ROBOTIC SURGERY—CHALLENGES IN NURSING PRACTICE

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ABSTRACT

Introduction: *Robotic technology and the increasing reduction of invasive surgeries are changing the environment in which the medical team works and how the nurses are looking after their patients. The perioperative evaluation and behavior during surgical procedures in nursing requires attention and focus on the different aspects of the patient's condition. To ensure high-quality care, a better understanding of robotics history, the technology's current applications, and the responsibility that each individual has during the set period is needed.*

The nursing activities determine the comfort level of the patients and their overall condition.

Aim: *The aim of this article is to determine the challenges that the nursing team faces with robotic technology and the possibilities of better application of nursing activities and care.*

Materials and Methods: *The statements of doctors, other medical staff, and nurses (n = 336) have been used for this report. The data has been collected from hospitals located in Bulgaria alone, where robotic surgery is applied to evaluate the challenges within the nursing practice.*

Results:

New approaches, algorithms, and organizations of the work of the medical specialist are needed within the current practice.

The nurse plays a key role in coordinating and conducting the tasks throughout the process of the minimally invasive surgical procedure.

Although many regulations of medical standards exist, in nursing, there is room for improvement in terms of the standardization of those activities conducted during the perioperative period in robotic surgery.

Keywords: *nursing, robotic surgery, challenges*

INTRODUCTION

Perioperative evaluation and behavior during invasive surgeries require attention and focus on the different aspects of the patient's condition. Key factors determining the specifics of those activities are the changes in the organization activity and the technological advancements in robotic surgery. Over 234 million surgical procedures are done every year worldwide. The following complications, caused by the constant growth of the population age and the technological advancements, are challenging for the perioperative care safety. The advancement in surgery is focused on minimizing the need for invasive surgeries.

Robotic technology and the increased use of less invasive surgery are changing the environment in which a team operates and how the medical nurses look after the patient. Therefore, to ensure high-quality care, the medical staff needs to have a better and thorough understanding of robotics history, the current technologies available, and the types of responsibilities that they have during the perioperative period. The nursing activities and care define the comfort and the patients' condition, as well as the potential complications following minimally invasive surgery.

A nurse working at a surgery department monitors the overall condition of the patient daily by following the set standards of the minimally invasive surgical practices. One of the key aspects of meeting the set standards is adequate teamwork. The building of a professional medical team that can manage different aspects of the care process requires time investment and motivation. The literature review of the available papers shows multiple functions and responsibilities of nurses during the perioperative period in minimally invasive surgeries.

The role of the nurse plays a key role in the coordination, conduction, and task management during the surgery period. The advances in technology and the set demands for teamwork require the medical specialist to be highly adaptable to the new environment.

AIM

The aim of this report is to define the challenges for the medical nurse practice with robotised technology.

MATERIALS AND METHODS

The study has been conducted within Bulgarian hospitals using robotic surgery. The notes of doctors, nurses, and staff (n=336) about the use of robotic surgery and its key challenges have been collected. Social and documental methods have been used.

RESULTS AND DISCUSSION

It was important to determine the opinion of medical specialists in regard to their competency and experience (Fig. 1)

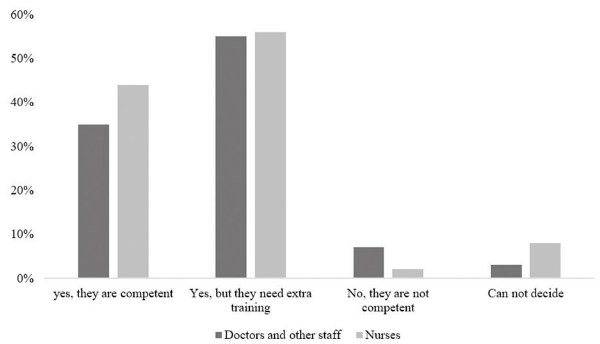

Fig. 1. The necessity of introduction of individual courses and robotic technology

For a robotic program to start, it requires a marketing strategy, suitable operation room, creating and training a team as well as optimal patient selection and evaluation of the results (1). Additionally, the perioperative environment is described as dynamic and ever-changing and it consists of multidisciplinary teams that often change their members (6).

