P1195 Community-Acquired Sinusitis: Pathogens and Their Antimicrobial Susceptibility

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INTRODUCTION

The data concerning the clinical significance of different aerobic and anaerobic bacteria in the development of purulent sinusitis are often contradictory and inconsistent. This inconsistency could be explained by the fact that normally over two hundred species of microorganisms vegetate in the nasal cavity and paranasal sinuses. Most of these bacteria may cause purulent sinusitis in case of paranasal sinuses mucous oedema and the impairment of their aeration.

OBJECTIVE

To investigate the spectrum and antimicrobial susceptibility of bacterial pathogens in patients with acute maxillary sinusitis.

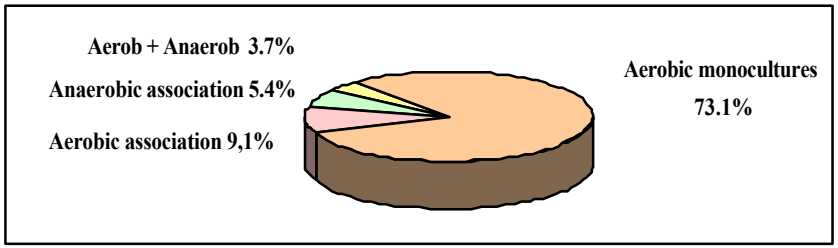
METHODS

A total of 80 adult patients from Smolensk (Russia) with acute community-acquired maxillary sinusitis (ACAS) were included in the study. The puncture of the maxillary sinus was performed before the initiation of antimicrobial therapy. Aspirate and/or sinus lavage fluid were collected into the Port-A-Cul transport medium (BBL, USA) and transported to the laboratory within 3 hours. Identification of the strains was done and strains were tested according to NCCIS standards. *S.pneumoniae* and *H.Influenzae* ATCC 49247 and 49766 were used for Quality Control.

RESULTS

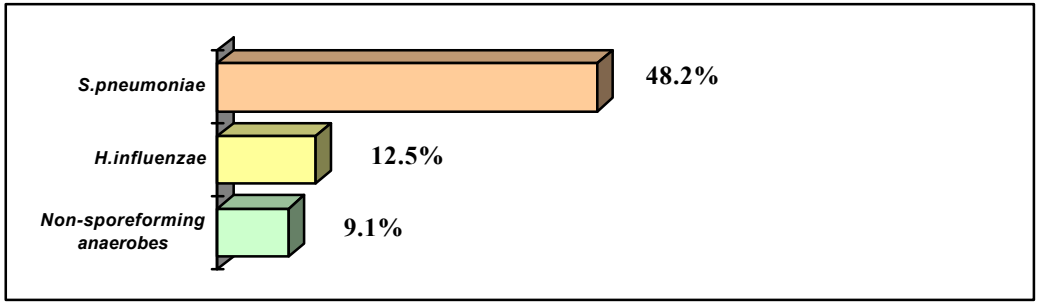
Bacterial pathogens were isolated from 56 (70.0%) patients.

Figure1. Etiology of acute community-acquired maxillary sinusitis



Gram-positive and gram-negative aerobic microorganisms were isolated in monocultures in 73.1% of cases, associations of different microorganisms were observed in 17.9% (aerobic associations - 9.1%, anaerobic - 5.4%, aeroboanaerobic - 3.7%). A total of 64 microorganisms were isolated. The most common causative agents of acute maxillary sinusitis were: *S.pneumoniae* (48.2%), *H.Influenzae* (12.5%), non-sporeforming anaerobes (9.1%). Less common pathogens were: *S.aureus* (3.7%), *M.catarrhalis* (1.8%), *S.pyogenes* (1.8%). *P. assaccharolytica* was found among anaerobic cultures in 3.7% of cases.

Figure 2. The most common causative agents of acute maxillary sinusitis (N = 64)



Tab.1 Susceptibility of *S.pneumoniae, H.influenzae* to antibiotics

	S.pneumoniae (N = 33)					*H.influenzae* (N= 9)				
Drug	R %	I/R %	S %	MIC_{50}	MIC_{90}	R %	I/R%	S %	MIC_{50}	MIC_{90}
Penicillin	0	3.0	97.0	0.016	0.023	-	-	-	-	-
Ampicillin	0	0	100	0.016	0.023	0	11.1	88.9	0.38	1.5
Co-amoxiclav	0	0	100	0.016	0.023	0	0	100	0.5	2.0
Co-trimoxazole	3.0	36.4	60.6	0.38	2.0	22.2	0	77.8	0.094	32.0
Cefuroxime	0	0	100	0.016	0.023	0	11.1	88.9	0.75	6.0
Ceftibuten	6.1	3.0	90.9	3.0	4.0	0	0	100	0.125	0.5

Resistance to beta-lactam antibiotics in pneumococci does not seem to be a problem in Smolensk. Only 3.0% of strains were intermediately and no strains were fully resistant to penicillin. All the strains of *S.pneumoniae* were sensitive to cefuroxime, ampicillin and co-amoxiclav. High frequency of resistance to co-trimoxozole was detected - 36.4%.

Susceptibility patterns of *H.Influenzae* were as follows: 11.1% of strains were moderately resistant to ampicillin and cefuroxime, no strains were resistant to ceftibuten, 22.2% of strains were resistant to co-trimoxazole. All the strains of *H.Influenzae* were susceptibile to co-amoxiclav.

CONCLUSIONS

- The most common causative agents of acute maxillary sinusitis were *S.pneumoniae* and *H.Influenzae.*
- *S.aureus*, *S.pyogenes* and *M.catarrhalis* seem not be of as importance pathogens of acute maxillary sinusitis.
- *S.pneumoniae* and *H.influenzae* have a good susceptibility to beta-lactam antibiotics.
- Co-trimoxazole is not considered to be the drug of choice in the therapy of acute community - acquired sinusitis due to high resistance of most significant pathogens.