Background and objectives

The morbidity and mortality in community-acquired bacterial meningitis (CABM) remain substantial, and etiological, clinical characteristics, treatment outcomes, and predictors of poor prognosis must be assessed regularly. The aim was to identify the distribution of etiological agents and their relationship with clinical characteristics, treatment and outcomes in the cohort of patients with CABM. In Lithuania the high prevalence of invasive meningococcal disease (≥1/100,000) was defined by the latest European Centre for Disease Prevention and Control Surveillance data report (Fig. 1).

Methods

Bacterial meningitis was diagnosed on the basis of one of the following inclusion criteria:

- a positive cerebrospinal fluid (CSF) culture;
- a negative CSF culture with neutrophilic pleocytosis and at least one of:
  - positive blood culture,
  - positive CSF gram stain,
  - CSF high protein (>0.60 g/l) and low glucose (<2.7 mmol/l) with positive CSF bacterial antigen test,
- compatible clinical picture, CSF high protein (>0.60 g/l) and low glucose (<2.7 mmol/l).

Results

- 139 episodes of CABM were included; mean age 40.2±19.1, female/male ratio 65/74.
- According to diagnostic criteria, there were 72 (52%) meningococcal meningitides, 17 (12%) pneumococcal, 5 (4%) listeria, 3 (2.4%) haemophilus, 1 (0.8%) staphylococcal, 1 (0.8%) streptococcal and 40 (28%) not specified meningitis cases (Fig. 2).
- Etiological agent was confirmed in 64/72 (89%) of meningococcal, 13/17 (76%) of pneumococcal, 5/5 (100%) of listeria, 3/3 (100%) of haemophilus, 1/1 of staphylococcal, 1/1 of streptococcal meningitis (Table 1).
- Among 64 N. meningitidis strains, serotype B was identified in 55 (86%), serotype C - in 2 (2%) and for the remaining 8 (12%) the serotype was not identified (Fig. 3).
- Two of 5 L. monocytogenes meningitis occurred in adults under the age of 50 without specific risk factors.
- The presence of clinical triad, leucocytosis, thrombocytopenia and elevated levels of CRP were significantly higher in meningococcal meningitis group.
- Coexisting conditions and comorbidities were significantly more common in pneumonococcal meningitis group (Table 2).
- Findings of CSF (WBC count, glucose level, protein level) did not differ significantly per causative microorganism or outcome.
- Older age, absence of clinical triad and thrombocytopenia were significantly associated with poor outcome.
- The need of intensive care was similar in all groups (p=0.31) though the duration of hospitalization in Intensive Care Unit was significantly longer in L. monocytogenes group (p=0.01).

Outcomes were similar in all groups stratified by the causative agents and treatment.

Conclusions

The most common causative agent of CABM was N. meningitidis (serotype B – clearly dominant) in accordance with the high prevalence of invasive meningococcal disease in Lithuania defined by the latest European Centre for Disease Prevention and Control surveillance data report.

Causative agents of CABM did not influence the outcome of disease.

Older age, thrombocytopenia and absence of clinical triad on admission were associated with worse outcomes.