

Temporary Allergy to Neocate: Possible association with
immunisation

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A five month old baby exhibited an allergic reaction to Nutramigen one day after his third set of immunisations. The following day he had a similar reaction to Neocate which was used as an alternative to the Nutramigen. One month later Neocate was introduced slowly back into his diet by his mother with no ill effects. The clinical picture, investigations and possible causative mechanism are discussed.

Following ABO incompatibility in the neonatal period this boy made satisfactory progress regarding his growth and development. He was exclusively breast fed for the first five months of his life. His first two sets of immunisations were not associated with any significant problems. At five months he reacted within fifteen minutes of his third set of immunisations. He became cold and clammy, developed stridor and facial swelling. This led to his admission to hospital where he was treated with anti-histamines and nebulised Budesonide with a favourable response. The next morning his mother asked whether she could have an alternative to breast milk for her child. Nutramigen was recommended in view of a positive family history of atopy and a sibling with severe cow's milk allergy. Almost immediately on giving him Nutramigen he developed lip swelling, facial urticaria and erythema around both eyes. He was allowed home with advice to try Neocate outside hospital the following day. The subsequent reaction to Neocate was similar to that with Nutramigen and was successfully treated with an anti-histamine.

SMA and negative skin tests to Nutramigen, Neocate and Rice Milk. The total IgE was 55 iu/ml. The RAST test to milk was grade 2 positive with negative RAST tests to wheat, soya and egg. At the age of six months he had a 5mm positive skin test to Soya and a 2mm positive test to Neocate. In agreement with his mother it was decided to challenge to Neocate again, initially in the hospital setting. Over the next four weeks his mother gave him increasing volumes of Neocate. Initially he would only take small volumes, sometimes diluted, and gradually this was increased so that by the age of eight months he was taking 540mls per day. At no time was there a recurrence of the initial acute allergic reaction. At one year of age the skin prick test to milk was 5mm and negative to Soya. As a result of this Soya was introduced as a cows milk substitute instead of the Neocate with no difficulty.

DISCUSSION

Allergy to cow's milk is a common clinical problem in infancy with up to 10% of infants affected. An amino acid based formula such as Neocate is often used in preference to Soya as a substitute because of concerns regarding possible cross sensitisation to peanut and the theoretical risk of exposure to oestrogen like compounds. Also amino acid based preparations are thought to have minimal potential for causing an allergic reaction. Reports of immediate type 1 allergic reactions to Neocate are very rare¹⁻³. A study of 20 children with proven cow's milk allergy revealed no cases of positive skin prick tests to Neocate, which implied to the authors that there was no residual allergenicity in amino acid based formulae⁴.

Cross contamination was thought to be unlikely in this case as the Nutramigen and Neocate were administered on separate days and were individually prepared. There was an association with a recent immunisation. Whilst this might be considered coincidental it may represent a priming of the immune system following the

immunisation reaction. An alternative explanation may be that a coincidental viral infection caused a non-specific increase in immediate type hypersensitivity. However this seems a less likely explanation as the positive skin prick test to Neocate at the age of six months implies a specific IgE response. In addition there was no direct evidence of a viral illness at the time of the reactions to Nutramigen and Neocate. Residual Soybean proteins have been implicated as causing allergenicity in amino-acid preparations². This might offer a further explanation for the train of events in our case if the immunisation reaction was not a causal factor in the clinical picture.

It is tempting to postulate that his mother desensitised her child to Neocate over a one month period. Meglio et al successfully desensitised 15 of 21 children with proven severe cow's milk allergy over a six month period⁵. This illustrates that desensitisation is possible, although not commonly undertaken in the UK. Based on our case of allergy to Neocate it may be worth challenging after a shorter period of avoidance than is usually practised in infants with cow's milk allergy with this type of clinical scenario.

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