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Research Article

The Effect of Decontamination Deconex Solution 53 Plus 2% on the Reduction of Medical Devices' Medical Equipment Infection in the Department of Urology, ShahidBeheshti Hospital, Yasuj, 1394

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ABSTRACT:

Introduction: Deconex 53 Plus detergent solution has no harmful effects on the body, including the respiratory system. It has strong cleansing properties, anti-corrosion properties of tools and instruments, and has a concentration of effective percentages against HIV, HBV, microbial, fungal and bacterial viruses (tuberculosis) for 15 minutes. Deconex 53 Plus is used to decontaminate surgical instruments and instruments, flexible and non-flexible endoscopes.
Materials and Methods: In order to determine the effect of the disinfection mentioned for 12 months, sampling was carried out in two stages before and after disinfection of the medical equipment of the urology room. Then, the collected data were analyzed using SPSS software version 22 Statistical analysis was performed.
Conclusion: This study aimed disinfectant solution Deconex 53 plus 2% on reducing pollution was Urology Medical equipment operating room. A study was conducted on medical devices in the urological department of YasujShahidBeheshti Hospital. The aim of this study was to investigate the effects of surgical procedures on the treatment of infectious diseases and their subsequent costs through pre and post disinfection. It is caused by five samples of commonly used hospital bacteria in this section.
The results showed that before disinfection, the medical equipment used was clear and after the disinfection, no bacterial growth was observed and the percentage of reduction of contamination with gram-positive and gram negative microorganisms was significantly reduced after disinfection.

Keywords: Deconex 53 Plus, YasujShahidBeheshti Hospital, Disinfection

INTRODUCTION:

In 1860, Joseph Lister, with a study on Pasteur's research, found the link between the two trends and carried out research to find out the relationship between the theory of germs and the process of infection. By 1867, Lister believed in the use of fluid and sparkle of carbolic acid to disinfect hands, wounds, dressings, sutures and surgery rooms. Although its disinfection methods and principles were elementary, their application reduced mortality from 45% to 15% in surgical procedures, and the modern period of surgical and disinfection began. Joseph Lister, with the use of antiseptic preparations for wound care, improved health and ensure surgical procedures, and Florence Nightingale, with major changes in health, caused a decrease in mortality due to contagious diseases (1).

Nowadays, improving the performance of the unit in terms of quantity and quality due to its positive effects on the income generation of hospitals plays an important role. The problem of infection has not been a new issue, and has always been a major problem. With the emergence of different types of antimicrobial disinfectants and new and different sterilizing devices, the incidence of infection in hospitals is still high. Undoubtedly, the most effective, least expensive and best way to fight infection at any time and place is to prevent it. One of the factors behind the high rate of infection in the operating rooms is the lack of compliance with the principles and methods of infection control. Although infectious agents and infectious agents play an important role in the development of microorganisms in the hospital environment, human resources in the spread and transmission of hospital infections are more effective than solids. The operating room is one of the most complex working environments in the health care system. This complexity is evident in patient issues and treatment protocols in the operating room (2).Transmission of contaminated materials by surgical means that have not completely followed sterilization is a major contributor to surgical wound infections. Disinfection and proper washing of hands and observance of the standard principles and methods of infection control in preventing the spread of infection is very important (3).

The complications of hospital infections cause a decrease in the health status of the community, inpatient patients, and the loss of trust from health centers, increasing hospital fees, prolonged hospitalization and occupancy of hospital beds, disturbing the planning and management of departments, increasing the use of antibiotics, Establishing microbial resistance, implementing the care process, increasing nursing workload and inconsistency in the treatment team (4).

With the increasing awareness of pathogens of hospital infections, their transmission routes and patterns of microbial resistance, and the use of disinfectant and disinfectants, sterilization methods and prevention methods, there are hope points in controlling these infections. In our country, hospital infectious disease control activities have been started in many hospitals, and hospital infection control committees have been established and very good activities have been done in Shiraz, Ahvaz, Kurdistan, Isfahan and Tehran (5). The implementation of hospital infection control programs is necessary to prevent the transmission of microbes from patients to employees and vice versa. These programs begin with the evaluation of risk factors and end with the design and implementation of appropriate methods for the elimination of these factors (7).

Discontinuous Deconex53 Plus detergent containing acyl-1-propylenediamine, 5-guanidinium acetate and diphenylmethyl-polyammonium propionate, together with surfactant, anti-corrosion, solvent, essential oil and paint, and no aldehyde and phenol, and in the result is no harmful effects on the body, including the respiratory system. It has strong cleansing properties, anti-corrosion properties of tools and instruments, and has a concentration of effective percentages against HIV, HBV, microbial, fungal and bacterial viruses (tuberculosis) for 15 minutes.

