

Invasive pneumococcal disease in patients admitted from 2010 to 2015 at UNICAMP Clinical Hospital

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Abstract

These are the preliminary results of the study that evaluated the clinical and epidemiological data of patients admitted to the Clinical Hospital of Unicamp - Campinas / SP with invasive pneumococcal disease from 2010-2015. The clinical and epidemiological characteristics of invasive pneumococcal disease are not known in our service. The following information were collected: underlying disease, age, clinical manifestation of pneumococcal disease, isolation site, drug resistance, clinical outcome, antimicrobial susceptibility, among others.

Key words: *Streptococcus pneumoniae*, meningitis, bacteremia

Introduction

Invasive pneumococcal diseases are caused by gram-positive bacterium - *Streptococcus pneumoniae* (pneumococcus) and include meningitis, bacteremia and pneumonia. Clinical invasive pneumococcal disease is a serious infection with a high fatality rate. More recently, the resistance of pneumococcal strains to penicillin, the major antibiotic used for the treatment, has been increasing steadily in several parts of the world. Thus, monitoring of the disease has been mandatory. We expect to inform our results to the Surveillance System of the city of Campinas in order to cooperate in controlling the disease in our region. In addition, to identify risk factors associated with mortality and propose actions that could minimize mortality.

Results and Discussion

This is a retrospective study, which included patients with the isolation of *S. pneumoniae* in blood culture or in culture of the cerebral spinal fluid. The cases were selected based on the microorganisms/patients database of the Clinical Hospital. Statistical analysis was performed using Epi Info 7 program. We studied 110 patients, 73 (66.3%) were men; mean age was 43.1 years. Sixty-nine percent of the patients were from Campinas and Sumaré. The mean length of stay was 12 days (0 to 99 days) and 76 (69%) patients were discharged and 34 (31%) died with a very high mortality. There was no significant difference between the mean age and the outcome ($p = 0.37$), as well as the length of hospital stay ($p = 0.46$). Meningitis occurred in younger than adult patients ($p = 0.0001$). Among the patients with meningitis, 45.4% died whereas the ones with blood isolates mortality rate was 29.2%. Eighty-two (77%) patients had at least one underlying disease (Table 1).

Acknowledgement

CNPq/Pibic

Table 1. Antimicrobial susceptibility of *Streptococcus pneumoniae* strains isolated from 110 patients

Antibiotic (No. strains)	LCR		Hemocultura	
	No. strains	Susceptib %	No. strains	Susceptib %
Penicillin G (n=108)	10	100	98	100
Vancomycin (n=100)	9	100	91	100
Ceftriaxone (n=78)	8	100	70	100
Levofloxacin (n=99)	10	100	89	97.7
Sulfatrim (n=95)	10	70	56	67
Erythromycin (n=95)	9	55	86	90.7

Table 2. Distribution of the underlying diseases of 110 patients with invasive pneumococcal disease

Disease	N	%	Disease	N	%
			> 60 years	10	8.4
Pulmonary	29	24.5	Neurological	9	7.6
Nephropathy	14	11.8	Liver	8	6.7
HIV	12	10.1	Diabetes	7	5.9
			Hematologica		
Cancer	11	9.3	I	4	3.3
Cardiovascular	11	9.3	< 1 year	3	2.5
			Total	77	100

Conclusions

S. pneumoniae isolated from our patients were 100% sensitive to penicillin G, vancomycin and ceftriaxone, which are the antibiotics of choice for treating this infection. Pulmonary disease was the most frequently underlying disease in our patients. We emphasize the high overall mortality of 31%, and in patients with meningitis, 45.4% died.

