Comparison of 70% alcohol, Deconex, H_2O_2 and UV Light for disinfection of surfaces and equipment's infertility Research laboratory of Yazd

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Abstract

Background: Decontamination is a process that infectious organisms are removed by physical and chemical methods. The advantages and disadvantages of each of these values can lead to a clear viewpoint of an appropriate sterilization process. The aim of this study was to investigate the effectiveness of 70% alcohol, Deconex (SOLARSEPT) and H_2O_2, also the additive effect of supplemental UV light on decontamination of laboratory items.

Methods: The rates of contaminations of laboratory equipment's and surface areas were assessed before and after exposure with mentioned chemicals and in the final stage by UV light. Overall the 12 laboratory equipment and the 7 office instrument were evaluated. The UV light was used for 40 min from distance of 2.5 meter. Then, all points were sampled after decontamination and the microbial plates were incubated for microbial colony counts after 48h.

Results: The number of colonies before disinfection stage was 26.43 colonies per unit (cfu) in administrative and 15.17 in laboratory equipment. After using UV, H_2O_2, ethanol and Deconex, the numbers of colonies were reduced to 2.57, 0.4, 1.29 and 0.71, respectively ($p < 0.05$). Simultaneous use of H_2O_2 and Deconex with UV light reduced the numbers of colony to 0.14 and 0.17. In the administrative equipment's, the number of colonies after H2O2, ethanol, deconex and UV light were 0, 1.67, 1.25 and 0.83, respectively. Also, combination of UV with deconex and H_2O_2 reduced the colony formation to zero.

Conclusion: H_2O_2 was effective on reducing the number of colonies. Due to low toxicity, it is recommended to be used in infertility lab. We must make sure that application of disinfection chemicals will not interfere with the laboratory experiments and limits the threat to health of staff.

Key words: H_2O_2, Ethanol 70%, Deconex, UV light

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