Deconex53 Plus for decontamination of surgical instruments and devices, flexible and non-flexible endoscopes, plastic and rubber parts, suction, anesthetics, benthic and kidney tubes that are infected with HIV, HBV and various types of respiratory, digestive, Skin such as pseudo-monas, staphylococcus aurous, etc. are used (10, 9,8,6).

Therefore, the present study aimed to determine the effect of Deconex 53 Plus (2%) disinfectant on reducing the contamination of U.S. ophthalmology room operating rooms in YasujShahidBeheshti Hospital.

MATERIALS AND METHODS:

The present study is an experimental study that aims to determine and compare the effect of Deconex-53 plus 2% disinfectant solution on the reduction of airborne contamination of theUrology Room of ShahidBeheshti Hospital in Yasujwith Staphylococcus aurous, Citrobacter, Pseudomonas aeruginosa, Escherichia coli and Klebsiella. Information about the detergent used is collected through disinfectant broths and booklets related to these disinfectants. In order to determine the effect of the mentioned disinfection for 12 months, sampling was carried out in two stages before and after disinfection of the medical equipment of the urology room. Then, the collected data were analyzed using SPSS software version 22. Itplaced .

FINDINGS:

By evaluating the factors causing hospital infections during 2015in the operating room of YasujShahidBeheshti Hospital, the percentage of infectious microorganisms in Table 1 is shown.

Table 1

Disinfectant	Deconex53 plus 2%
Staphylococcus aureus	42(18%)
Citrobacter	48(21%)
Pseudomonas aeruginosa	48(21%)
Escherichia coli	66(28%)
Klebsiella	29(12%)
Total	233(100%)

As can be seen, the study showed that the contamination of the products under treatment with Deconex-53 plus 2% disinfectant solution before intervention in the urology room of ShahidBeheshti Hospital, respectively: Escherichia coli (28%), Pseudomonas and Citrobacter (21%), Staphylococcus aureus (18%) and Klebsiella (12%). Also, for decontamination, according to the following tables, the disinfection of equipment was carried out using Deconnex disinfectants, which details the data obtained in the following tables.

Table 2. Distribution of medical equipment contamination with Staphylococcus aurous bacteria before disinfection with Deconex disinfectant solution in Department of Urology, ShahidBeheshtiyasuj Hospital, Oct. 2015.

Disinfectant		Deconex53 plus 2%
Staphylococcus aureus	Positive	42
	Negative	20
	Total	62

As shown in Table 2, the rate of Staphylococcus aurous infection in all of the medical equipment used in the operating room prior to disinfection in the Deconex disinfectant solution was 42 positive and 20 negative, respectively.

Table 3. Distribution of medical equipment contamination to Staphylococcus aurous bacteria after disinfection with Deconex disinfectant solution in Department of Urology, ShahidBeheshtiyasuj Hospital, Oct. 2015

Disinfectant		Deconex53 plus 2%
Staphylococcus aureus	Positive	0
	Negative	62
	Total	62

As shown in Table 3, the rate of Staphylococcus aurous infection in all the medical equipment used in the operating room after disinfection in the disinfection solution was zero, which is significantly different than before the disinfection.

Table 4. Distribution of medical equipment contamination to Citrobacter bacteria before disinfection with Deconex disinfectant solution in Department of Urology, ShahidBeheshti Hospital, Yasuj, October 2015.

Disinfectant		Deconex53 plus 2%
Citrobacter	Positive	48
	Negative	14
	Total	62

As shown in Table 4, the rate of infection with Citrobacter bacteria was 48 in positive and 14 in negative cases, respectively, in all the medical equipment used in the operating room before disinfection in the Deconex disinfectant solution, respectively.

Table 5. Frequency distribution of medical equipment contamination to Citrobacter bacterium after disinfection with Deconex disinfectant solution in Department of Urology, ShahidBeheshti Hospital, Yasuj, October 2015.

Disinfectant		Deconex53 plus 2%
Citrobacter	Positive	0
	Negative	62
	Total	62

As shown in Table 5, the amount of bacterial infection in Cytotoxin bacteria was zero in all the medical equipment used in the operating room after disinfection in a disinfectant solution, which has a significant difference compared to before disinfection.

