

Nursing performance in robotic surgery: an experience report

A atuação da enfermagem na cirurgia robótica: um relato de experiência

La actuación de enfermería en cirugía robótica: un relato de experiencia

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RESUMO

Objetivo: relatar a experiência da atuação da enfermagem em cirurgia robótica no sistema Da Vinci. **Método:** Trata-se de um relato de experiência acerca da atuação da enfermagem em um Centro de Cirurgia Robótica de um hospital do Distrito Federal - Brasil. **Resultados:** Um total de 426 cirurgias foram observadas, na maioria, intervenções cirúrgicas urológicas (n=344; 80,8%). A enfermagem no centro cirúrgico estudado atua em diversas frentes de trabalho para segurança e sucesso da intervenção cirúrgica. Confere órteses, próteses e materiais especiais; monta do robô; calibra óticas de 0° e 30°; promove os treinamentos; levanta mensalmente indicadores robóticos de assistência; promove proteção ao paciente. A assistência de enfermagem na cirurgia robótica conversa com as novas técnicas e os desafios envolvidos no uso desses recursos, a fim de garantir a um procedimento cirúrgico bem-sucedido e, conseqüentemente, um tratamento eficaz, seguro e com menos riscos. **Considerações finais:** Este trabalho, ao relatar sobre essa atuação, contribui não só na divulgação da temática, mas também convida à reflexão entre os pares sobre o que permeia a assistência de enfermagem na cirurgia robótica.

Descritores: Procedimentos Cirúrgicos Operatórios; Enfermagem Cirúrgica; Enfermagem Médico-Cirúrgica; Telecirurgia; Telecirurgia Robótica.

ABSTRACT

Objective: report the experience of nursing practice in robotic surgery in the Da Vinci system. **Method:** This is an experience report about the performance of nursing in a Robotic Surgery Center of a hospital in the Federal District - Brazil. **Results:** A total of 426 surgeries were observed. Most urological surgical interventions (n = 344; 80.8%). The nursing staff at the studied CC works on several work fronts for the safety and success of the surgical intervention. Checks Orthoses, Prosthesis and Special Materials; Robot mounts; calibrates optics of 0° and 30°; promotes training; It raises monthly robotic assistance indicators; promotes patient protection. Nursing assistance in robotic surgery, talks to the new techniques and the challenges involved in using these resources, in order to guarantee a successful surgical procedure and consequently an effective, safe and less risky treatment. **Final considerations:** This report, when reporting on this performance, contributes not only to the dissemination of the theme, but also invites reflection among peers on what permeates nursing care in robotic surgery.

Descriptors: Human Operative Surgical Procedures; Surgical Nursing; Medical-Surgical Nursing; Telesurgery; Robotic Telesurgery.

RESUMEN

Objetivo: relatar la experiencia de actuación del equipo de enfermería en cirugía robótica en sistema Da Vinci. **Método:** Este es un relato de experiencia sobre el desempeño de la enfermería en un Centro de Cirugía Robótica de un hospital en el Distrito Federal - Brasil. **Resultados:** Se observaron un total de 426 cirugías, la mayoría de las intervenciones quirúrgicas era urológica (n = 344; 80.8%). El equipo de enfermería estudiado actúa en varios frentes de trabajo para la seguridad y el éxito de la intervención quirúrgica. Verifica ortesis, prótesis y materiales especiales; montajes de robot; calibra ópticas de 0° y 30°; promueve la capacitación; recoge los indicadores mensuales de asistencia robótica; promueve la protección del paciente. La asistencia de enfermería en cirugía robótica abarca las nuevas técnicas y los desafíos involucrados en el uso de estos recursos para garantizar un procedimiento quirúrgico exitoso y, en consecuencia, un tratamiento eficaz, seguro y menos riesgos. **Consideraciones finales:** este informe, al relatar el desempeño, contribuye no solo a la difusión del tema, sino que también invita a la reflexión entre los pares acerca de la atención de enfermería en la cirugía robótica.

