Safety of the autoclave sterilization method to reduce the risk of hospital infection

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Katia Cilene Ayako Inomata
Universidade Cidade São Paulo

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1 INTRODUCTION

Hospital infection is acquired by the patient after hospitalization and may manifest during hospitalization or after discharge. Health Care-Related Infection (ARs) is considered a public health problem. In the countries, from Central America, and Europe, with hospitalized patients, about 7.6% present this condition, which leads to worsening of the patient's condition, increased microbial resistance, and removal of the patient from their service, with increased expenses and economic impact. (BRAZIL, 2021; WHO, 2022)

In the sterilization process, there is the destruction of all microorganisms, in vegetative or sporulated form, at a temperature from 121°C to 135°C, the time may vary according to the temperature and the model of the autoclave. (PADOVEZE, QUELHAS, NAKAMURA, 2014)

One of the ways to reduce the risk of IRAS involves all phases of the sterilization process, the storage and distribution of materials, should follow the manual of good practices for the reprocessing of materials, because in addition to ensuring their use, lead to the absence of adverse effects to the patient, which includes infection (SOBECC, 2017).

2 METHODOLOGY

The bibliographic search method was used, based on data in the last 3 years, Google Scholar, Scielo, in English and Portuguese. User keywords: Importance of autoclave sterilization; control of hospital infection and segurança of sterilization in an autoclave. The technical manual on good practices in the sterilization of health products of the Brazilian Nursing Center (SOBECC) and the National Health Surveillance Agency (ANVISA) was consulted.

3 RESULTS

The Material and Sterilization Center (CME) is divided into a dirty area, which receives the material used, washing and disinfection are carried out, and a clean area where the preparation of the material and the sterilization process takes place, there must be a barrier between the two areas, as well as the

professional who circulates in the contaminated area, remove the PPE and sanitize your hands to enter the clean area. (BRAZIL, 2012)

The materials after use should be sent to the CME, where they are washed in a detailed mechanical way or by the automated washer, after, are rinsed with filtered water and disinfected, the materials that have a lumen less than 5 mm, must undergo cleaning process in the ultrasonic washer. (BRASIL, 2012)

After the process of disinfection and drying, the material is inspected: if there is the presence of dirt, the integrality, and functionality of the material, are carried out in a clean area, after, being packed in cotton fabric, surgical grade paper, or disposable blankets, on an appropriate and clean bench. (BRAZIL, 2012)

The materials are identified, with the label, containing the name of the product, the date, the name of the professional, the batch number, the date of use, the sterilization method, and fixed zebra tape to identify the sterilized materials, of the non-sterilized materials, to ensure the safety, that the material, has gone through the sterilization process. (BRASIL, 2012)

The autoclave sterilization process is indicated for chemoresistant materials, and critical materials, considered, which come into contact with the mucosa, subepithelial tissue of the skin, and vascular system. (SOBECC, 2017)

The guard of the sterilized material is carried out temporarily in the CME arsenal. The Arsenal is a room intended for the storage of materials, with washable walls, restricted access to the site, and free from direct sun exposure, the material should be stored, on a clean shelf, identified, and separated by type of surgery. (SOBECC, 2017)

It is important to check the validity of all products, and the integrity of the packaging, if the packaging is violated, separate the product to be reprocessed, hold the conference of the deadline weekly, not to occur the use the material, which is out of the validity of sterilization and thus ensures the quality, the safety of patient care. (BRASIL, 2012)

The deadline for the use of sterilized products varies according to the institution, according to the guidance of RDC 15, 2012, it is necessary to evaluate the integrity, and resistance of the packaging, observe events related to handling, storage of the material, stacking of packages, packaging folds humidity conditions, temperature, sealing safety and turnover of stored stock. (BRASIL, 2012)

To ensure the safety of the sterilization of the material, it is necessary to perform: periodic maintenance of the autoclave, the daily biological test, which analyzes whether the autoclave is working effectively, the chemical integrator class 5 or 6, which monitors all the parameters of the sterilization process, maintenance and tests performed are noted in the notebook intended for this purpose. (BRAZIL, 2012) The operation of the autoclave occurs through the cycles of air drainage in the sterilization chamber, intake and exhaust of the steam, and drying of the material, it is necessary to monitor regularly the quality of the water, used in the CME, the temperature of the environment should be between 20 to 24ºC. (SOBECC, 2017; PADOVEZE, QUELHAS, NAKAMURA, 2014)

It is recommended that the transport of the dirty material as clean, should be carried out in the identified plastic box, for each type of material, dirty and clean, the box should be sanitized daily, with alcohol at 70%. (BRAZIL, 2012)

The CME professional must use personal protective equipment (PPE) as he is exposed to physical, chemical, and biological risks. (SOBECC, 2017; BRASIL, 2012). There is a need to train the professional with scientific knowledge such as washing, disinfection, sterilization, use of chemical and biological indicators, knowledge about the transmission of infection and handling the autoclave, knowledge that enables uniformity and effectiveness of the processing of materials, offering safety to the patient, through scientific knowledge. (SOBECC, 2017)

4 CONCLUSION

It was possible to conclude with this research, that the sterilization process is one of the ways to prevent Healthcare-Related Infections, so that this process occurs safely and effectively, it is necessary to follow the standard operating procedure of ANVISA and recommendations of SOBECC, such as: having adequate physical structure, for the circulation and preparation of contaminated and clean materials, maintenance of the autoclave, the performance of daily autoclave tests, through the use of chemical, physical and biological indicators, control of the temperature of the environment, the professional should be trained to carry out the activities of the sector, use of personal protective equipment, in addition to the storage of the material in an appropriate and validated place.

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