

Larkin EL¹, Hall R², Healy M¹, McMahon C¹

¹ Department of Paediatric Intensive Care, Our Lady's Children's Hospital, Crumlin, Ireland

² School of Medicine, Trinity College Dublin, Dublin, Ireland

Introduction

Group-B streptococcal (GBS) septicaemia:

- Most common cause of early-onset neonatal sepsis (EOS) in Ireland
- Treatment often initiated within maternity units for EOS
- Late-onset sepsis (LOS) is treated within paediatric units
- EOS with multiple co-morbidities & severe LOS require PICU
 - Transfer to PICU from regional or maternity units
- UK figures:
 - 50% of EOS is secondary to GBS
 - 8% of LOS is secondary to GBS
- Lack of data for LOS in Ireland

Aims

To assess the morbidity and mortality of GBS sepsis in PICU

Methods

- Retrospective chart review
- Included neonates diagnosed with GBS sepsis
 - 5-year period from July 2012 – July 2017
 - Requiring treatment in PICU
 - N=15
- Patients identified through IntelliVue Clinical Information Portfolio (ICIP) & PICANet
- Data included:
 - Birth history: gestational age, birth weight, maternal GBS status
 - Past history: pre-existing co-morbidities
 - Intervention: PICU and hospital length of stay
 - Ventilation days
 - Inotrope requirement
 - Neuroimaging requirement
 - Outcome: Final disposition, long-term morbidity

OUTCOMES

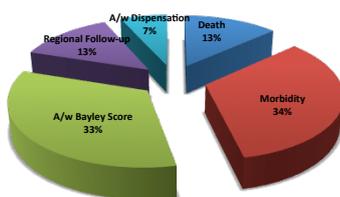


Figure 1. Duration of admissions and therapies

Conclusion

- GBS screening is not mandatory & not consistently performed in the third trimester
- It is impossible to predict prevention of LOS GBS with prophylaxis
- Given mortality & long-term consequences of GBS, need for screening and investigation into vaccine development.

Duration of Therapy

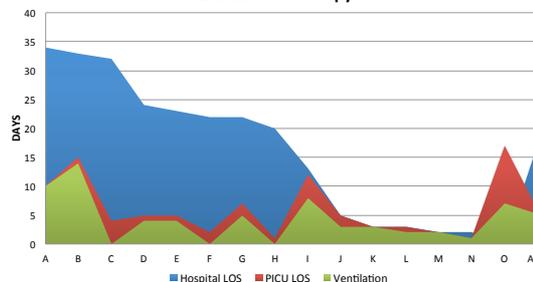


Figure 1. Duration of admissions and therapies

Results

- 15 cases were identified over the 5-year period
 - 1 case of recurrent LOS GBS sepsis
 - 12 cases of LOS GBS sepsis
 - 5 cases of pre-term neonates
 - Mean birth weight 2.74kg
 - Average gestational age 36 weeks
 - 3 mothers documented as GBS positive
 - 4 cases have multiple co-morbidities
- Average hospital length of stay of 17 days (2-34 days)
 - 6.13 days in the PICU (1-17 days)
 - 5.25 ventilation days (0-14 days)
 - 11 cases requiring inotropes
 - 6 requiring more than one
 - 6 cases demonstrated abnormal neuroimaging
- Outcomes:
 - Mortality of 13% (N=2)
 - Morbidity of 34% (N=5)
 - Not yet determined/unknown 53% (N=8)
 - 1 patient not reached dispensation
 - 5 patients still require their Bayley score
 - 2 patients are followed through local hospitals

Discussion

The case burden in PICU:

- More likely to be LOS than EOS
 - Most EOS diagnosed and treated within maternity units
- More likely to be premature
- More likely to have comorbidities
- Previous epidemiological studies within the UK found overall GBS mortality of 9.7%
 - Study mortality is higher 13%
 - Greater case severity in PICU is expected vs overall surveillance
- Most patients discharged from PICU within 2 days of extubation
 - Inpatient length of stay was 3 times as long as PICU

Contact

Dr. Elizabeth Larkin
Paediatric Intensive Care Unit
Our Lady's Children's Hospital Crumlin
Email: elizabethlarkin@rcsi.ie
Website: www.olchc.ie
Twitter: @lizlarkin
No funding to declare

References

1. Nielsen M, Sheikh N, Fitzgerald E, Meehan M, LeBlanc D, Eogan M, El-Khuffash A, Drew RJ. Screening for early-onset invasive group B Streptococcal disease in neonates in an Irish hospital (2001–2014): a retrospective audit. *Infectious Diseases*. 2017 Jun 3;49(6):466-70.
2. Okike I, Henderson K, Blackburn R, Muller-Pebody B, Anthony M, Nisni N, Johnson A, Heath P. P06 Bacterial Meningitis in Babies 0–90 Days of Age: A UK and Republic of Ireland Prospective Study. *Archives of Disease in Childhood*. 2013 Jun 1;98(Suppl 1):A2-3.
3. Shane AL, Stoll BJ. Neonatal sepsis: progress towards improved outcomes. *Journal of Infection*. 2014 Jan 31;68:S24-32.
4. Kenchington AL, Lamont RF. Group B streptococcal immunisation of pregnant women for the prevention of early and late onset Group B streptococcal infection of the neonate as well as adult disease. *Expert review of vaccines*. 2017 Jan 2;16(1):15-25.

Many thanks to the Our Lady's Children's Hospital ICU staff, consultants, and support staff, particularly our IT/ICIP/PICANet coordinators, who maintain our electronic records and data-bases.

