

POSTER PRESENTATION

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A novel method to determine the antiviral efficacy of hand rubs using murine norovirus (MNV) as surrogate of human norovirus

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Introduction / objectives

So far there is no method available in Europe to determine the antiviral efficacy on contaminated hands. Aim was therefore to develop a method which resembles both contamination and hand treatment in clinical practice as closely as possible.

Methods

Each fingerpad (8 fingers per 4 subjects) was contaminated by dipping for 15 s in 0.4 ml of MNV suspension + 10% stool suspension and allowed to dry. The virus titre on fingers was determined by shaking a plastic vial with 1 ml of sampling fluid for 20 s. Infectivity was determined by transferring 100 µl after dilution to 8 wells of a microtitre plate with 100 µl of RAW 264.7 cells. After 4 days cultures were assessed for cytopathic effects, the infective dose was calculated with the method of Spearman and Kärber. Hands were similar to EN 1500 either treated with 3 ml of a hand rub or with 3 ml of water of standard hardness using responsible application. Four hand rubs (based on ethanol 80%, 85% or 95%, or based on a combination of 30% propan-1-ol, 45% propan-2-ol and 0.2% mecetronium etilsulphate) and one hand gel (based on 85% ethanol) were evaluated.

Results

Mean baseline viral titre was between 5.99 and 6.52. The ethanol-based products reduced the viral load by 4.32 ± 0.69 (80% ethanol), 4.59 ± 0.36 (85% ethanol, rinse), 4.52 ± 0.67 (85% ethanol, gel) and 4.44 ± 1.07 (95% ethanol) which were all significantly more effective

compared to the application of water (means between 2.29 ± 0.45 and 2.67 ± 0.61). The propanol-based hand rub was somewhat less effective (3.77 ± 0.66).

Conclusion

The new method allows determining the efficacy of hand rubs against MNV. The contamination is clinically relevant, the application of a hand rub is done as in patient care, the negative control allows determining the reproducibility.

Disclosure of interest

G. Kampf Employee of Bode Chemie GmbH, Hamburg, Germany, E. Steinmann Consultant for Mikrolab GmbH, Bremen, Germany, J. Steinmann Employee of Mikrolab GmbH, Bremen, Germany.

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