15 years of paediatric intracranial abscess formation – the role of ENT

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Aims

- Investigate the local patient population and management
- Determine the local microbiological profile and antibiotic resistance patterns
- Review antibiotic practices and consider suggestions for empirical treatment

Methods

- Retrospective, single-centre cohort study
- January 2001 – June 2016
- Patient identification: clinical coding and discharge books
- Data collection: case notes and digital resources

Results

Identified cases: n= 107

Exclusion Criteria:

- Patient was wrongly coded (n= 7)
- Case notes unavailable (n= 3)
- Treatment in other hospitals (n= 2)

Included cases for analysis: n= 95

Cases unsuitable for complete analysis due to underlying diagnosis of Chronic Granulomatous Disease (n= 2)

Completely analysed cases: n= 93

Figure 1: Flowchart of Patient Selection

Figure 2: Proportions of Focal Intracranial suppuration: Brain Abscess (BA), Subdural Empyema (SDE), and Extradural Empyema (EDE)

- ENT sources contributed 61.1% of infections
- Estimated annual incidence: 8.79 per million
- 43.8% of isolates were *Streptococci*
- Anaerobes not seen in infants less than 1 year
- Neurosurgical interventions in 80.6% (n=75)

Figure 3: Age Distribution of Focal Intracranial Suppuration by Age Groups

Figure 4: Source of infection by Age Groups

- 31 empirical regimens, 17 different antibiotics given in this cohort.
- Most common regimen: 3rd generation cephalosporin, amoxicillin and metronidazole
- Sufficient antibiotic coverage:
 - 95.2% by empirical regimen
 - 90.5% by 3rd generation cephalosporin + metronidazole
 - 95.2% by meropenem + linezolid
- Total antibiotic treatment duration: 92 days (IQR, 59-119 days)
- Conversion to oral antibiotics: 66.3%
- Mortality 3.2% (n= 3)
- Neurological sequelae: 38.0% short-term; 23.9% long-term

Figure 5: Distribution of patients with positive anaerobic cultures by Age Groups

Figure 6: Distribution of Isolated Pathogens in Growth-Positive patients (n= 114)

Conclusions

- Focal intracranial suppuration continues to cause **significant mortality and morbidity**
- ENT infections were the most common source of intracranial suppuration.
- Recommended empirical antibiotic regimen: **3rd generation cephalosporin + metronidazole**
- In infants with negative anaerobic cultures: **consider early discontinuation of metronidazole**