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Main groups of bacteria found in lab coats in health professionals

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Abstract: Medical lab coats can carry harmful bacteria some of them resistant to medications, associated with hospital infections. It is important to point out that in health services, especially the area of urgency and emergency, most of the accidents involving health professionals, due to the lack of adoption of biosafety standards. This is a review of the descriptive literature with characteristic about the main groups of bacteria found in lab coats in health professionals. Of the infections related to health care, they are infections in the respiratory tract, urinary tract and infections in the bloodstream, which can increase this number up to 60% of cases. The research confirms that the clothing used by health professionals, as a potential means of transmission, despite being mandatory.

Keywords: Health professionals; microbiology; PPE

1. Introduction

The lab coat is one of the Personal Protective Equipment (PPE) used mainly by health professionals in order to protect it in unhealthy environments, thus being of paramount importance for the maintenance of professionals and their patients (OLIVEIRA *et al*, 2016).

However, a previous study conducted by the University of Wisconsin in the United States showed in medical lab coats can carry harmful bacteria some of them resistant to medications, associated with hospital infections. Thus, it is important that professionals make use of it in a specific environment, as the National Health Surveillance Agency (ANVISA) says through Regulatory Standard 32, where it is established that professionals cannot leave the work

environment wearing these protective clothing (RIOS, 2020).

In one study, 42% of the lab coats analyzed contained gram-negative bacteria that include *Escherichia coli*, which is responsible for intestinal and urinary infections; *Pseudomonas aeruginosa*, which can cause otitis and eye infections; and *Haemophilus influenzae*, a microorganism that causes infections, especially in children. Microbes of the SARM strain was also found in 16% of the lab coats. Both types can cause serious infections. In another study, it was possible to observe that in 45% of the bacteria found in patients' injuries were already present in the coats of professionals (HINRICHSEN, 2004).

It is important to point out that in health services, especially the area of urgency and emergency, most of the accidents involving health professionals, due to the lack of adoption of biosafety standards. Often, the seriousness of the issue is neglected by arrogance or ignorance of some basic concepts of microbiology (VALLE, 2008).

Biosafety is defined as a set of actions aimed at the prevention, minimization or elimination of risks inherent to the activities of research, production, teaching, technological development and provision of services, risks that can compromise the health of man, animals, the environment or quality of the work developed (HINRICHSEN, 2004).

The present study aims to present main groups of bacteria found in lab coats in health professionals.

2. Methodology

This is a review of the descriptive literature with characteristic about the main groups of bacteria found in lab coats in health professionals, based on articles found in the databases Literature Latino Americana e do Caribe em Ciências da Saúde (LILACS), Scientific Electronic Library Online (SciELO) and Google Academics.

3. Results and Discussion

One of the greatest means of transport of bacterial colonies in a hospital environment is the clothing used by health professionals, being the places of greatest contamination: pockets, wrists and abdomen region, because they are the areas of greatest contact with surfaces and patients (VALLE *et al*, 2008).

According to Oliveira *et al* (2016), up to 45% of health care-related infections are respiratory tract infections, urinary tract infections and bloodstream infections, which can increase this number to 60% of cases.

Research was carried out at the Municipal Hospital of Teixeira de Freitas-BA (HMTF) and Emergency Care Unit (UPA), the collections were taken from the pocket and wrist region by means of *the sterile swab* technique, *then the swabs* were placed in test tubes containing brain-heart infusion broth and packed in a refrigerated isothermal box, until they are taken for microbiological analysis.

In total, 48 samples were obtained, the test tubes were incubated at 35ºC for a period of 24 hours and after bacteriological growth, sowings were made by exhaustion with three different culture media in Petri dish: Blood Agar (AS) for the identification *of Acinetobacter spp*.; MacConkey Agar (AMC) for identification of *Escherichia coli* and other enterobacteria; Salted Mannitol Agar (AMS) for the identification of *Staphylococcus spp*. Then the plates were incubated in a bacteriological greenhouse at 35ºC/24 hours (RIOS, 2020).

Forty-one staphylococci were *isolated* and identified, 27 in the HMTF and 14 in the UPA, where 20 were corresponding to the morning shift and 21 to the afternoon. Of these, two strains were *Staphylococcus aureus*. Coagulase Positive, nine *S. aureus* Coagulase Negative, 20 *S. epidermidis* and ten *S. saprophyticus*. It is known that the genus groups about 30 species, three of which are the main ones of clinical importance. *Staphylococcus aureus* Coagulase Positive is considered the most aggressive and its dissemination has been associated with health professionals, appointed as transport vehicles of this bacterium in the hospital (RIOS, 2020; OLIVEIRA *et al*, 2016).

4. Conclusions

The research confirms that the clothing used by health professionals, as a potential means of transmission, despite being mandatory and serve as protection for professionals during research and consultations, can cause health problems if used in an erroneous way. Thus, it is evident the need for biosafety care to obtain greater safety for the professional, patient and environment.

References

[1] HINRICHSEN SL. National Biosecurity Law: some important aspects. In: Hinrichsen SL. Biosafety and infection control: hospital health risk. Rio de Janeiro (RJ): MEDSI; 2004.

[2] OLIVEIRA, B. R. M.; SOUSA, L. F.; SOARES, R.C.; BIRTH, T. C.; MADUREIRA, M. S.; FORTUNE, J.L. Research of enterobacteria and staphylococci in ants in a hospital environment. Science & Technology Fatec- JB, v. 8, n. esp., p. 1-12, 2016.

[3] RIOS, Longue Rios; OLIVEIRA, Vanessa Teixeira Oliveira; MALTA, Thaís Brito; SANTOS, Guilherme Pereira dos Santos; FORTUNA, Jorge Luiz Fortuna. Isolation, identification and antimicrobial susceptibility testing of pathogenic bacteria in clothing used by health professionals in a hospital environment. Vol 3 no. 5, 2020.

[4] VALLE, ARMC, Feitosa MB; Araújo VMD; Moura MEB; Santos AMRS; Monteiro CFS. Social representations of biosafety by nursing professionals of an emergency service. Esc Anna Nery Rev Enferm. 2008 Jun; 12(2):304-9.