988 to provide a referral facility for professionals and parents who were unsure about the eligibility of certain children to receive immunization. This paper describes four typical cases. The history and management of each case are described and the fact that all the children were successfully immunized is highlighted. It is hoped that by sharing the experiences of the immunization advisory clinic with other professional staff, more positive decisions regarding immunizations will be made.

**Keywords:** immunization; contraindications; case studies.

## Introduction

IN keeping with government guidelines to improve immunization uptake (Department of Health and Social Security memorandum EL/88/P/125, July 1988), mid-Essex health authority set up an immunization advisory clinic. This service, which came into existence in November 1988, has contributed considerably to improving the district's immunization rates. During the first year, 68 referrals were made to the clinic, the greatest proportion of which related to immunization against measles, mumps and rubella. During the second year 168 referrals were dealt with and the emphasis changed to queries about pertussis immunization. Referrals were accepted from paediatricians, general practitioners, clinical medical officers, health visitors and parents.

The clear directives contained in the 1990 edition of the Department of Health's guidelines on immunization<sup>1</sup> should largely have eliminated the grey area of contraindications to immunization. However, some professionals and parents feel considerable anxiety which precludes a number of eligible children from receiving their immunizations.

By sharing the experiences of the immunization advisory clinic, it is hoped that paediatricians and general practitioners will be encouraged to make more positive decisions regarding immunization. Four case reports are presented.

## Case A

There was concern over the safety of pertussis immunization for a three year old boy (A) whose mother reported having fits in

J Kinder, MB, BCH, MRCP, senior clinical medical officer; G C Bridgman, MD, FRCP, consultant paediatrician; and A Kurian, MB, BS, senior clinical medical officer, mid-Essex Health Authority. E L Teare, MB, MSc, MRCPATH, consultant microbiologist, Chelmsford Public Health Laboratory. M Rao, MSc, MFPHM, consultant in public health, North East Essex Health Authority.

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infancy. A had been born prematurely, and had a history of eczema and recurrent upper respiratory tract infections.

The age of onset of fits in the mother and any antecedent factors were unknown. At the age of three years the mother was admitted to hospital having fits while on phenobarbitone. The phenobarbitone was later discontinued and she has had no further fits.

A was born at 32 weeks gestation by emergency caesarean section for fulminating pre-eclampsia. He was small for gestational age and had a low Apgar score. He was nursed in the special care baby unit for five weeks, primarily because of his prematurity and poor feeding. On follow up during his first year he was developmentally normal. A suffered with eczema, which was controlled by topical steroids. The eczema was not severe. He had a poor appetite and recurrent respiratory tract problems. Physical examination was unremarkable apart from 'snuffles', mouth breathing and dull ear drums. He was neither febrile nor otherwise unwell.

A completed his primary course of diphtheria and tetanus, oral polio, and measles, mumps and rubella immunizations at the recommended times, all without side effects.

Five factors in the child's medical history represent clinical situations which may deter general practitioners from giving immunizations, particularly pertussis immunization:<sup>2</sup> a maternal history of fits, prematurity, problems at birth, a personal history of eczema and recurrent upper respiratory tract infections.

With regard to pertussis immunization, a history of idiopathic epilepsy in a parent or sibling is, as stated in the Department of Health's guidelines,<sup>1</sup> a special consideration. Fits in all other relatives are of no consequence. Unfortunately, 'special consideration' is frequently misinterpreted as a contraindication. In reality, a child with a parental history of epileptic fits is at slightly greater risk of also developing epileptic fits compared with the general population,<sup>3</sup> irrespective of immunization. The risk of convulsions as a complication of whooping cough far outweighs the unproven risk of neurological complications after pertussis immunization.<sup>4</sup> Indeed, it may be argued that protection from the neurological complications of whooping cough is even more important in a child predisposed to epilepsy. Special consideration must be given to discussing these facts with parents to alleviate their anxiety and give them the confidence to consent for immunization. Similarly, premature babies are particularly vulnerable to infectious disease and should be immunized as a matter of priority and at the usual recommended times after birth.<sup>1</sup> Neither eczema itself nor its treatment with topical steroids are contraindications to pertussis immunization.<sup>1</sup> In addition, children with minor infection without systemic upset or fever may be safely immunized.<sup>1</sup>

Following detailed counselling on each point, A's mother gave consent to have A immunized with pertussis vaccine. The first dose was given in the clinic. The mother was advised regarding temperature control. Follow-up doses were given at four-weekly intervals by the general practitioner, with no side effects. In addition, A was referred to the ear, nose and throat department for follow up.

This sequence characterizes the way that most of the cases are dealt with in the clinic. Additional referrals are made to other departments as appropriate.

