NHS Resolution

Case story

Group B Streptococcus (GBS) in pregnancy and early onset infection in the neonate

This case story is illustrative based on a range of examples of real events. NHS Resolution is sharing the experience of those involved to help prevent a similar occurrence happening to patients, families and staff. As you read about this incident, please ask yourself:

- Could this happen in my organisation?
- Who could I share this with?
- What can we learn from this?

Topic:

Group B Streptococcus (GBS) in pregnancy and early onset GBS infection in the neonate

Key points:

- The importance of antenatal counselling
- The need for robust systems and processes to support timely and effective communication of positive GBS results
- Risk assessment at triage and on admission to hospital
- Appropriate clinical observation of the baby following birth and the early neonatal period
- Recognition and management of the signs of early onset infection in the neonate

Maternity story:

A mother was booked for low risk care in her first pregnancy. The pregnancy progressed without complications and the mother attended all of her antenatal appointments. During the 25 week antenatal appointment, the midwife provided information to the mother about Group B Streptococcus and the potential impact this may have upon the baby if the mother was a carrier. Written information was not provided to support the discussion[1].

At 37 weeks' gestation, the mother attended the maternity unit for assessment, as she believed that her membranes might have ruptured. A full clinical assessment was completed, which found no concerns regarding maternal or fetal wellbeing. The clinician undertook a speculum examination, including a bedside screening test, which found no evidence of liquor. A vaginal swab was also taken, and sent to the laboratory. The mother understood the swab was to exclude any potential infection. She was advised that if there were any positive results she would be contacted by telephone to explain the results and any action that was required. The vaginal swab indicated colonisation with GBS; the result was conveyed to the maternity triage team and was recorded in the diary to be phoned out to the mother. The mother did not receive any telephone calls and assumed this was because there was no concern regarding infection.

The mother began to experience some cramp-like pain at 39 weeks and called the maternity unit for advice at 2pm. The mother reported that her contractions were every five minutes and lasted 30 seconds, and that she had not been aware of any liquor draining. The mother reported that her baby was moving and she was coping

with the pain. After discussing the options, which included advice around the benefits of remaining at home in early labour, the mother decided to remain at home until the contractions increased in strength and frequency. The mother was not asked about any previous admissions or swabs that had been taken.

The mother began to experience intermittent leakage of fluid two hours later but did not call the maternity service back because the contractions had not changed in strength or frequency. At 11pm, several hours after she had begun to experience repeated leakage of fluid, the membranes ruptured and a large amount of clear liquor drained per vaginum. The contractions increased in strength almost immediately and became more frequent, every three minutes.
The mother contacted the maternity unit, and after discussion agreed she would attend for assessment.

The mother arrived at the maternity unit at 12.45pm; she was experiencing uterine contractions 3:10 minutes lasting 35 seconds. A full clinical assessment of maternal and fetal wellbeing raised no concern and a vaginal examination (VE) confirmed that labour was established, the cervix was 4cms dilated and the membranes had ruptured. As the mother was deemed low risk, the fetal heart rate (FHR) was auscultated using a hand held Doppler and was recorded at 148bpm. A plan for intermittent auscultation (IA) of the FHR every 15 minutes was explained and agreed with the mother[2].

The mother's hand held maternity record did not contain any evidence of the swab result as the electronic results were not accessed at the 38 week antenatal appointment.

Labour progressed normally. Pethidine was administered for pain relief at 1.45am and a VE to assess progress at 5am found the cervix was 7cms dilated, and clear liquor was draining.

IA continued until 6.45am when a deceleration to 100bpm was heard on auscultation. The findings were explained to the mother and continuous cardiotocograph (CTG) was commenced to monitor the FHR[2]. The CTG was assessed as suspicious due to the presence of variable decelerations, the labour ward co-ordinator was informed, conservative measures commenced and an obstetric review requested.

Obstetric review occurred within 20 minutes and noted that the CTG had improved in response to the conservative measures. A plan was made to continue to observe the CTG and report any further concerns. At 8am, the mother reported an urge to push with contractions. Active pushing commenced at 8.45am when the vertex was visible. There were no further concerns about the FHR. A spontaneous vaginal birth occurred at 9.25am; the baby did not require any resuscitation at birth and had Apgar scores of 9 at 1 minute, and 9 at 5 minutes of age. Initial clinical examination of the baby, including temperature and respiratory rate, was normal and, following a period of skin-to-skin contact, the baby had a short breastfeed.

The maternal electronic records that contained the results of the positive GBS swab were not accessed during the intrapartum or early post-natal period.
As staff were unaware of the risk of early onset GBS infection, the baby did not receive any additional observations.[1]

The baby was reluctant to breastfeed during the early postnatal period, which was attributed to the analgesia administered during labour.

When the baby was nine hours of age, the mother called for help because the baby was reluctant to breast feed and difficult to rouse.

