IN-VITRO COMPARATIVE EXPERIMENT WITH STAPHYLOCOCCUS AUREUS FOR DISINFECTION OF NEEDLE-FREE DEVICE: INNOVATIONS NURSING PRACTICES IN PEDIATRIC CARE

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Background and Aims

Staphylococcus aureus infections are an important cause of morbidity in pediatrics. One of the risk factors is venous access devices, that can raise the vulnerability. So, it is necessary to improve patient safety by finding the best ways to disinfect the devices if they are using IV devices. In this work, it was compared two ways of cleaning a needle-free device: Site-scrub® (Bard) (70% isopropyl alcohol) and Sterile gauze pads with 70% Hydrated ethyl alcohol.

Method

Experimental research with the ATCC® 25923™ Staphylococcus aureus in vitro. First, it was done the infection of the Safeflow (B.Braun) with 0,5 McFarland in the proportion 1:100 CFU/ml in 0.9%NaCl (10 µl of 0,5 McFarland Staphylococcus aureus in 990 µl of 0.9% NaCl). Controls were used to compare. Then, one of the disinfection methods was used. The study counted with 3 technical repetitions and 3 biological repetitions of each disinfection methods, what gave and ending of 54 experiments. After that, it was used 0.9% NaCl, vortex and ultrasonic bath 40 kHz for recuperation. To visualize the effect, 100 µl was put on a plate with TSA and it was incubated for 24 hours at 35 °C ±1 (Figure 1).

Results

Site-scrub® (Bard) (70% isopropyl alcohol) had a reduction of a media of 331 CFU/plate to 87 CFU/plate. Sterile gauze pads with 70% Hydrated ethyl alcohol had a reduction from an average of 331 CFU/plate to 161 CFU/plate.

Conclusion

Site-scrub® (Bard) is more effective to reduce the quantity of Staphylococcus aureus sterile gauze pads with 70% Hydrated ethyl alcohol in needle-free device.

Figure 2: Images of the used devices

Source: Created by the authours of the study, based on Google images

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Figure 1: Protocol for experiemental study in Staphylococcus aureus desinfection of needle free device

Source: Created by the authours of the study