Evaluation of toxic side effects of clinically used skin antiseptics in vitro.

Skin antiseptics are widely used in health-care worldwide. However, there is a need to determine cytotoxicity of these medications on wounds. The aim of this study was to evaluate cytotoxic effects of five clinically used antiseptics on human skin cells. Five clinically used skin antiseptics (Prontosan, Lavasept, Braunol, Octenisept, and Betaisodona) were tested. The minimal inhibitory concentration was determined against Staphylococcus aureus, Enterococcus faecalis, Pseudomonas aeruginosa, and Escherichia coli. The cytotoxic effects on primary keratinocytes, fibroblasts, and a HaCaT cell line were determined (MTT-assay and BrdU-ELISA) at a wide range of concentrations. The agents tested showed effective antibacterial properties (Octenisept, Lavasept, and Prontosan showed higher efficacy than Braunol and Betaisodona) and different degrees of cytotoxicity. Lavasept and Prontosan demonstrated less toxicity on primary human fibroblasts and keratinocytes, whereas Octenisept, Betaisodona, and Braunol showed a significant (P<0.05) decrease in cell viability to 0% on keratinocytes at concentrations of 4%, 7.5%, and 12.5%, and on fibroblasts at 7.5% and 10%, respectively. Due to the cytotoxic effect of some antiseptics on human skin cells, it is advised that health care professionals balance the cytotoxicity of the medication, their antiseptic properties, and the severity of
colonization when selecting a wound care antiseptic. In this study, Lavasept and Prontosan showed best result regarding antibacterial efficacy and cell toxicity.