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How to disinfect the nebulizers of cystic fibrosis patients? An in vitro study

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Objective: To assess in vitro the efficiency of 5 disinfection methods for nebulizers. M*ethods*: A standardized technique was used to ensure heavy contamination of 352 nebulizers (mask + mouthpiece) by 16 bacterial strains (St. aureus.: 4, Ps. a.: 8, St. malt.: 2, Burkh. cep. et Alc. xyl.: 1). The devices were then either disinfected by 5 methods (acetic acid: 3.5%, hypochlorite solution: 225 ppm, Hexanios: 0.5%, warm water + detergent: 0.5% or dishwasher), with or without drying (except for the dishwasher) ($n = 208$), either used as controls ($n = 144$). Standardized samples for quantitative bacteriological study were obtained at 1H et 4H for the group without drying and at 4H for the group with drying. *Results*: Disappearance of bacteria and disinfection (defined as a decrease of bacteria count > 105) were observed in 84.1% and 10.6% of the experiments, respectively. Acetic acid was ineffective against St. aureus, which accounted for most failures (10/11). *Conclusion*: With the exception of acetic acid, the methods tested in this in vitro study effectively sterilized or disinfected nebulizers contaminated by usual CF pathogens.
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