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M Azam[1], NM Allen[1], D O'Donovan[1], E Moylett[1,2]
[1]Department of Paediatrics, Galway University Hospital, Newcastle Road, Galway
[2]Academic Department of Paediatrics, National University of Ireland, Galway

Abstract
Early onset group B streptococcal (EOGBS) infection causes significant neonatal morbidity and mortality. We determined the incidence of EOGBS at Galway University Hospital (GUH) and examined any â missed opportunitiesâ for preventing neonatal infection between 2004 and 2009. Our obstetric approach is risk-based. The incidence was 0.45/1,000 live-births; one death and one with neurological sequelae. A single mother received IAP; however we could not determine any potential for reducing cases of EOGBS by improving current IAP usage.

Introduction
Maternal group B streptococcal colonisation is the critical determinant of neonatal acquisition and infection.[1,2] Two different approaches aimed at prevention of neonatal GBS infection exist, risk-based (Royal College of Obstetricians and Gynaecologists, UK)[3] and culture-based (Centers for Disease Control, USA).[2] Recent reports demonstrate that potentially preventable cases of EOGBS may be missed as risk-based guidelines have not resulted in significant use of intra-partum antibiotic prophylaxis (IAP).[4,5] Vergnano et al reported that if women with risk factors received adequate IAP a potential 23 of 48 cases (48%) of EOGBS may have been prevented.[4] We reviewed data for all infants (2004-2009) with culture confirmed EOGBS, delivered in GUH. Cases were reviewed with regard to â missed opportunitiesâ for IAP use. The incidence of EOGBS from 1996 to 2002 was determined for comparison prior to the introduction of the RCOG (2003) guidelines.

Methods
Cases of neonatal EOGBS (birth to 7 days) were identified via the microbiology database at GUH (GBS identified from blood or cerebrospinal fluid) during the study periods. Following case identification, all case notes were reviewed for the infant-mother pair.

Results
Between 2004 and 2009, nine infants with EOGBS (9 bacteraemia; 1 with meningitis) were diagnosed; 20,113 live-born infants delivered with an incidence of 0.45/1,000 live-births. Most infants (67%) presented within the first 24 hours (range, 1 to 72 hours) with bacteraemia without a focus. Respiratory distress was the most frequent clinical manifestation. One infant developed meningitis and marked developmental delay; one died secondary to sepsis (case fatality rate, 11%). The table outlines potential risk factors for neonatal EOGBS. Regarding â missed opportunitiesâ for prevention of neonatal infection we noted that a low percentage of women (1 of 9, 11%) received IAP but that only 3 mothers (33%) had one or more risk factors identified, one of which received adequate IAP.

Abb: +, positive; -, negative; PROM, premature rupture of membranes; GBS, group B streptococcus; IAP, intra-partum antibiotic prophylaxis; VD, vaginal delivery; EmCS, emergency cesarean section; *Meningitis, secondary hydrocephalus with severe developmental delay

Of the remaining two with recognised risk factors (intra-partum pyrexia, preterm delivery and PROM) both delivered precipitously via urgent Caesarean section (without time for appropriate IAP). When compared to the RCOG recommendations we could not determine any potential for reducing our cases of EOGBS by improving current IAP usage. An interesting finding however was that four of six mothers without identifiable risk factors were discovered to have vaginal GBS colonisation in the post-partum period, detected as a result of infant infection. These cases were non-urgent vaginal deliveries. In the preceding years between 1996 and 2002 the incidence of EOGBS in the unit was 0.9/1000 live births (15 infants); 83% presented within the first 24 hours (range 0 to 7 days). All infants survived. Risk factors were identified in 7 pregnancies. Antenatal swabs for GBS were performed in only 2/15 mothers, which were negative.

Discussion

Despite current preventative strategies, potentially preventable cases of neonatal GBS infection continue to occur. While some UK support groups advocate universal screening to reduce the incidence of GBS, a policy of screening was reviewed in depth by the UK national screening committee and was not supported, based on a relatively low incidence of disease and cost benefit analysis.[6] Another finding in our study was that 66% of mothers without identifiable risk factors were discovered to have vaginal GBS colonisation in the immediate post-partum period, and they delivered vaginally, non-urgently. Culture-based screening may have potentially detected and prevented four cases (44%) of neonatal EOGBS sepsis in our population, one with poor developmental outcome.

There is disparity in the implementation or optimal use of both risk-based and universal screening guidelines. While it is clear from our study that the incidence of neonatal EOGBS has declined over the years (50% reduction), cases of EOGBS continue to occur despite an optimal risk-based strategy with potential to reduce the incidence further if a screening strategy were implemented. For 4 women without identifiable risk factors, GBS carriage was confirmed in the post-partum period. Unfortunately given the transient nature of GBS carriage, a culture-based screening approach may not necessarily have detected carriage in these 4 women at 37 weeks gestation. There is now, however, growing evidence that real-time PCR provides rapid, robust and accurate results regarding the GBS status of women during labour, which may help alleviate this difficulty in routine clinical situations.[7] Acknowledging that there is a burden of EOGBS disease despite attempts at optimal prenatal screening,[8] current risk-based approaches certainly do not prevent neonatal infection and should remain an issue of ongoing reappraisal until an effective alternative is developed most likely in the form of maternal vaccination.

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Correspondence: E Moylett
Department of Paediatrics, Clinical Science Institute, National University of Ireland, Galway
Email: edina.moylett@nuigalway.ie

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