Descritores: Procedimientos quirúrgicos; Enfermería quirúrgica; Enfermería médico-quirúrgica; Telecirugía; Telecirugía robótica.

Introduction

The Surgical Center (CC) is characterized as a highly complex hospital unit that performs anesthetic, surgical, diagnostic and therapeutic procedures that aims to meet the surgical demands of a health care institution, through the action of an integrated team and specialized.¹⁻²

These nursing professionals have always had the main interest in offering quality care to their patients. In 1999, under the wish of a minimally invasive intraoperative, robotic surgery.³ In the last few decades, a wide variety of surgical robots have been implanted in hospitals around the world, spreading robotic surgery, a health innovation in the process of being disseminated, a new field of study in the field of health.⁴

This innovative model of surgery seeks to carry out the procedures by reducing operative trauma and, thus, promoting rapid post-surgical recovery, reflecting on less morbidity and directly affecting the well-being of patients.⁵⁻⁶

In addition, surgical procedures are currently performed using the Da Vinci ® system, which is composed of a set of four robotic arms with a system for capturing and recording images and a console through which the surgeon controls the robot's movements.⁷

Every new technology aims to improve the quality of patient care. This method allows the surgeon, previously qualified, to develop his work with extreme skill using materials that allow the surgical procedure to be minimally invasive, and this is only possible due to the quality of visualization allowed by the equipment.³

In addition, robotic surgery offers many advantages compared to laparoscopic and invasive surgery. Smaller incisions and scars stand out, less blood loss, reduction of pain and the use of medication, early recovery, decreasing the risk of infection and the length of hospital stays, reflecting in lower morbidity and mortality.⁸

In Brazil, robotic surgery was implemented in 2008, but today there are still few systems installed in our country. This reduced number is due to the high cost of acquisition of inputs, added to the insufficient number of companies and people qualified to work with this technology.⁹

On the other hand, it is also important to have a qualified and specialized nursing team that offers effective and safe care to patients, without forgetting to keep updated the knowledge and initiatives produced in the field of nursing care and robotics.¹⁰

Nursing at the CC performs activities with specific characteristics, being responsible for organizing and ensuring the assistance that will be provided to the patient during the surgical procedure, ensuring continuity in the care and management of the sector. Health is not achieved without a properly qualified and trained nursing team.⁹

Thus, in order to elucidate and disseminate nursing practice in this area, the objective of this study is to report the experience of nursing practice in robotic surgery in the Da Vinci system ®.

Method

This is an experience report about the performance of nursing in a Robotic Surgery Center of a hospital in the Federal District - Brazil.

The reporting period was from November 2018 to March 2020. 426 robotic surgical procedures were followed. Through observation, the actions developed by nurses regarding robotic surgery and the researchers' perceptions regarding the practices developed were listed.

The present study, despite dispensing with the opinion of a Research Ethics Committee as there is no primary data collection or identification of participants, respected all the determinations of resolution 466/2012 of the National Health Council.

For a better understanding, the reports were presented through description and the surgeries were counted according to their specialty and presented by absolute (n) and relative (%) values.

Results and Discussion

A total of 426 surgeries were observed during the experience period. Most of them were urological surgical interventions (n = 344; 80.8%) in addition to six (1.40%) kidney transplants.

Table 1- Distribution of robotic surgeries according to specialties. Brazil, 2020 (n=426).

Surgical specialty	Number of patients (n)	Percentage (%)
Urological	344	80,8
Thoracic	38	8,9
General	18	4,22
Proctology	14	3,28
Kidney Transplants	6	1,40
Gynecological	5	1,17
Head and neck	1	0,23
Total	426	100

Source: Raposo et al., 2020

In the literature, robotic procedures are reported in the specialties of urology, gynecology, general surgery, thoracic, cardiac, head and neck, maxillofacial and pediatric, which is in line with the reality portrayed by this study. It should be noted that the procedure performed in a robotic way allows greater safety and efficiency, and is located between laparoscopy and minimally invasive surgery. This technological advance makes it possible to reduce operative morbidity and mortality, performing less aggressive surgeries and with early recovery of the patient.⁵

