STUDY SUMMARY

Contamination of the Clave® connector: effective decontamination using 70% isopropyl alcohol

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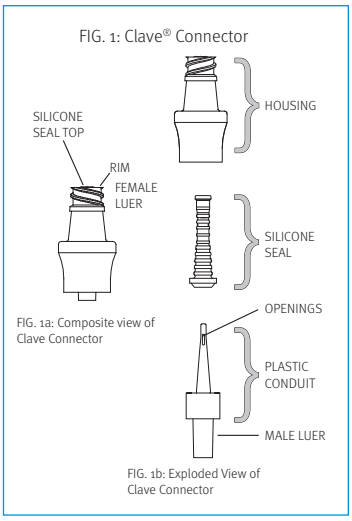
PURPOSE

The Clave connector is a microbiologically closed system in which a well recessed plastic conduit is completely enclosed by a silicone seal. When a male luer is connected and locked into the female end of the Clave connector, the silicone seal is depressed by the male luer connection below the opening of the plastic conduit, permitting the flow of fluid. The flow is stopped by disconnecting the male luer with a counterclockwise turn. As the luer disengages, the silicone seal springs back to a position well above the level of the plastic conduit, resealing it and stopping the flow of fluid. This study was conducted to test whether the Clave connector's silicone seal, when inoculated with Staphylococcus aureus, could be effectively decontaminated using one 70% isopropyl alcohol (IPA) prep pad.



MATERIALS AND METHODS

The experiment was performed at Silliker Laboratories, Inc., Carson, CA. Nine Clave connectors were inoculated as positive controls. The female luer of 20 Clave connectors was inoculated with S. aureus on the edge and top of the silicone seal. After drying, the contaminated sites were each swabbed three times in a circular motion for approximately one to two seconds using a single 70% IPA prep pad. Sterile normal saline solution was flushed through the inoculated and swabbed devices and collected in tubes containing 15 cc of sterile SCDB growth medium. Tubes were incubated for 72 hours. Nine Clave connectors were not inoculated and served as negative controls. They were placed in a separate tube of the SCDB and incubated for three days.

RESULTS

All nine positive controls were culture positive within 24 hours of incubation. After 72 hours of incubation, no positive culture of S. aureus was obtained from any of the inoculated and swabbed Clave connectors. Eight of the nine negative controls were negative after 72 hours of incubation. The positive culture was probably the result of inadvertent contamination during the culture procedure.

	Positive cultures	Negative cultures
Positive inoculum controls	9	0
Negative controls	1	8
Inoculated and decontaminated Clave connectors	0	20

CONCLUSION

In this experiment, the silicone seal of each Clave connector was experimentally contaminated with S. aureus and effectively decontaminated with a disinfectant per current clinical practice. The results of this study show that swabbing with 70% IPA is an effective method of disinfection. The nine positive controls, which were inoculated but not swabbed, all tested positive after incubation, demonstrating the importance of effective swabbing procedures.