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Bacterial meningitis in adults. A clinical-epidemiological hospital-based study.

Fernanda Laís Reis*, Maria Luiza Moretti(1)
***Undergraduate Student, (1)Infectious Diseases Division, Internal Medicine Department Faculty of Medical Sciences, University of Campinas**

Abstract
This is a retrospective, descriptive cohort study whose objectives were the clinical-epidemiological orientation and the outcome, which included 130 patients> 15 years diagnosed as bacterial meningitis and referred to SINAN (Information System for Notifiable Diseases). The following data were collected: demographics, outcome, etiology, underlying diseases, clinical symptoms, cerebrospinal fluid (CSF) characteristics in diagnosis and treatment.

Key words:
Bacterial meningitis, outcome, epidemiology

Introduction

Bacterial meningitis (BM) has been one of the major concerns in children and adult population. In children, *Haemophylus influenza* was the main cause of meningitis until 1999 when the Hib vaccine was introduced on routine schedule for children causing a shift in the prevalence of the bacterial etiology. *Streptococcus pneumoniae* and *Neisseria meningitis* are important causative agents of BM in children and adults. In 2010, 10-valent pneumococcal and meningococcal capsular conjugates vaccines were introduced. In Brazil, BM are subjected to mandatory notification to SINAN. The objectives of our study were to determine the clinical and epidemiological aspects and outcome of patients over 15 years-old, assisted in the Hospital de Clínicas of UNICAMP.
From 2010 to 2017, we performed a retrospective study of all cases of patients with BM assisted in our Hospital. The data were collected from the SINAN forms, which were informed to the national surveillance system. The following data were collected: demographics, outcome, etiology, underlying diseases, clinical symptoms, cerebral spinal fluid (CSF) characteristics at the diagnosis and treatment.

Results and Discussion

During the study period, 130 cases of meningitis, in patients >15 y, were classified as BM based on the microbiological, chemocitological and serological parameters. The main demographic characteristics were: median age: 44 years; gender: 64.62% were male; city of origin: 54.62% Campinas; mean time between symptoms and hospitalization was 2.67 days. Frequency of clinical symptoms: headache 70%; vomit 49.23%; fever 68.46%; altered mental status 54.62%; meningeal signs 43.08%; convulsion 25.38%. The main underlying diseases are listed in Table 1 and etiology of BM is listed in Graphic 1. Diagnosis of BM was made by culture of CSF+direct examination in 43.85%; blood culture in 16,15%; serological tests: 17.69%; chemocitology: 19.23%; clinical: 3.08%. CSF characteristics were as follow: mean white cells count: 2,422 cells; mean neutrophils count: 74.45 cells; mean lymphocyte count 13.97cells; mean value of protein 441.42 mg/dL; mean value of glucose 26.27mg/dL. 76.2% of the patients survived. Antibiotic treatment was prescribed as follow: Ceftriaxone in 63 patients; Ceftriaxone + combination with another antibiotic in 23; penicillin in 6, and for 38 patients no information was available.

Graphic 1. Etiology of bacterial meningitis of patients hospitalized at the Hospital de Clinicas-UNICAMP

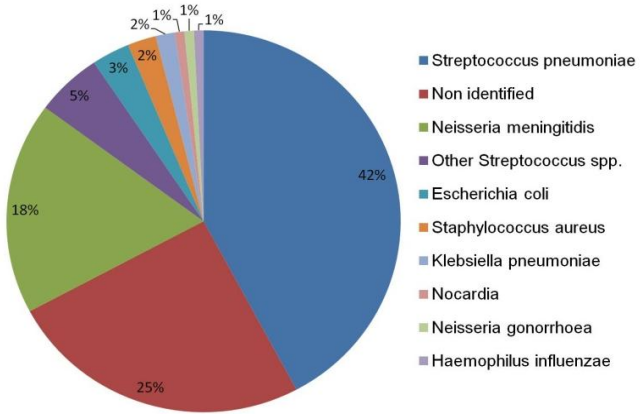

Table 1. Main Underlying Diseases

Cranioencephalic Trauma	20,77%
No Pre-Existing Disease	14,62%
Chronic Alcoholism	12,31%
CSF Fistula	10,77%
Systemic Arterial Hypertension	10,77%
Diabetes mellitus	9,23%
Immunosuppressive diseases	6,92%
Drug Abuse	6,15%

Conclusions

S. pneumoniae was the main causative agent of BM in the study period, followed by *N. menigitidis.* Our patients presented mortality rate of 23,85 % which was similar to the data from the Health´s Secretary of the State of Sao Paulo (www.saude.sp.gov.br). Our research highlighted the importance of BM in the area of Campinas and efforts have to be made to minimize this condition.

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