A retrospective observational study for multi-drug resistant gram-negative pathogen colonisation among newborn infants admitted to a tertiary level neonatal unit at Luton and Dunstable Hospital.

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Introduction

- Colonisation of intestine or ET secretions with GN pathogens usually preceded GN blood stream infection
- Knowledge of colonisation may influence prescribing if baby becomes unwell
- Not currently a national recommendation in UK
  - 21% of NNU screen (vs. 82% MRSA)
- Acquisition may come from
  - Mother during delivery
  - Postnatal
    - Direct contact with hands or during Kangaroo care
    - Indirectly through breast milk
  - Facilitation of spread on NNU
    - Overcrowding
    - Understaffing
    - Insufficient hygienic barriers
    - Use of prolonged broad-spectrum antibiotics
    - Monotherapy with third generation cephalosporin in suspected EOS

History

- 2008 – outbreak of ESBL producing *E.Coli*
  - 13 affected
  - 4 bacteraemic
  - 2 subsequently died
- Weekly surveillance recommended
  - rectal or faecal swab for MDRGN pathogens

Study Design

- 1 year retrospective study
  - Patients admitted to NNU at L&D from 1st September 2014 to 31st August 2015
- Data collected from BadgerNet and ICE.
- A routine rectal or faecal swab positive for MDRGN pathogens without clinical suggestion of sepsis was considered evidence of colonisation

Results

Patients identified and included

Number of patients colonised with a MDRGN pathogen

Incidence and prevalence

Summary of Findings

- 9 per 100 infants admitted to NNU colonised
- 6/56 positive for MDRGN pathogen on first screening within 48 hours of birth
- Statistically significant predictors of colonisation
  - Asian ethnicity (p=0.015),
  - low birth weight (p=0.001)
  - lower gestational age (p<0.001)
  - mothers were more likely to have received antenatal steroids (p=0.014).
  - more likely to receive TPN (p=0.010)
  - have a central line in place for longer (p=0.06)
  - more treatment days of
    - flucloxacillin,
    - metronidazole
    - meropenem
    - pro-kinetic doses of erythromycin (p<0.05 for all)
- length of stay on the neonatal unit was longer (p<0.001)
- 36% of patients had a negative rectal swab or faecal sample on surveillance screening by the time of discharge.

Discussion

- 11% perinatal acquisition - ? Should we be screening mothers
- Would be useful to compare incidence in previous years to see if weekly surveillance screening and isolation precautions are reducing overall incidence of colonisation rates

References

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