The baby was examined and found to be pale, with poor tone, increased respirations, and was cold. The baby was transferred to a resuscitaire for closer observation. The temperature was found to be 35.8 degrees, and oxygen saturation levels were 70%. The neonatal team attended to review the baby, and the baby was quickly transferred to the Special Care Baby Unit for ongoing care. The baby was screened for sepsis and commenced intravenous antibiotics in accordance with national guidance[3]. Cultures confirmed GBS infection; the baby remained acutely unwell despite treatment and sadly died eight days later.

Learning points:

This case highlights the importance of:

- Providing written information to women which helps to raise awareness of GBS and the implications for their baby[1 and 5]
- Robust systems and processes to ensure that any investigative results are communicated effectively, reliably, and in a timely manner to the mother to ensure that appropriate care is provided. There were several missed opportunities to inform the mother of the result, following the initial contact to the triage team to inform them of the positive result, at the 38 week antenatal appointment, and during the call to triage for advice. If this information had been shared, then the appropriate advice to attend immediately for assessment could have been provided.
- A full risk assessment of any earlier attendance to triage, including review of any tests performed when mothers make contact for advice or when they suspect labour may have commenced.
- Reviewing the antenatal notes, including hand held and electronic records at routine antenatal contacts to establish whether there have been any hospital attendances and determine if there are any test results that require follow up. Any findings should be documented in the hand held and electronic records to facilitate communication between clinical teams.
- A full risk assessment on admission in labour. A review of the antenatal notes, including hand held and electronic records to view the results of any screening tests during pregnancy should be completed in accordance with national guidance[2]. This would have provided an opportunity to identify the positive GBS swab result and facilitated the timely administration of intrapartum antibiotic prophylaxis, which may have influenced the outcome for the baby. The administration of intrapartum antibiotic prophylaxis can reduce the incidence of GBS infection by around 85-90%, and can act as a form of early treatment in the worst cases[5].
- An awareness of positive GBS result would have facilitated closer observation of the baby for signs of early onset GBS[1] and which may have alerted staff sooner to the deterioration in the baby's condition.

- Recognition of the relevance of feed refusal in babies is an important consideration for staff[4].

Considerations for your hospital:

- Is written information provided to all women to raise awareness of GBS infection as recommended by the Royal College of Obstetricians and Gynaecologists (RCOG)?[1,5,and 6]
- Does your trust have clear systems and processes in place to ensure that laboratory results are communicated effectively to women in a timely manner?
- Does the system include a failsafe or checking process to ensure that no results are missed and therefore not actioned?
- Does triage include discussion about previous admissions, to ensure that relevant information is obtained to inform clinical risk assessment and decision making and includes an agreed plan of care, about who the mother should contact next and when?[2]
- Do clinical guidelines recommend that antenatal records, including screening results, are reviewed as part of the initial risk assessment when women present in labour?[2]
- Do clinical guidelines include specific instruction on the requirement for increased observation of the baby following birth for signs of early onset GBS infection if the mother is identified as a GBS carrier?[1]
- Do staff discuss feed refusal with parents to raise awareness of this being an early warning sign of a potential change in the baby's condition?[4]

What has happened as a result?

This case story is illustrative. If a similar case were to occur, then it would be referred to NHS Resolution as part of the Early Notification Scheme. NHS Resolution's in-house, specialist team will review all available information about the care received, to decide whether there is any evidence of substandard care which could potentially result in compensation.

The expertise of NHS Resolution staff in clinical negligence claims handling is used for eligible cases referred to the scheme to proactively assess the legal risk, investigate care, and provide early support to families where liability is established. The scheme is also designed to improve the experience for NHS staff by time limiting the need for protracted involvement in the legal process and rapidly sharing learning from avoidable harm.

It is very important to note that no amount of money is comparable with the loss of a child or a child living with lifelong neurological injuries. Where poor outcomes occur as a result of deficiencies in care, NHS Resolution aims to resolve all such claims or cases fairly and as quickly as possible.

The human costs to the babies, families and clinical teams involved are immeasurable.

Resources:

1. Prevention of Early-onset Neonatal Group B Streptococcal Disease RCOG Green Top Guideline No. 36, published September 2017

   RCOG GTG No. 36

2. Intrapartum Care for healthy women and babies NICE CG 190 published December 2014, revised 2018

   Intrapartum care for healthy women and babies NICE CG 190

3. Neonatal infection (early onset): antibiotics for prevention and treatment NICE CG149 published August 2012

   Neonatal infection (early onset): antibiotics for prevention and treatment

4. National Learning Report Severe brain injury, early neonatal death and intrapartum stillbirth associated with group B streptococcus infection. Healthcare Safety Investigation Branch, published July 2020

   HSIB National Learning Report

5. Group B Strep Support

   https://gbss.org.uk/

6. RCOG Patient Information Leaflets

   Patient information leaflets