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COMPARATIVE ACTIVITY OF LINCOMYCIN AND CLINDAMYCIN AGAINST STAPHYLOCOCCUS AUREUS ISOLATED FROM HOSPITALIZED PATIENTS

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ABSTRACT

Background: There are two lincosamide antibiotics currently available in Russia - lincomycin and clindamycin. *In vitro* activity of clindamycin against staphylococci has been evaluated extensively, but there are a little data available on lincomycin.

Objective: To compare the *in vitro* activity of clindamycin and lincomycin against *S. aureus* isolated from hospitalized patients.

Methods: A total of 555 clinical isolates of *S. aureus* obtained from hospitalised patients from 16 centres in different regions of Russia has been studied. Susceptibility to clindamycin and lincomycin was determined by agar dilution method in accordance with the NCCLS recommendations. Interpretation of susceptibility testing results for clindamycin was done according to the NCCLS guidelines (no recommendations are available for lincomycin). The *S. aureus* ATCC 29213 was used as a control strain.

Results: MIC₅₀, MIC₉₀ and MICs ranges for tested antimicrobials are shown in the table. Clindamycin was significantly more active than lincomycin against tested strains. Its MIC in general was 4 dilutions lower than MIC of lincomycin. Moreover, 14 of clindamycin susceptible strains (MIC₅₀ ≤ 0.5 mg/l) have MIC for lincomycin ≥ 128 mg/l.

	S, %	R+I, %	MIC, mg/l		
			MIC ₅₀	MIC ₉₀	Range
Clindamycin	79,6	20,4	0,125	>256	0.06->256
Lincomycin	-	-	2	>256	0.5->256

Conclusion: Lincomycin has a significantly lower *in vitro* activity than clindamycin against *S. aureus*, so, lincomycin should not be used for treatment of staphylococcal infections

BACKGROUND

Among two lincosamides available in Russia the *in vitro* activity of clindamycin against staphylococci has been evaluated, but, unfortunately, there are a little data available on lincomycin. We performed this study to obtain more data about lincomycin activity against *S. aureus* isolated in Russian hospitals and to compare it with clindamycin activity.

OBJECTIVE

To compare the *in vitro* activity of clindamycin and lincomycin against *S. aureus* isolated from hospitalized patients.

METHODS

Strains: A total of 555 clinical strains of *S. aureus* isolated in 2000-2001 from patients hospitalized in 16 medical institutions in different parts of Russia (see figure 1): 3 in Central region (Moscow, Ryazan, Smolensk), 2 in North-Western region (St.-Petersburg), 3 in Southern region (Krasnodar, Stavropol), 2 in Volga region (N. Novgorod, Kazan), 3 in Ural region (Ekaterinburg, Ufa), 3 in Siberia (Krasnoyarsk, Novosibirsk, Tomsk) were included in the study.

All strains were shipped to a reference laboratory of Institute of Antimicrobial Chemotherapy (Smolensk, Russia) and re-identified there by standard biochemical methods and stored at 70°C in glycerol broth.

Susceptibility testing: Minimal inhibitory concentrations (MICs) to clindamycin and lincomycin were determined by agar dilution method on Mueller-Hinton II agar (BBL, USA). Interpretation of susceptibility testing results for clindamycin was done according to the NCCLS guidelines (2001), but no recommendations are available for lincomycin.

Quality control: *S. aureus* ATCC 29213 was used as a control strain.

Figure 1. Centers participated in the study



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RESULTS

MIC₅₀, MIC₉₀ and MICs ranges for tested antimicrobials are shown in the table. MICs distribution are presented on figures 2 and 3. Clindamycin found to be significantly more active than lincomycin against tested strains. Its MIC in general was 4 dilutions lower than MIC of lincomycin. Moreover, 14 of clindamycin susceptible strains (MIC₅₀ ≤ 0.5 mg/l) have MIC for lincomycin ≥ 128 mg/l.

Table. *In vitro* activity clindamycin and lincomycin against *S. aureus*

	S, %	R+I, %	MIC, mg/l		
			MIC ₅₀	MIC ₉₀	Range
Clindamycin	79,6	20,4	0,125	>256	0.06->256
Lincomycin	-	-	2	>256	0.5->256

Figure 2. MIC distributions for clindamycin

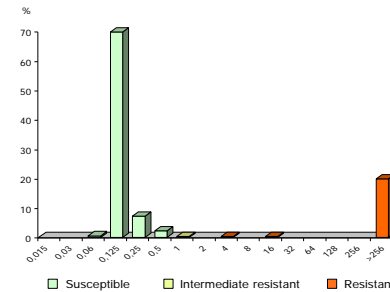
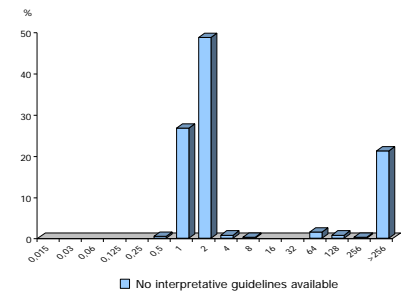


Figure 3. MIC distributions for lincomycin



CONCLUSIONS

- Lincomycin has a significantly lower *in vitro* activity than clindamycin against nosocomial *S. aureus*.
- Lincomycin activity against *S. aureus* is doubtful, so the further clinical investigations are needed.