

RESEARCH ARTICLE



Hygienic Status of some Veterinary Clinics in Tirana, Albania

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Abstract

Nosocomial infections are present in the companion animal clinics due to the high microbial presence in manipulation surfaces and pavements of these clinics. The hygienic status of the clinics carries a lot of problems as a consequence of non-application of a correct disinfection scheme. This observation induced the initiation of this study. This study was carried in 5 representative clinics in Tirana. The aim of this study was the evaluation of hygienic status of these clinics and isolation of pathogen agents present in manipulation surfaces and pavements with the final aim to create and suggest a preventive program against nosocomial infections. The clinics under evaluation were disinfecting the environment but not in the accurate way and this procedure was not based in a disinfection scheme. In this study was tested the microbial load of manipulation surfaces and pavements of each clinic. The isolation and identification of microbial agents was done according to the standard procedures. The result of bacterial tests on the manipulation surfaces and pavements testified the presence of these bacterial agents: *Staphylococcus aureus*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Proteus mirabilis* and *Bacillus subtilis*. These results show that there is an urgent need to apply correct disinfection scheme in these clinics in order to control the nosocomial infections.

Keywords: companion animals, nosocomial infections, microbial resistance, disinfection.

1. Introduction

Nosocomial infections are present in the companion animal's clinics due to the high microbial presence in manipulation surfaces and pavements of these clinics. The hygienic status of the clinics carries a lot of problems as a consequence of non-application of a correct disinfection scheme [9]. This observation induced the initiation of this study. As it is known the most frequent way of transmission of nosocomial infection is through the contact [7]. The greatest risk of contamination in veterinary clinics is through the manipulation surfaces and the pavement of the clinics. As we know many pathogens can cause infections but many of them are able to survive in the environment despite the use of disinfection solutions [9]. The aim of his study was the evaluation of hygienic status of some representative clinics of Tirana and also isolation and identifications of most of the pathogen agents that are present in these clinics. The effective use of disinfections procedures is important in preventing the nosocomial infection and the identification of these pathogens helps to choose the correct disinfectant and the correct disinfection scheme [9].

2. Material and Methods

This study was carried in 5 representative clinics in Tirana chosen according to the following criteria: high number of patients, the veterinary manipulation with these patients and the veterinary doctors concerns regarding the nosocomial infections. The samples were collected three times a week in each of the clinics. Every day the samples were collected two times a day: in the beginning of the day and in the end of the day. Through the sterile tampons the material was taken from the pavement of the clinics in five different places (surface 10 x 10 cm) and from the manipulation surfaces in three different points (surface 10 x 10 cm). These tampons were immersed in 5 ml NaCl 0.85%. 0.1 ml of this liquid was inoculated in Petri dishes containing blood agar. The dishes were incubated in 37°C for 24-48 hours. In every dish was done the selection of the colonies. These colonies were inoculated in respective media and in the end was done the identification (according to the standard methods) [2,3,4]

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3. Results and Discussion

From the 240 samples collected in all the clinics 137 of them (57.1 %) resulted positive. From the 150 samples collected from the pavement 94 of them (62.6 %) resulted positive (tab.1)

Table 1: Samples collected from pavement

samples	positive samples	negative samples
	nr. (%)	nr. (%)
150	94 (62.6)	56 (37.4)

Table 2: Samples collected from manipulation surfaces

samples	positive samples	negative samples
	nr. (%)	nr. (%)
90	43 (47.7)	47 (52.3)

From the 90 samples collected from the manipulation surfaces 43 of them (47.7 %) resulted positive (tab.2).

From the result we could see the presence of microorganisms in every clinic. The microorganism isolated in this study are shown in the table 3. This study revealed the presence of microorganism in the clinics both pathogens and non pathogens. *Staphylococcus aureus* had the highest prevalence (31.4%) with the pavement being the major source of infection. This might be due to the fact that this microorganism is comparatively stable in the environment [8] *Staphylococcus aureus* is a common pathogenic bacterium associated with various

Table 3: Microorganisms isolated in the study

Microorganisms	Pavement	Manipulation surfaces	Total Nr. (%)
<i>B.subtilis</i>	19	2	21 (15.3)
<i>Bacillus spp</i>	12	0	12 (8.8)
<i>S. aureus</i>	24	19	43 (31.4)
<i>E.coli</i>	15	11	26 (19.0)
<i>Klebsiella spp</i>	8	2	10 (7.3)
<i>Enterococcus spp</i>	3	0	3 (2.2)
<i>P. mirabilis</i>	4	3	7 (5.1)
<i>P.aeruginosa</i>	9	6	15 (10.9)
Total	94 (68.6%)	43 (31.4%)	137 (100%)

Even that some of the microorganism isolated were non pathogens the hygienic status of the veterinary clinics carries a lot of problems due to the fact of application of a non correct scheme of disinfection. There is an urgent need of a new disinfection scheme based on practical result.

diseases. It is responsible for many respiratory tract, digestive system, post operative infections, urinary tract and skin disorders with multi antibiotics resistance, the presence of this organism might be due to post-sterilization, or the environment contamination. From the studies was found that *Staphylococcus aureus*, *Staphylococcus saprophyticus* were among the predominant organisms that isolated from the air of hospitals [11]. *Escherichia coli* prevalence was also high (19%). The isolation of *Escherichia coli* might be due to faecal contamination. *Bacillus subtilis* had a prevalence of 15.3 % due to his ability to form spores and thus to survive on dry surfaces and hygienic conditions [1]. The isolation of *Bacillus spp.* which is spore-forming organism needed proper program for elimination. *Pseudomonas aeruginosa* prevalence was 10.9%. The isolation of this organism which is well known as multi antibiotics resistant organism and the role of these bacteria as nosocomial organism which associated with wounds and eye infections is well documented. *Pseudomonas aeruginosa* was also isolated as predominant organisms from indoor air of hospitals [11]. The other microorganisms present had lower prevalence as it is shown in the table 3. The presence of microorganisms was higher in the pavement than in the manipulation surfaces due to the fact that the disinfection of manipulation surfaces is done more often than the pavement and due to organic material present in it [7]. There are evidences of resistant of bacterial hospitals toward disinfectants [9].

4. Conclusions

In conclusion samples collected and analysed in this study showed the presence of different microorganisms in the veterinary clinics both pathogen and non pathogens. Anyway the risk of nosocomial infections was evident. In all the clinics were present

Staphylococcus aureus, *Escherichia coli*, *Bacillus subtilis*. Due to the fact that some of the diseases treated in the veterinary clinics depend from the season further studies for presence of other possible microorganism are needed because of the risk these microorganisms are for the pet owners due to close companionship they have with the pets.[5,10]. More than everything the choice of the proper disinfectant and application of this disinfectant in practical conditions is a necessity in control and prevention of nosocomial infections [7].

5. References

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