**Case B**

There was concern over the safety of pertussis immunization in a two and a half year old girl (B) who had had meningitis and a family history of epileptic fits. B had a history of haemophilus meningitis at the age of 13 months. She had progressed well with no detectable sequelae. Her mother reported having 'blackouts' between 11 and 18 years of age and was treated with sodium valproate. Her maternal grandmother had petit mal epilepsy and her maternal great grandmother had epilepsy of unknown type. There were no other relevant details in the history. Physical and developmental examination of B were normal.

B had completed her primary course of diphtheria and tetanus, oral polio, and measles, mumps and rubella immunizations at the recommended times and without side effects.

The two causes of anxiety regarding pertussis immunization were a family history of epileptic fits and a personal history of neurological illness. The arguments in favour of immunizing children against whooping cough, in spite of a family history of epileptic fits remain the same as for case A. Meningitis is not a contraindication to whooping cough immunization even if, unlike this case, a child had been left with a stable neurological deficit.<sup>4</sup>

The same procedure was followed as for case A, and the full course of pertussis immunization was given without any side effects.

**Case C**

There was concern over the safety of pertussis immunization for a two year old girl (C) who had had problems during the neonatal period. C was born at term with a haemoglobin concentration of 4.6 g l<sup>-1</sup> following a fetomaternal transfusion and was treated with phenobarbitone and dexamethasone for cerebral oedema. A head ultrasound showed bilateral grade two intraventricular haemorrhages. A subsequent electrocardiogram was 'not abnormal'. C was followed up in the special care baby clinic for 10 months and was found to be developing appropriately. Upon examination in the clinic C was found to be physically and developmentally normal. C had completed diphtheria and tetanus, oral polio, and measles, mumps and rubella immunizations.

Despite the early history of cerebral oedema and intraventricular haemorrhages there was no evidence of permanent cerebral damage. Had there been cerebral damage, the benefit of conferring protection against whooping cough would still far outweigh the risk of a reaction to the immunization, provided that the condition was stable.<sup>4</sup>

C completed the full course of pertussis immunization without adverse reactions.

**Case D**

There was concern over the safety of the measles, mumps and rubella immunization in a three year old boy (D) with multiple allergies. D was first given egg at six months old. On this and subsequent occasions he developed swelling of the cheeks and urticaria on the face. Both symptoms subsided after an hour. There were neither breathing difficulties nor signs of anaphylaxis. D also reacted adversely to chocolate, colourants and orange squash. He had asthma and 'sensitive' skin. There were no abnormal findings on examination. D completed his primary course of diphtheria and tetanus and oral polio immunizations at the recommended times, without adverse reactions.

D had an egg allergy, which in its most severe form is a contraindication to having the measles, mumps and rubella immunization. The other allergies from which D suffered are not a contraindication.<sup>1</sup> Although the Department of Health's guide-

lines<sup>1</sup> clearly state that immunization against measles, mumps and rubella should only be withheld where there is a history of anaphylaxis following food containing egg, in practice, there is a tendency for children with less significant reactions to egg to be advised against immunization.

Egg allergy is probably the most common immunoglobulin E-mediated food hypersensitivity during the first 12 months of life.<sup>5</sup> The attenuated mumps and measles viruses in the measles, mumps and rubella vaccine are prepared in chick embryo tissue. Vaccines developed in tissue culture differ from those grown in egg cells in that egg albumen and yolk components are not present. Vaccine manufacturers state as a caution that the vaccine may contain trace amounts of chick embryo protein, because absence of contamination in the final product cannot be absolutely guaranteed.

Reports have concluded that most children with an egg allergy will tolerate the measles, mumps and rubella vaccine with no adverse reaction and have confirmed the reliability of skin testing with a diluted vaccine to predict the safety of immunizing such children.<sup>6,7</sup> Skin testing was appreciated by parents who became more confident about the safety of the subsequent immunization. Many of their previous experiences relating to egg allergy had, after all, been unpleasant. However, skin tests are not strictly necessary unless there is a question of true anaphylaxis; these cases should be referred to a specialized clinic or hospital. Indeed, none of the cases skin tested in the clinic so far have shown a positive reaction and all have been successfully immunized over the two and a half year period.

Having heard all the facts, D's mother gave her consent for him to be immunized, provided that a skin test was negative. A drop of undiluted measles, mumps and rubella vaccine was placed on the ventral aspect of the forearm and the skin was pricked through the drop with a skin prick test needle. There was no reaction after 20 minutes, and the immunization was given, with no side effects. Advice regarding temperature control was given as usual.

**Conclusion**

These four cases illustrate common problems which continue to generate uncertainty when immunizing children. The experience of the immunization advisory clinic has been that any child who does not have an absolute contraindication as described in the Department of Health's guidelines, can be given the full range of childhood immunizations.

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**Address for correspondence**

Dr M Rao, North East Essex Health Authority, Turner Road, Colchester, Essex CO4 5JR.