

# Descriptive analysis of the physiotherapist's health risk factors in ICU

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**Abstract**—Introduction: The ICU intensive care unit is a place where there is exposure to risks of various natures, such as biological, physical, chemical and organizational. The physiotherapist in the ICU is a fundamental component of the interdisciplinary team for patient care. It is up to practitioners who practice physiotherapy to work on patient functionality. Method: This is a literary review of exploratory research, of a descriptive nature, based on original articles and review published in databases. The inclusion criteria used were books, online journals, in Portuguese, English, and Spanish, published between 1998 and 2016. Objective: To describe the practical actions of physiotherapists in the face of the health risks faced in an ICU. **Results:** A total of 220 publications were found, with 18 publications that met the established criteria. We found information about the complexities of the ICU and the practice of the intensivist Physiotherapist, the risks and vulnerability of the physiotherapist in the ICU, standard precautions and the use of PPE. **Final Thoughts:** In the multidisciplinary team of the ICU the physiotherapist is an essential component to the aid to the seriously ill patient. Mobilization of the patient, removal of secretions and pulmonary reexpansion are the main methods used by these professionals in the ICU, as well as the performance in the adaptations and organization of mechanical ventilation, ventilatory weaning, and extubation in the unit. Thus, these professionals are constantly exposed to several risks in their care activities to patients ill in the ICU, both biological risks and physical risks and chemical risks.

**Keywords**—Physiotherapy, ICU, Occupational Risks.

## I. INTRODUCTION

Hospitals are environments that pose considerable risks to workers' health because they present conditions that increase the vulnerability of health workers such as the complexity of care provided to the patient, the accelerated pace of work, procedures adopted, the risk in contact with blood and secretions and other bodily fluids, equipment and materials, measures of individual and collective protection among others [1].

According to Bolick et al. (2000) [2], Health professionals suffer accidents almost as often as industry workers, and their risk of acquiring diseases is about 1.5 times higher than the risk of all other workers. Nowadays, there is increasing pressure on the intention of performing more activities in less time and with less

help. This contributes to the risks faced by health professionals, including the physiotherapist. The stress generated in this environment can increase the chances and frequencies of accidents. The safety of these professionals even comprises the prophylaxis of infections. Hospitals are identified as naturally unhealthy sites as it provides the exposure of health professionals to numerous risks by harboring patients with contagious diseases, and requiring often invasive procedures. Sometimes with overcrowding of beds, they present inadequate working conditions, putting their professionals in situations of occupational risk and health threat [3].

In this context, intensive care units ICU's have special significance because they are environments

within the hospital that are most often intended for critically ill patients, usually with a high degree of dependence on direct care of the health team. The ICU can be considered one of the areas with the highest risk to workers' health. It is a place where the insertion of new technologies and work processes increases the vulnerability of professionals. [4]. In a study conducted by Silva et al. (2008) [5], in a university hospital, it was found that physiotherapists are 4.57 times more likely to be colonized by multidrug-resistant microorganisms in the performance of their activities when compared to other professionals in the same sector. Among the techniques performed by physiotherapists in the ICU that can increase the health risks of these professionals, the mobilization and positioning of potentially infected or colonized patients, manual hyperinflation maneuvers of the coughing exercises, aspirations of pulmonary secretions, among others.

The complexities of these organizational environments together with occupational risks have manifested itself as a professional socio-partner problem that leads to the adoption of initiatives by institutions together with professionals considering that there is a greater understanding of the forms of intervention and prevention.

For Rocha (2010) [6] the application of norms and laws does not always provide the best results and it is known that there is a great difference between the work processes prescribed in the rules, manuals, and work in real events. Thus, Moraes (2005) [7], Grevink and Pinsky (2009) [8] suggest that in risk management, real work situations should be considered not only theoretical information but also real situations experienced by professionals in their routine. Risk control in the ICU is based on the elaboration of rules and functional manuals for various situations, which aim to protect professionals in the execution of their work; however, these rules sometimes do not take into account actual work activities and, thus, all their variability. This study raises the need to know the health risk factors of the physiotherapist in the ICU, the importance of being

informed about the prevention and precautionary standards of risks, as well as understanding, how they perform their functions in the face of risks, and insufficient means, in order to meet the requirements of the work.

