Management of early-onset neonatal infections

Early-onset neonatal infection (EONI) refers to an infection arising within first 72 h after birth. In August 2012, the National Institute of Health and Care Excellence (NICE) published guideline on the use of antibiotics to prevent and treat early-onset bacterial infection in newborn babies.[1] Key recommendations included treating suspected EONI as quickly as possible and minimise antibiotic exposure in babies who do not have EONI. NICE recommends measuring C-reactive protein (CRP) at presentation when starting antibiotics and repeating CRP 18–24 h later. Furthermore, it suggests stopping antibiotics at 36 h if baby is clinically well, blood culture (BC) is negative and CRP values/trends are reassuring.

Prior to the publication of NICE guidance, our practice was to perform BC and CRP before commencing antibiotics for all suspected cases of EONI. Antibiotics were stopped if baby remained clinically well and BC was negative after 48 h. We modified our local care pathway in accordance with NICE guideline in 2013.

A service evaluation was carried out in March 2014 to compare our practice before and after the implementation of NICE guideline on EONI. We compared two groups of babies born over a 4-month period each. We looked at hospital record and laboratory data of 43 babies born in 2012 (group A) before implementation of NICE guideline locally and compared it with 36 babies born in 2013 (group B) who were managed as per NICE guideline on EONI. We looked at their initial investigations including CRP, full blood count

and BC in addition to the duration of intravenous antibiotics, length of hospital stay and any further investigations such as lumber puncture (LP).

In group A, only one baby had a raised CRP (34) and required an LP. In contrast, in group B, 12/36 had repeat CRP values of ≥10. A clinical decision was made to perform LP in 8/12 of these babies. In both groups, final BC and cerebrospinal fluid cultures in all babies were negative. Mean duration of hospital stay in group A was 2.1 days in contrast to 3.2 days for group B. Duration of intravenous antibiotics in group A was 2.1 days in 41/43 babies and 5 days in 2/43. In group B, 24/36 babies were given intravenous antibiotics for 36 h, 8/36 for 5 days and 4/36 for 7 days. None of the babies in either group required subsequent hospital admission for suspected sepsis in the first month of life.

Our results indicate that babies in group B had prolonged hospital stay requiring longer duration of intravenous antibiotics without much clinical benefit. This has a potential impact on already stretched National Health Service resources in addition to heightened anxiety and further inconvenience for parents. More importantly, none of the babies in either group were subsequently hospitalised for late-onset neonatal sepsis. Similar outcome data have been recently published by Mukherjee *et al*.[2] Further multicentre evaluation is urgently required in much larger group of babies to substantiate this evidence. If validated, NICE should review its EONI guidance sooner than their planned review in September 2016.

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