

CONSTRUCTION OF A CARDIOPULMONARY BYPASS PROTOCOL IN PATIENTS WITH COVID-19: EXPERIENCE REPORT

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Abstract: INTRODUCTION: The pandemic brought a challenging moment to the entire global Health System and Health Professionals, with a high risk of affecting the mental and physical health of these workers. With this new world scenario, health professionals needed to have organizational conditions available so that they could perform their duties safely. The main function of the perfusionist is to perform the replacement of heart and lung functions during cardiac surgery with cardiopulmonary bypass, being responsible for conducting the patient's perfusion. **OBJECTIVE:** To report the experience on the construction of the protocol with the main recommendations and protection and safety measures related to the surgical routine with cardiopulmonary bypass in patients with suspected or confirmed COVID-19. **METHODOLOGY:** This is a descriptive study with qualitative characteristics, of the experience report type. **DISCUSSION:** Review on social distancing, use of personal protective equipment, hand hygiene routine, CPB assembly and preparation, and driving. **CONCLUSION:** Sharing experiences in the fields of health is an important strategy to add knowledge and increase awareness of the different possibilities for combating the epidemic in the context that is still present in our daily lives.

Keywords: Extracorporeal circulation; Covid-19; health professionals.

INTRODUCTION

The World Health Organization (WHO), in December 2019, became aware of the emergence of a new strain of the coronavirus, discovered in Wuhan, China. Then, on January 30, 2020, it declared a Public Health Emergency of International Concern and, slightly, it was notified in almost all continents. In February 2020, when it arrived in Brazil, the disease took on pandemic proportions,

and this new strain was named Severe Acute Respiratory Syndrome of the Coronavirus 2 (SARS-CoV-2), responsible for the disease of the Coronavirus (COVID-19). (PORTUGAL, et al. 2021)

The pandemic brought a challenging moment to the entire global Health System and Health Professionals, with a high risk of affecting the mental and physical health of these workers. (GREENBERG, et al. 2020) The hospital environment placed health professionals at high potential for infection with the new coronavirus, the widespread contamination of these places showed a relationship with the hospitalization of patients contaminated by SARS-CoV-2, symptomatic or not. (YUNG, et al. 2020)

With this new world scenario, health professionals needed to have organizational conditions available so that they could perform their duties safely. These were relevant challenges with regard to the care and quality of nursing care during the pandemic. It was necessary to train, qualify the entire health team, to readjust their activities in the new reality presented. (SHARMA, et al. 2020)

In order to protect and guarantee the safety of these professionals, preventive individual and collective protection measures are extremely relevant, preventing infection by SARS-CoV-2. Infection among these workers decreases the workforce and contributes to less adequate care for patients. (SOARES, et al. 2021)

The Perfusionist is a health professional who performs his role as one of the essential services to society. The attributions of the perfusionist are complex, since in order to perform their function, the professional is required to seek training with a technical-scientific basis, in order to provide certification and qualification at work and the development of autonomy and safety. He becomes able to prevent and intervene in case

of complications. (INGRID, et al. 2022)

Among his attributions, the main function of the perfusionist is to perform the replacement of heart and lung functions during cardiac surgery with cardiopulmonary bypass (CPB), being responsible for conducting the patient's perfusion. In view of the above, the objective of this work is to report the experience on the construction of the protocol with the main recommendations and protection and safety measures related to the surgical routine with cardiopulmonary bypass in patients with suspected or confirmed COVID-19, relating to the various steps that are part of the attributions of the perfusionist, thus avoiding the spread and contagion with the coronavirus.

METHODOLOGY

This is a descriptive study with qualitative characteristics, of the experience report type, on the elaboration of a protocol for application in cardiac surgeries with CPB in patients with suspected or confirmed COVID-19, carried out in a public hospital in the city from Salvador, Bahia, in the period of June and July 2020. Four perfusionist nurses and two assistant nurses from the surgical center who work in this hospital participated in the elaboration.

According to DALTRO, M. R. and FARIA A. A. (2019), the Experience Report is characterized by a variety of theoretical and methodological options, and values the descriptive, interpretative and comprehensive explanation of phenomena, restricted to a specific historical time.

The elaboration took place in three stages: in view of the excess of information in which we were affected daily about the pandemic, the need to search for reliable theoretical references was seen, the first stage was then research in the scielo, pubmed and Virtual Health Library (VHL), using descriptors

combined in different ways: Contact precaution; Respiratory precaution; surgery; Covid-19; extracorporeal circulation. After the search, a critical analysis of the articles was carried out, selecting those that were relevant to the elaboration of the protocol.

The second step was to carry out a comparison relating these studies with our routine standard operating procedures, with the purpose of identifying the main topics related to the various steps that are part of the Perfusionist's attributions that would need to be reorganized and changed for safety measure avoiding the contagion of professionals involved in the surgical procedure and dissemination of the disease.

After identifying the changes and new procedures that would be necessary, the protocol was formulated. The third step was publicizing and training the team to implement the new procedure.