## II. MATERIALS AND METHODS

This is a bibliographic category study, exploratory research of descriptive nature, based on original articles and reviews published in databases such as Scielo, Lilacs, Bireme, and others. Books, journals, and monographs relevant to the theme were also examined. For the search for material, the following isolated or combined descriptors were used: Physiotherapy; ICU; Occupational Risks. Information on the complexities of the ICU and the practice of the intensive physiotherapist, the risks and vulnerability of the physiotherapist in the ICU, standard precautions and use of PPE were removed books, online periodicals, in Portuguese, English, published between 1992 and 2016. Articles that did not correspond for the purpose of the work were discarded.

## III. RESULTS AND DISCUSSION

Initially found two hundred and twenty publications, but only twenty-eight met the established criteria. The selection of studies was carried out through the careful reading of the title and abstract, in order to verify the questions that would guide the research. After this reading, information was found about the complexities of the ICU and the practice of the intensive therapist, the risks and vulnerability in its performance, precautions and pattern of use of PPE's and then selected five articles as main, to be exposed in Table 1, presented in relation to the health risk factors of the physiotherapist and the entire multidisciplinary team in the ICU. Table 1: Characteristics of the studies analyzed addressing the risk factors to the physiotherapist's health and the multidisciplinary team that composes the ICU, standard precautions and use of PPE.

AUTHORS	YEAR	TYPE OF STUDY	GOAL	RISK FACTORS
Silva et al.[14]	2016	A cross-sectional study with a descriptive and analytical approach	Evaluate health damage related to the work of physiotherapists working in ICU.	Excessive workload, double or triple working hours, biological risk, direct contact with limit situations, high level of tension and low wages.

Rocha.[6]	2010	Ethnographic approach	Describe the practical actions of physiotherapists in view of the limitations of material conditions and biological risks in an ICU.	Biological risks, highlighting the complexity of care provided to patients, the requirement of accelerated production rhythms, procedures with the possibility of contact with blood and other body fluids.
Amaral et al.[9]	2011	Qualitative research developed in an ICU	To characterize the profile of professionals working in the Intensive Care Unit (ICU) of adults and identify the risks inherent to the multidisciplinary team that provides assistance in the ADULT ICU, through the perception of the professional himself.	Mechanical Risks/Accidents, Biological Hazards, and Psychological Risks.
Metzker et al.[10]	2012	The descriptive and explanatory study, with quantitative and qualitative approaches.	Investigate aspects related to stress in the work of physiotherapists of a philanthropic hospital	Frequent emergency situations, circumstances that provide the constant need for the settlement, chemical and physical risks.
Silva et al.[5]	2008	Cross-sectional study.	Evaluate the epidemiological profile and sensitivity of <i>S. aureus</i> lineage, isolated in health professionals (SBP) of a university hospital in the state of Pernambuco, Brazil.	Biological and chemical risks

The findings of this research reveal several health risk factors of physiotherapists working in ICU.

Silva et al. (2008) [5] in his study concluded that the intensive care unit (ICU) presents a specific context that exposes the professional to the risk of illness, characterized by excessive workload, double or triple working hours, biological risk direct contact with limit situations, high level of tension and low wages. The high number of emergency swells in the ICU, either by the specificity of work or the environment exposes professionals who work there at various risks. The same author above pointed out that in a university hospital it was confirmed that physiotherapists professionals have 4.57 times greater possibility of being colonized by multidrug-resistant microorganisms in performing their tasks such as mobilization and positionings of colonized or possibly infected patients, cough exercises, manual hyperinflation maneuvers of the lungs, aspirations of

pulmonary secretions when compared to other professionals in the same sector.

