Original Research

Role of Surgical Technician in Operating Speed of Laparoscopic Surgery

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Abstract:

Background:

A surgical technician can perform as a skilled surgeon assistant on a laparoscopic surgery team. This review study was conducted by using keywords such as surgical technician, laparoscopy, surgical technician, surgery and by searching reputable scientific databases in Google Scholar, PubMed, Science Direct, Web of Science, Ovid Medline, WHO site , received a number of articles and dissertations published during the years 2000 to 2021, and finally 30 sources were selected and reviewed, interpreted, analyzed. It seems that according to the principles of laparoscopic surgery program, having the knowledge and skills of laparoscopic surgery for the surgical technician can significantly improve the knowledge, skills, confidence of surgical assistants and lead to positive results in the surgical outcome.

Keywords: Surgical Technician, Laparoscopic, Surgical Technician, Surgery

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Introduction

In the last decade, progress and innovation in all branches of surgery, especially minimally invasive surgeries has been very significant and new technologies and techniques have replaced traditional methods in surgery (3-1). Laparoscopy is a set of minimally invasive surgeries in which the surgeon performs surgical interventions through small incisions in the abdominal wall using long tools. The advantages of laparoscopic surgery compared to open surgical procedures are the reduction of pain ،less bleeding and reduced hospitalization time (2-5). Although anatomical vision has improved in laparoscopic surgery, the risk of postoperative complications and patient mortality due to technical errors during surgery has increased (5-7).Untrained assistants do not provide good visibility for the surgeon and the surgical team, which increases the errors of the surgical team and thus reduces the patient's safety. Since the surgeon cannot direct the camera and perform the surgery at the same time, he delegates this task to the assistant, and in a way, the surgeon's eyes are in the hands of another person, the surgical technician (8-10). A surgical technician, also known as a scrubber, scrub technician, surgical technician, or operating room technician, is a committed health professional who works as part of a surgical care team. Surgical technicians are members of the surgical team (11-13). In the late 1990s, the American Society of Gastrointestinal Surgeons published the principles of laparoscopic surgery. The program consists of two components: theoretical knowledge and practical skills. The purpose of this standard training program is to acquire a set of theoretical and practical knowledge for learners and trainees of laparoscopic surgery that can bring them to a safe level of knowledge and skills to provide laparoscopic care (14-16). Numerous studies have shown that having knowledge and skills of laparoscopic surgery for surgical technicians according to the principles of laparoscopic surgery program can significantly improve the knowledge, skills, confidence of surgical assistants and have positive results in surgery. (17 & 18). Due to the current issues in the world and increasing the quality and performance of non-coronary surgeries such as laparoscopy, the purpose of this review study was to investigate the role of the surgical technician in the speed of laparoscopic surgery.

Method

In this study, which was conducted by using a narrative review method, research was performed by using keywords including surgical technician, laparoscopy, surgical technician, surgery and was conducted by searching the international scientific databases including: Pub Med, Web of Science, Google Scholar, Scopus, Elsevier, and domestic scientific databases including: Barakatkns Knowledge Extension System, database Scientific information of Jihad Daneshgahi, Iranian Medical Library (medlib), database of national journals (magiran), knowledge reference (civilica) and search on WHO website. A total of 56 scientific sources, including books, articles, dissertations and reports written in Persian and English between 2000 and 2021 on surgical technicians, laparoscopy, surgical technicians, and surgery was published, collected. Unrelated sources and articles were removed and sources related to our review were studied. Finally, 38 articles and scientific sources were selected and analyzed according to the purpose of the study and to the needs of 30 articles.

Results

Health care personnel in the operating room (OR) environment are in a significant position due to the nature of their duties such as standing still and abnormal positions, holding equipment and materials, long-term work, using precision skills and operation from new equipment. Laparoscopic instruments, devices and equipment used in OR may affect the

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quality of their operation, as a result of which this effect can be positive and increase the quality of laparoscopic surgery, or as a result of which the reverse may be problematic. Since the surgeon cannot direct the camera and perform the surgery at the same time, he or she delegates this task to the assistant, and in a way, the surgeon's eyes are in the hands of another person, i.e, surgical technician.

The moment of surgery requires complete and absolute focus from the surgeon and assistants. Small distractions can be catastrophic while manipulating subtle structures, which can easily have irreparable consequences, both physically and psychologically, and have satisfactory results for the patient and the surgeon. As a result, during laparoscopic surgery, in order to increase the speed of the operation in this surgery, the operating room technician should maintain calm and active physical condition.

Operating room technicians have a number of roles to play before, during, and after surgery to ensure that a surgery such as laparoscopic surgery is performed safely, and that performing the procedure correctly in addition to multiplicity speeds up the operation of this surgery. The surgeon accompanies in proper guidance and a broad view of the surgery and the purpose of the surgery and the proper and timely preparation of the instrument in the right conditions during the operation. According to the studies, because the operating room technician has several roles, including being with the surgical team, helping in the correct process of non-invasive surgery, so it increases the speed of laparoscopic surgery.

Discussion and Conclusion

After practicing the laparoscopic skills, the quality of skillful performance of novices without previous experience in laparoscopic surgery with a gentle slope improves, which improves the performance of surgical technicians in performing laparoscopic surgery. Of course, in other studies, the quality of skills performed in the operating room by trained people in the simulation environment should be considered (24-28). In a study by Kunert et al. they concluded that implementing simulated skills training in a safe environment accelerates the learning process and gives people a better understanding of three-dimensional space (25, 26). According to the research results, with repeated practice and implementation of skills in the simulation environment, the accuracy and speed of students in performing skills gradually increased. For example, the time required to complete the first part of the exercise to perform the nail transfer skill was 93 seconds, which was reduced to 54 seconds in the tenth repetition. According to the results of the present study, a 2011 study by Vitish-Sharma et al. (27), comparison of simulation training with training box and virtual reality simulator also showed that simulation training with both methods helps to acquire psychomotor skills. According to a study by Viet Sharma et al., in simulation training, due to the safe environment and lack of attention to patient injury, learning time decreased, surgical trainees' focus on basic knowledge increased, and their skills improved (28).

The results indicate the effect of applying the basics of laparoscopic surgery curriculum in the study course of surgical technicians will be improve the competence of surgical technology students in performing camera navigation skills, pattern cutting and clip transfer as basic skills in laparoscopic surgery (29) which learning of them is effective. It plays a vital role in the successful performance of laparoscopic procedures and in increasing the safety of patients. Therefore, regular training program for surgical technicians is recommended.

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