DISCUSSION

SOCIAL DISTANCING AS A PROTECTIVE MEASURE

Due to the recognition of the COVID-19 pandemic by the World Health Organization (WHO), and the declaration of a Public Health Emergency of National Importance (ESPIN), the Ministry of Health established measures to deal with the covid-19. Among the measures indicated by the MS are non-pharmacological ones, such as the social distancing, limiting close contact between infected people and other people, and procedures must be adopted to reduce interaction between people in order to reduce the speed of transmission of the virus. (BRAZIL, 2021)

Considering the Public Note, dated April 13, 2020, in which the National Health Council defends the need to maintain social isolation (or distancing) as the most effective method in preventing the pandemic, as guided by the Pan American Health Organization (PAHO) and

WHO to safeguard the lives of the Brazilian population. (BRASIL, 2020) it was determined, in the protocol, that only one perfusionist must provide assistance in the operating room during the procedure of the patient with suspected or confirmed COVID-19, another perfusionist professional must remain as external support to the operating room (OR) to provide any additional material you may need. Routinely in cardiovascular surgery with CPB, it was determined that, when possible, two perfusionists were present in the operating room, one being responsible for conducting the perfusion and the other supporting the perfusionist.

This new conduct aims at the smallest number of people in the OR, with the main purpose of avoiding crowding.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

The use of PPE has been presented as one of the main preventive measures implemented, in the different areas of health care, to reduce the risks of exposure and the consequent contamination by Sars-VOC. (CARVALHO, et al. 2021).

The Brazilian Association of Surgical Center Nurses, Anesthetic Recovery and Material and Sterilization Center (SOBECC) highlights that the care provided within the surgical center units to patients with suspected or confirmed COVID-19 infection must be carried out using appropriate PPE by the whole team, being them; cap, waterproof apron or cloak, goggles or face shield, respirator or N95 mask, those that cover eyes, nose and mouth, gloves that cover the cuff of the apron, closed and impermeable shoes that allow disinfection. (SOBECC, 2020)

On recommendation by ANVISA (2020) the surgical mask must be used to avoid contamination of the professional's nose and mouth by respiratory droplets, when there is

a need to act at a distance of less than 1 meter from the patient suspected or confirmed to have COVID infection. In procedures with risk of generating aerosols (intubation or tracheal aspiration, non-invasive ventilation, cardiopulmonary resuscitation), both in suspected and confirmed patients, it indicates the use of a PPF2/N95 respiratory protection mask or equivalent, it is also recommended for professionals who act in surgical procedures that require orotracheal intubation of a suspected or confirmed case, in procedures in which general anesthesia is required.

Goggles or face shield are used when there is a risk of contamination of the health professional by splashes, excretions and other fluids. Discussing the assistance to surgical patients contaminated or suspected of having COVID-19, if you choose to use the face shield, it is recommended that you cover the front and sides of the face. (ROMANO, et al. 2021)

The use of the apron is extremely accurate throughout the handling of a suspected or confirmed COVID-19 patient, and the National Health Surveillance Agency (ANVISA) emphasizes that impermeable aprons must have a waterproof structure and a minimum weight of 50 grams per meter square (g/m²), being comfortable, hypoallergenic, without toxicity and providing an antimicrobial barrier. (ANVISA, 2021)

The indication for the use of long-sleeved aprons by professionals is intended to prevent contamination of the professional's skin and clothing, providing an effective antimicrobial barrier. The cap must be used to protect the professionals' hair and head, must be made of disposable material and be removed after use, disposing of it as infectious waste.

Based on the scientific literature, it was established that the perfusionist must use the following PPE: Disposable apron with long sleeves, protective glasses, disposable

surgical gloves, N95 mask, cap or disposable cap, closed shoes and not wearing a watch or jewelry.

SANITIZATION OF HANDS

Brazilian Association of Surgical Center Nurses, Anesthetic Recovery and Material and Sterilization Center advocate interventions for the preparation of the procedure room, among the main guidelines are: hand hygiene to start preparing the room (SOBECC, 2020). Thus, in the protocol, the perfusionist's conduct of hand hygiene, respecting the technique, must be performed throughout the gowning process and after undressing.

ECC CIRCUIT ASSEMBLY AND PREPARATION

Before starting the surgery, the perfusionist must assemble a kit with the essential materials for CPB and take it to the OR, he must assemble a kit with reserve materials and leave it with the perfusionist responsible for external support in the room.

Machine assembly will take place in the usual way, except if the patient is already inside the OR, where the perfusionist must be using all Personal Protective Equipment.

WHILE DRIVING THE CEC

Mandatory use of PPE throughout the CPB, including the use of surgical gloves and their change whenever there is contact with secretions or blood.

CLEANING AND SANITIZING THE ROOM

According to CARVALHO (2021), in the surgical procedure of a patient with suspected or confirmed COVID-19, the instruments must be cleaned of blood or other secretions, even during surgery. All unused items and medications must be considered contaminated and discarded, and doors must remain closed

during the procedure.

Based on authors, it was defined that the perfusion professional must take only the indispensable disposable material for CPB into the OR, what is not used must be discarded.

CONCLUSION

With the elaboration of the protocol and the strategies used to face Covid-19 in the institution, the guidelines carried out by the Ministry of Health and the World Health Organization were practiced in accordance with the reality of the hospital's practice. In this new context presented, modifications of the flows were necessary, so that there was safety during the surgical act.

Sharing experiences in the fields of health is an important strategy to add knowledge and increase awareness of the different possibilities for combating the epidemic in the context that is still present in our daily lives.

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