Letter

Meningococcal meningitis presenting post infant group B meningococcal immunisation.

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We report an infant case of meningococcal W meningitis presenting within 24 hours of receiving group B meningococcal vaccine (4CMenB), illustrating the dilemma clinicians face in interpreting advice for management of post-immunisation fever and the NICE Fever Guidelines, and highlighting the need for sustained vigilance for bacterial infections in infants with post-4CMenB fever.

A 2-month old female infant arrived by ambulance to the local Emergency Department in April 2017 suffering from right-sided focal limb seizures and fever of 39°C, within 24 hours of receiving her 2-month immunisations (including 4CMenB). The seizure terminated with two doses of intravenous lorazepam and suspected sepsis was treated with immediate intravenous antibiotics.

Investigations revealed a normal cranial CT scan; elevated C-reactive protein (263.5 mg/L [0-5]); normal full blood count; normal liver function tests and serum electrolytes. Urine and blood cultures were negative. Cerebrospinal fluid (CSF) obtained 36 hours after antibiotics showed raised white blood cells (1000x10⁶/L), red blood cells (1921x10⁶/L), protein (1750 mg/L [0 – 400]), and a low glucose <0.3

mmol/L. CSF culture was negative, but polymerase chain reaction was positive for capsular group W meningococcus.

After receiving 14 days of intravenous ceftriaxone, the infant's recovery from acute illness was uneventful. Despite a normal cranial MRI scan, audiology assessment detected significant right-sided hearing loss to 60 dB level. Subsequently, 18-months developmental assessment confirmed that most skills were placed at 12-month level, with a particular reduction in visual skills but sparing of gross motor skills.

The clinical presentation with a focal seizure (and subsequent parental report that the fever preceded immunisation) placed this infant at a higher risk of meningitis than the non-specific fever and irritability typical of Adverse Events Following Immunisation (AEFIs). Post-immunisation seizure has been reported as a rare event in pre-licensure infant studies (2 cases of febrile seizures and 2 focal seizures).(1) Post-implementation studies have confirmed clinically significant increases in children presenting to healthcare services with AEFIs (<48 hours), especially pyrexia, despite recommendations for prophylactic paracetamol.(2, 3) Approaches to management of these children vary from early discharge, admission for observation, partial or full septic screens.(3)

The UK 'NICE Guidelines (Fever in under 5s)' recommend complete septic evaluations for all infants <3 months with fever $\geq 38^{\circ}\text{C}$, with blood tests, urine sample, lumbar puncture and parenteral antibiotics for unwell infants. Using this guidance, the authors have previously diagnosed a urinary tract infection in another infant presenting with fever <48 hours of 2-month immunisations. A recent update added a footnote – '*some vaccinations have been found to induce fever in children younger than 3 months*' – but did not specifically address management of post-4CMenB fever.(4) Therefore, the decision to investigate falls to individual clinician judgement.

While performing invasive investigations on all infants with AEFI will result in unnecessary distress, our case nonetheless illustrates the necessity of developing a bespoke approach to performing septic screens, even after recent immunisation. Fever management guidelines should achieve a balance between a safe, less

invasive approach appropriate for the majority of attendees with AEFIs, while maintaining a stringent vigilance to detect cases of invasive bacterial infection.

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Patient consent: obtained (attached)

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