In robotic surgeries, the surgical time can be divided into three different stages: 1) the total operative time, from the beginning of the surgical procedure to the incision of the skin; 2) the docking time, which refers to the preparation and coupling of the robot to the trocars; and 3) the console time, which is the time that the surgeon actually performs the surgical procedure at a distance, as it was possible to observe in this SC.⁸

The nursing team at the studied CC works on several work fronts for the safety and success of the surgical intervention. Performs internal training for the nursing team that works in these surgeries; participates in meetings on these robotic procedures; checks the orthoses, prostheses and special materials (OPME) authorized for each surgery; makes the assembly of the operating room and assembly of the robot; calibrates the optics of 0° and 30° at the beginning of each surgery; promotes training for the team that works with the robot; raises monthly robotic assistance indicators; and, it protects all cables, robot extenders so as not to injure the patient.

It also performs activities common to the routine of other normal surgical centers, such as positioning the patient in the operating room; performs tests on the operating room devices; checks via e-mail the requests and authorizations of the surgeries; remains in the operating room during the procedure to minimize any risk or damage to the patient; makes a telephone call to patients with 30, 120 days and 1 year to check satisfaction and possible complications related to the surgical act; manages the inputs (use, purchases and stock) of tweezers for the procedures; doctors' in-service (training) agenda for certification; makes all nursing records of the patient in the room and protects bone prominences.

In another study carried out with nursing students from a nursing residency program in a surgical center and material and sterilization center in the state of São Paulo, it also reported the role of nurses in surgical procedures that use robots, and with regard to the role of the team of nursing. In addition to the operational care provided to the equipment, such as: execution of the assembly process, manipulation of the instruments and the table for the optical system, calibration of the optics and the alignment of the images and identification through the video of the number of uses of the calipers, degermation of the hands and the robot as well as their proper attire, also carried out training of the whole team.⁵

In an integrative literature review on the nurses' responsibilities in setting up the operating room with a robot, according to the surgery to be performed, the following tasks were listed: the preparation of the robotic system in order to offer the technical conditions for the surgery to occur ; the availability of materials and instruments according to the type of surgery; planning inputs in advance; checking the placement and function of pneumatic compression devices; checking equipment for proper function; preparing the operating room, carrying out the process of driving the robot safely, knowing the function of each item; calibrating the CO₂ insufflator at the correct pressure; care in ensuring filling in pressure points; confirmation that all connected parts of the robot are safe before surgery; the coupling of the robotic arms, comprising the anatomical relationships.⁹ Such tasks were also listed by this research.

The role of nursing in robotic surgery is dynamic and multifaceted, including numerous actions, of which it is responsible for activities related to direct patient care to safety in all their needs and throughout the perioperative period.⁹ Specifically, the nurse must continually train his team, and in case of personnel changes, he should consolidate training the next hiring, as it is extremely necessary that everyone knows the robotic system and is prepared for the complications that may occur during a robotic surgery, aiming at always maintain the quality and safety of the procedures performed.⁶

By offering a training program for nurses involved in robotic surgery, hospitals provide skills and therefore skills that meet professional practice, reducing risks and promoting positive results for nursing care.¹¹

In this way, the active search carried out by nurses to question client satisfaction and possible complications caused by the procedure is of paramount importance, because when nurses create a culture of patient safety, they protocol aseptic techniques and are always attentive to maintenance and adequacy of the surgical environment will result in effective quality of procedures and non-occurrence of Health Care Related Infections.⁶

Thus, nursing care with regard to robotic surgery, talks to the new techniques and the challenges involved in using these resources, in order to guarantee a successful surgical procedure and, consequently, an effective, safe and less risky treatment to patients.^{9,11-15}

Conclusion

The role of nursing in robotic surgery, despite being already regulated and described in the literature, still seems little noticed and recognized, even within nursing itself. This work, when reporting on this performance, contributes not only to the dissemination of the theme, but also invites reflection among peers on what permeates nursing care in robotic surgery. Still, it broadens the horizons regarding the technology that is increasingly present in the daily practice of clinical practice.

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