

Conference Presentation

Action of methicillin on the “in vitro” growth of bacteria *Staphylococcus aureus* methicillin-resistance previously treated with homeopathic dilutions

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Abstract

Background: Methicillin-resistant *Staphylococcus aureus* (MRSA) causes nosocomial infections, and it has been considered as a worldwide epidemic. The medical system seeks new strategies to fight against MRSA that do not generate resistant strains to antibiotics. Homeopathy has been explored as one of these new strategies, which may play a pivotal role. In this context, we conducted studies on the action of homeopathy on growth of MRSA bacteria *in vitro*. The results showed a decrease in growth of bacterial strains with homeopathic dilutions of *Belladonna* and the *S. aureus* nosode. Now we have proposed to evaluate the minimum inhibitory concentration (MIC) of the antibiotic methicillin or oxacillin on *S. aureus* MRSA, previously incubated with the homeopathic dilutions of *Belladonna* or *S. aureus* nosode.

Methods: The Clinical and Laboratory Standards Institute (CLSI 2014) standards were followed according to the determination of the minimum inhibitory concentration (MIC). In 5 mL of cation adjusted Mueller Hinton (CAMH) broth, it was added 420 µl of 30% alcohol or *Belladonna* and *S. aureus* nosode in the dilutions 6cH, 12cH and 30cH. Then a 20µl of bacterial suspension of MRSA was added to 0.5 McFarland range and diluted to 1/10. The tubes were incubated in an oven at 37°C for three hours. The plates were previously prepared with 50µl per well of serial dilutions of the antibiotic oxacillin in concentrations of 128 µg/mL to 0.5 µg/mL in CAMH broth. Then it was added 50 µl per well of bacterial cultures. The plate was incubated in an oven at 37°C for 24 hours and the bacterial growth measured in a spectrophotometer 600nm. The point of the MIC of oxacillin for *S. aureus* is 4 µg/mL, according to CLSI 2014 criteria.

Results: We did not observe the total inhibition of bacterial growth when incubated with the homeopathic medicine and oxacillin. In evaluation of the spectrophotometer culture, we observed significant changes in the growth, compared to the control (30% alcohol). Cultures treated with *Belladonna* 6cH and the antibiotic in the dilution 4 µg/mL showed a decrease of 40% of the growth, while in the 30cH the drop was of 75%. Cultures treated with the *S. aureus* nosode 30cH and the antibiotic at 4 µg/mL dilution, showed a decrease of 60% in bacterial growth *in vitro*.



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Conclusion: The results suggest that bacterial cultures the *S. aureus* (MRSA) incubated with the homeopathic medicines would be more susceptible to oxacillin's antimicrobial action.

Keywords: homeopathic medicines, *Staphylococcus aureus*, MRSA, in vitro, high dilution, belladonna

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