

Local reactions associated with pre-school d/DTaP-IPV boosters

Extensive limb swelling following d/DTaP IPV boosters is common but transient

Acellular pertussis replaced wholecell pertussis in DTP¹ vaccines² (DTaP and DTwP respectively) in the UK immunisation programme in September 2004³. The current immunisation schedule consists of a primary series of DTaP/IPV/Hib (Pediace) vaccine at 2, 3, and 4 months of age and a pre-school booster dose of either dTaP/IPV⁴ (Repevax) or DTaP/IPV (Infanrix IPV) at 3 years 4 months to 5 years of age. Vaccines containing acellular pertussis⁵ are generally less reactogenic than those containing whole cell pertussis⁶, particularly in older children.

It is recognised, however, that booster doses of vaccines containing acellular pertussis are associated with an increased risk of injection site reactions^{7,8}, some of which affect the entire limb, compared to primary vaccination. The risk appears to be dependent on the number of prior doses of DTaP vaccine, with a greater risk following the 4th and 5th doses. However, such reactions to a DTaP booster may also occur in children who have been primed with one or more doses of a DTwP vaccine. Injection site reactions can also occur following any injection procedure and any injected vaccine, irrespective of immunisation history.

Children in the UK will not begin to routinely present for a 4th consecutive dose of a DTaP vaccine (as dTaP/IPV or DTaP/IPV) until late 2007. However, as DTaP (Infanrix) vaccine has been periodically used in the UK infant primary series since late 1999 when DTwP vaccines were in short supply, many children presenting for pre-school boosters since mid 2003 may already have received at least one dose of DTaP. It is therefore possible that some children presenting for Infanrix IPV or Repevax boosters may be at an increased risk of experiencing an injection site reaction, depending on the types of DTP vaccine received in infancy.

A review of UK Yellow Card data associated with Infanrix, Infanrix IPV and Repevax boosters has shown that reports of extensive local reactions have been received at a rate of ~15-20 reports per 100,000 children vaccinated. Due to under-reporting this is likely to underestimate the true incidence of such reactions.

Cases of local reactions reported in the UK have ranged from redness and swelling up to several inches around the injection site to swelling from shoulder to elbow. Several cases have presented with blistering around the site of swelling. In up to 20% of cases of extensive local swelling the children have been given systemic antibiotics in the absence of obvious laboratory or other evidence of infection. Data would indicate that antibiotic treatment or the use of anti-inflammatory medicines have no effect on the duration or severity of the reaction compared with no treatment. Several cases have also reported a presumptive diagnosis of cellulitis. Based on the information available, it is assumed that, due to unfamiliarity with this kind of local reaction, these cases have been diagnosed and treated as infection as a precaution.

Cases of extensive limb swelling following DTaP boosters usually develop within 24 hours of vaccination and recover, without sequelae, within ~5 days. Such reactions do not contraindicate further doses of DT or DTaP vaccine. If a child presents with signs of extensive limb swelling following d/DTaP-IPV pre-school vaccination, it is important to carefully consider whether this may be a recognised injection site reaction or whether there are any signs of infection.

- 1 diphtheria, tetanus and pertussis
- 2 this was accompanied by a switch from use of live oral polio (OPV) vaccine to inactivated polio vaccine (IPV)
- 3 www.dh.gov.uk/assetRoot/04/08/73/47/04087347.pdf
- 4 dTaP refers to low dose diphtheria
- 5 including DTaP in combination with other antigens
- 6 Jefferson *et al.* Vaccine 2003; 21: 2003-14
- 7 Gold *et al.* Medical journal of Australia 2003; 179:191-194
- 8 Rennels *et al.* Pediatrics 2000; 105(1)