Prevalence and antibiotic susceptibility of methicillin-resistant *Staphylococcus aureus* in the surgical ICU of General Hospital “Prim. dr Abdulah Nakaš” Sarajevo – our experience

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BACKGROUND AND GOAL OF STUDY

The incidence of methicillin-resistant *Staphylococcus aureus* (MRSA) infections has declined over time in the USA, Europe and Canada, but increased in sub-Saharan Africa, India, Latin-America and Australia. It is not clear whether MRSA is replacing methicillin-susceptible *S.aureus* infections, or just adding to its overall incidence. With the varying regional patterns of resistance and the importance of those infections, it is prudent to know the local prevalence of MRSA and its' antibiotic sensitivity pattern. The goal of this study is to determine the prevalence and antibiotic susceptibility of health-care associated MRSA infections in the surgical ICU of the General Hospital “Prim. dr Abdulah Nakaš” Sarajevo.

Fig. 1. Percentage of methicillin-resistant *Staphylococcus aureus* isolates in selected countries, 1999-2014 [1]

MATERIALS AND METHODS

This study is a retrospective data analysis of the results of microbiological testing of surgical ICU patients in the General Hospital “Prim. dr Abdulah Nakaš” Sarajevo, during the period 01/01/2014 to 10/12/2015. Identification of *S.aureus* was confirmed by standard methods, and antibiotic susceptibility testing was performed according to the Kirby-Bauer disc diffusion method on Müller-Hinton agar. Oxacillin, cloxacillin, penicillin and cefoxitin were used to test the resistance of isolated *S.aureus* strains to methicillin. Data were analyzed by methods of descriptive statistics.

RESULTS AND DISCUSSION

Out of the total of 96 nosocomial infections, in 16 cases (16.6%) *S.aureus* was the identified causative agent, and in 8 (50%) patients it was found to be a methicillin-resistant strain. Among them, 6 patients (75%) were older than 70 years and 2 patients (25%) 55-65 years. MRSA was isolated from sputum in 4 cases and from surgical wound swabs in 5 cases, with one patient having MRSA isolated from both samples. There were no proven MRSA bloodstream infections. Lethal outcome was observed in 3 (37,5%) patients. Every isolated MRSA strain was sensitive to vancomycin, 75% to amikacin, 50% to amoxycillin+clavulonic acid and ampicillin+sulbactam and 25% to ciprofloxacin. All the MRSA isolates were resistant to 3 or more antibiotics tested.

Staphylococcus aureus		
Specimen types	Methicillin-susceptible <i>S.aureus</i>	Methicillin-resistant <i>S.aureus</i>
Sputum	0	4
Surgical wound swab	3	5
Blood	3	0
Central venous catheter tip	1	0
Urine	1	0

Prevalence of methicillin-resistant *S. aureus*

Methicillin-resistant *S.aureus* antibiotic sensitivity

CONCLUSION

In our experience, MRSA infections account for half of the nosocomial *S.aureus* infections, with a 100% sensitivity of the isolated strains to vancomycin and a relative high sensitivity to amikacin.

[1]. Center for Disease Dynamics, Economics & Policy. 2015, *State of the World's Antibiotics*, 2015. CDDEP: Washington, D.C.

[2]. Mostofsky E, Lipsitch M, Regev-Yochay G. Is methicillin-resistant *Staphylococcus aureus* replacing methicillin-susceptible *S.aureus*? *J Antimicrob Chemother* 2011; 66: 2199-2114