Injection site reaction following four-year-old DTPa-IPV dose 4 – A SAEFVIC Case Study

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Injection site reaction following four-year-old DTPa-IPV dose 4 – a case report

A healthy four-year-old presented to her local council for routine four-year-old vaccines, DTPa-IPV (Infanrix IPV®) and measles, mumps and rubella (M-M-R II®). The following evening her mother noted that the arm in which the Infanrix IPV® had been given was red and hot to touch, with circumferential swelling from the shoulder to the elbow. The child was afebrile and was otherwise well, complaining only of mild discomfort in her arm. The Adverse Event Following Immunisation (AEFI) was reported by the council to SAEFVIC (Surveillance of Adverse Events Following Vaccination in the Community). The family was contacted and advised to use a cold compress on the affected arm and pain relief as required. The symptoms resolved completely within three days with minimal intervention. The AEFI was reviewed by SAEFVIC and coded as an Injection Site Reaction (ISR)-Severe and no further follow up was required.

Discussion

ISRs, or swelling at or near the injection site, are defined by the Brighton Collaboration as an ‘increase in size or volume at the injection site that may extend to the entire limb according to severity’. ISR reports at SAEFVIC are further defined as ISR Minor/Common/Expected or Severe, that is, ‘joint-to-joint’ or ‘crossing-joint’. ISR is the most frequent AEFI reported. Approximately two per cent of children receiving their fourth dose of DTPa-IPV containing vaccine report an ISR-Severe. ISRs generally commence within 48 hours of vaccination and last from one to seven days, with the majority resolving without intervention and no long-term sequelae. A history of ISR-Severe after the fourth dose of Infanrix IPV® is not a contraindication to the reduced antigen formulation of dTpa vaccine (Boostrix®) currently given at 15–16 years of age. The chances of recurrent extensive ISRs in adolescence or adulthood following a booster dose dTpa in those individuals who have experienced extensive ISRs in childhood are unknown and should be the subject of further surveillance. Contact SAEFVIC if you have any individual queries.

In 2013, SAEFVIC received 163 reports for children seven years and younger receiving Infanrix IPV®. A total of 235 AEFI reactions were described, of which 115 (49 per cent) were ISR. Of these reports, 74 (64 per cent) were minor and 41 (36 per cent) met the SAEFVIC definition of ISR-Severe. For the majority of those reporting ISR, this was their only AEFI reaction; for the remainder, fever was the most frequent accompanying AEFI, reported in 17 per cent of ISR cases.

Cellulitis at the injection site is a rare AEFI. It is important that children presenting to the healthcare professional with cellulitis are thoroughly examined to prevent the incorrect diagnosis of infective cellulitis resulting in inappropriate treatment with antibiotics. This can be difficult given the similarity of characteristics, however the absence of systemic fever and pain generally suggest ISR rather than inflammatory cellulitis. The fact that this ISR is well described post DTPa-IPV containing vaccines needs to be alerted to healthcare professionals, especially those working in emergency departments who see this reaction infrequently.
Summary

It is important that parents of children receiving the fourth booster dose of DTPa-IPV containing vaccine (between the age of 3.5 to four years) are informed of the slight increased risk of ISR following immunisation. They can be reassured that even when the ISR is extensive, children generally experience only a mild degree of functional impairment or pain significant enough to require analgesia.

References and further reading