Table 6. Frequency distribution of medical equipment contamination with Pseudomonas aeruginosa bacteria before disinfection with Deconex disinfectant solution in Department of Urology, ShahidBeheshti Hospital, Yasuj, Oct. 1394

Disinfectant		Deconex53 plus 2%
Pseudomonas aeruginosa	Positive	48
	Negative	14
	Total	62

As shown in Table 6, the infection rate for pseudomonas aeruginosa bacteria was 48 in positive and 14 in each of the medical equipment used in the operating room before disinfection in the Deconex disinfectant solution, respectively.

Table 7.Distribution of the contamination of medical equipment to Pseudomonas aeruginosa bacteria after disinfection with Deconex disinfectant solution in Department of Urology, ShahidBeheshtiyasuj Hospital, Oct. 2015.

Disinfectant		Deconex53 plus 2%
Pseudomonas aeruginosa	Positive	0
	Negative	62
	Total	62

As shown in Table 7, the infection rate of Pseudomonas aeruginosa bacteria was zero in all the medical equipment used in the operating room after disinfection in the ganglia solution, which is significantly different than before the disinfection.

Table 8. Distribution of the contamination of medical equipment to Escherichia coli bacteria before disinfection with Deconex disinfectant solution in Department of Urology, ShahidBeheshtiyasujHospital, Yasuj, October 2015

Disinfectant		Deconex53 plus 2%
Escherichia coli	Positive	66
	Negative	17
	Total	83

As indicated in Table 8, the amount of infection with Escherichia coli in all of the medical equipment used in the operating room before disinfection in the Deconex disinfectant solution was 66, respectively, and 17 cases were negative.

Table 9. Distribution of contamination of medical equipment to Escherichia coli bacteria after disinfection with Deconex disinfectant solution in Department of Urology, ShahidBeheshti Hospital, Yasuj, Oct. 2015

Disinfectant		Deconex53 plus 2%
Escherichia coli	Positive	0
	Negative	62
	Total	62

As shown in Table 9, E. coli infection rate was zero in all medical equipment used in the operating room after disinfection in each disinfectant solution, which is significantly different than before disinfection.

Table 10. Distribution of the contamination of medical equipment to Klebsiella bacteria before disinfection with Deconex disinfectant solution in Department of Urology, ShahidBeheshtiYasuj Hospital, October 2015

Disinfectant		Deconex53 plus 2%
Klebsiella	Positive	29
	Negative	33
	Total	62

As shown in Table 10, the rate of infection with Klebsiella bacteria in all of the medical equipment used in the operating room before disinfection in the Deconex disinfectant solution was 29 and 33, respectively, which did not have a significant difference.

Table 11. Frequency distribution of medical equipment contamination to Klebsiella bacteria after disinfection with Deconex disinfectant solution in Department of Urology, ShahidBeheshti Hospital, Yasuj, Oct. 1394

Disinfectant		Deconex53 plus 2%
Klebsiella	Positive	0
	Negative	62
	Total	62

As shown in Table 11, the rate of contamination with Klebsiella bacteria was zero in all of the medical equipment used in the operating room after disinfection in a disinfection solution, which is significantly different than before disinfection.

CONCLUSION:

The aim of this study was to reduce the contamination of Urology operative room with the aim of the effect of Deconex-53 plus 2% disinfectant solution. In the present study, which was conducted on medical equipment of the Department of Urology of ShahidBeheshti Hospital of Yasuj, it was tried to use the medical equipment of the operating room with practical measures to reduce the number of hospital infections and its subsequent costs through pre and post disinfection culture. , Which is caused by five samples of commonly used hospital bacteria, is included in this section.The results showed that before the disinfection, the medical equipment used was clear and after the disinfection, no bacterial growth was observed.In the present study, the percentage of reduction of contamination with gram positive and gram negative microorganisms significantly decreased after disinfection. And Study of Soltani et al. (1998) with the aim of determining and comparing the effect of Saidox, Solon and Peroxide disinfectants on the type and amount of respiratory tract contamination of mechanical ventilation devices of intensive care units of selected educational hospitals of Kermanshah on three A group of 20 respiratory tubes was also performed similar to the present study (12).

Regarding the results of cultures after disinfection with disinfectant solution that all of the cultures were negative, the effect of the solution after the intervention on the pathogens was effective. The findings of this study are consistent with the study by Jamilian et al. (2005) that the comparison of the antibacterial effect of microton, Deconex, 2% and glutaraldehyde 2% on the amount of Staphylococcus aureus bacteria in the alginate

forms. Because in both studies, the bacterial colony count was zero after disinfection (11).

In general, the results of this study showed that there is a significant difference between the mean number of pathogens before and after disinfection.

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