According to some papers, although professionals within the surgery rooms have a positive attitude towards the skills required for building a specialized team, they are often not convinced how much those skills will contribute overall (3,4).

Conner states that the importance of communication as a factor could be seen in researches that show that the communication problems within a team are the most common cause of a surgical mistake. Therefore, it could be suggested that the surgical results could be improved when the methods of education and support that go beyond the individual are introduced. With a better understanding of the surgical procedure, the potential mistakes could be limited, which will improve the likeness of a favorable outcome for the patients (2,5,7).

Therefore, the research on how important a nurse is within a team is significant as this is the person that provides surgical care.

According to the questionnaire results, the role of nurses is assessed as high by the majority of the participants. Similar results are shown for the answers of the nurses (Fig. 2).

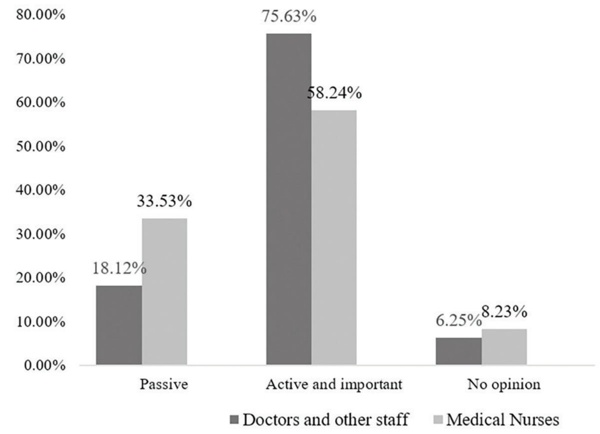

Fig. 2. The importance of the nurse within the team

According to the results, the nurse plays a key part in the team and his/her role is active and contributing. The good cooperation that the surgical practice provides creates a good environment and working climate, which increases the work experience satisfaction for the nurses. Within the minimally invasive surgery, algorithms with described behavioral and therapeutical steps are not used. As a result, the nurses have to come up with solutions for the sequence of steps needed during different interventions based on intuition and help from the doctors.

The fast and dynamic development within the surgical practice creates a need for the introduction and implementation of new models for organization and provision of nursing activities and care. The data from this research identifies the need for the introduction of working algorithms during the perioperative period in robotic surgery, which needs to be supported by the development of proper documentation and noting the activity of the nurses (Fig. 3).

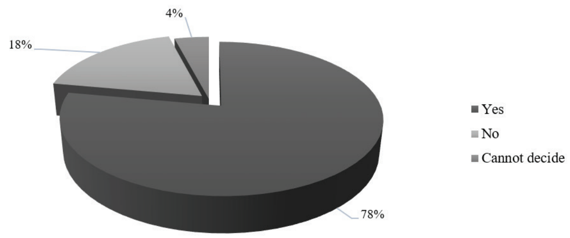

Fig.3. The necessity of introduction of algorithms for the work of the nurses during the perioperative period with robotic surgeries

The nursing activities and care are a combination of factors such as knowledge, skills, and specific professional behavior. The practices are constantly developing and involve many responsibilities and professional functions towards the patients and the medical staff.

The change in the attitude, the building of new habits and skills for managing tasks could be done only by applying a unified approach for achieving the team's aims within the field of robotic surgery by coordinated use of the different professional levels.

Although several medical standards exist to regulate the activities of a nurse, currently, within the practice, a solid standard is still missing in terms of function and activity descriptions during the perioperative period with robotic surgical procedures. The creation and implementation of a set medical standard could guarantee the adequate performance of the duties and reduce the occurrence of legal liability.

CONCLUSION

1. A need for new approaches, algorithms, and organization of the medical staff is identified within the fast-growing robotic surgery practice.
2. The nurse plays a key role in coordinating and completing the tasks throughout the minimally invasive surgical practice.
3. According to the research participants, the nurse plays the highest and the most significant role within the medical team during robotic surgery.
4. In surgery, there is a lack of practical skills, which are standard for the activities during the perioperative period of the robotic operations for nurses, regardless of the regulations set by several medical standards.

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