Like Silva et al. (2008) [5], Rocha (2010) [6] in his study addresses biological risks. Through the use of ethnomethodology elements, the variability of the physiotherapist's work in the ICU was identified, evidencing how extraordinary demands are generated and how professionals act in the face of the inadequacies of the means of work associated with the biological risks present in their daily lives. He stressed as one of the main health risk factors of the physiotherapist, biological risks, highlighting the complexity of care provided to patients, the requirement of accelerated production rhythms, procedures with the possibility of contact with blood and other body fluids. Amaral et al. (2011) [9], developed his study in an adult

intensive care unit of a federal university hospital, where 37.50% of health professionals working in the ICU participated in the research and concluded that this work environment is by occupational risk excellence and exposes its workers to various situations of illness, either by their organizational structure of work or by the risks of diseases and forms of treatment used for them, and the applicability of both high technologies and basic techniques, using physical agents, chemical, in a therapeutic nature, in their most varied forms.

Meltzker et al. (2012) [10] interviewed 38 physical therapists from a philanthropic hospital in which 76.3% had occupational stress, 60.5% had mild to moderate stress and six 15.8% had the diagnosis of intense stress. Regarding the risk factors in the work of the physiotherapists evaluated, he concluded that the constant need for success, the performance of several activities performed simultaneously, as well as the division of autonomy with another health professional. The main symptoms of stress caused by these factors were: fatigue, pain in the neck and shoulders muscles, loss and/or mood oscillation, easy irritability, sharp nervousness, and insomnia. Silva et al. (2016) [14] addressing other risk factors, it found in his study that more than half of physiotherapists working in ICU experienced, at some point, some kind of osteomuscular disorder related to work, this result is credited to the work context of the ICU, in which the physiotherapists with work. Returning to the study by Amaral et al. (2011) [9] they affirm that the risks in ICU are mainly related to patient care procedures and also to occupational risks existing in the work environment. Therefore, all possible measures to be adopted to minimize the risks of accidents should be considered.

Leite and Vila (2005) [11] conducted a descriptive study that aimed to identify the difficulties experienced by the multidisciplinary ICU team. They observed that the multidisciplinary team faces difficulties related to dealing with death and information to family members, as well as difficulties related to the absence of teamwork and the lack of material resources, and the psychological risk to which these professionals are exposed due to the difficulties they experience in the work environment.

Considering not only the identification of risk factors but also forms of prevention of health damage of the physiotherapist, Tomaz and Oliveira (2001) [12] and Hinrichsen (2009) [13] suggest in their study the need to implement guidelines and conducts for control of infection and thus implement the health protection of the physiotherapist by preventing various diseases that

can affect him in the exercise of his profession in the ICU.

The National Technical Committee on Biosafety suggests that the professional must comply with safety standards and carry out individual protection measures, wear (PPE) gloves (wash hands before and after handling), apron, mask and goggles (safety liquids and projection in the eyes), that is, all individual equipment necessary at the time of assistance and also collective protection equipment (EPC). Make use of own disinfectants to inactivate a specific agent and always report risk situations and accident cases to the responsible safety sector.

Standard precautions integrate hand washing standards, use of barriers such as gloves, shoes, beanie, glasses, apron, and masks. Attention with equipment, articles, and clothing used in the care, handling of health service remnants, correct disposal of drill-cutting materials and accommodation of the infected patient according to the required level, and immunization control of the as it is a precaution of defense for immunodepressible diseases. These instructions for the exercise and practice of physical therapist action are important to protect these professionals from the eventuality of infectious or psychological pathologies by exposure to the work environment in the ICU.

#### IV. CONCLUSION

In the multidisciplinary ICU team, the physiotherapist is an essential component for the aid to the seriously ill patient. Patient mobilization, removal of secretions and pulmonary reexpansion, are the main methods used by these professionals in the ICU, as well as the performance in adaptations and organization of mechanical ventilation, ventilatory weaning, and extubations in the unit. Thus, these professionals are constantly exposed to various risks in their patient care activities sick in the ICU, both biological risks and physical risks and chemical risks. Information, continuing education and adherence to correct precautionary measures by physiotherapists in the ICU are important for maintaining their health and occupational safety in the exercise of their profession.

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