Introduction

The number of surgeries performed with robotic equipment has increased ever since its release by the Food and Drug Administration (FDA) in 2005 [1].

Robotic surgery is well accepted and seems to be as effective as laparoscopy in the treatment of endometrial and cervix cancers [2,3]. Some of the advantages of using this method over the traditional laparoscopic technique include 3D visualization, tremor filtration, greater dexterity, better ergonomics, lower blood loss and lower post-operative pain index [4].

In spite of some known limitations, such as the limited view of the 4 surgical quadrants when using Da Vinci® series S and Si, robotic surgery is now widely used in the United States [5]. Furthermore, this limitation has been correct by the newest Da Vinci® series XI, increasing the effectiveness of the method. With this updates in technology, the American Society of Gynecologic Oncology (SGO) now recognizes robotic surgery as a changer in gynecologic cancer treatment paradigms [6].

To the present moment, 3200 robotic platform exist in the world (2223 in the USA, 549 in Europe and 494 in the rest of the world). Also, in the United States 95% of the gynecologic oncologists have these platforms in their institutions and have been trained to use them [7].

Methodology

A descriptive cross-sectional, quantitative and retrospective study, with quantitative and non-experimental research design, was conducted from April 2012 to October 2015 at the Oncology Gynecology Service of the Brazilian National Institute of Cancer (INCA)

Patients ineligible for surgical treatment or presenting non-precocious clinical stage (ASA III and IV evaluation) were excluded from the study. After applying the exclusion criteria, 135 women diagnosed with early stage gynecological cancer (uterine cervix, endometrium, and ovary) submitted to assisted robotic surgery performed through the Da Vinci Si® platform (Sunnyvale, CA Intuitive Surgical) were selected.

Variables such as age, time of surgery, mooring time, length of hospital stay, blood loss in the operative period, number of blood transfusions, the rate of surgery for open surgery and number of dissected lymph nodes were observed through the analysis of medical records.

Results

Of the 135 surgeries studied, there was one case of conversion to laparotomy due to an endometrial stage IV cancer and in five cases of cervical cancer, radical hysterectomies were not performed due to the presence of pelvic lymph nodes positive for malignancy.

11 (8.14%) patients with stages IIIa and IIIb by the Clavien-Dindo Classification required a new surgical intervention.

A bladder perforation resulting from the use of a uterine manipulator was treated by robotic surgery but no patient had multiple organ failure or death.
The occurrence of complications in robotic surgeries is related to factors such as the procedure’s learning curve, the surgeon’s previous laparoscopic experiences, and the mastery of the robotic technique. The appropriate training of the Robotic Team is essential to decrease surgical time and complication rates [16,17].

A retrospective revision work by Feuer et al., [15], comprising of 63 cases demonstrated that, in comparison to the laparoscopic method, the robotic via has: less blood loss, faster postoperative recovery, but longer surgery durations. Complication rates, mean survival time and recurrence risks were not different between the methods.

Conclusions

The occurrence of complications in robotic surgeries is related to factors such as the procedure’s learning curve, the surgeon’s previous laparoscopic experiences, and the mastery of the robotic technique. The appropriate training of the Robotic Team is essential to decrease surgical time and complication rates [16,17].

Complications lead to more hospital visits, readmissions, and delays in hospital discharge. Many of the complications of
Robotic surgery in gynecologic cancer (2012) The American College of Obstetricians and Gynecologists 14

endometrial cancer operation are due to the clinical condition of the patients, since many of them are obese, hypertensive, or have other comorbidities [18-20].

Robotic tweezers should always be on the surgeon’s sight and the electric activation of the bipolar should always be controlled. If one holds noble structures such as nerves or vessels with an activated bipolar, irreversible damage may occur. Furthermore, the traction on the structures need to be controlled with experience and vision, because the surgeon doesn’t have the tactile feedback [21,22].

The limitation of our study was the lack of comparison with conventional laparoscopy and laparotomies. Thus, a definitive conclusion based on our data is difficult and new prospective studies will be crucial to clarify and demonstrate implications in clinical practice. In spite of this limitation, our data is important due to the number of cases and to the perception that, with practice and time, we can perform complex minimally invasive procedures with great dexterity and safety by the robotic route.

Prospective controlled and randomized studies should evaluate parameters such as postoperative morbidity, the long-term progression of the diseases, and the precise improvement in quality of life [23-26].

Assisted robotic surgery has revolutionized the standard procedures of gynecological surgery, especially in oncological interventions, by reducing postoperative morbidity rates and preserving the basic principles of oncologic surgery.

Finally, technological advances and the development of new therapeutic alternatives indicate that the future of gynecological cancer treatment is promising. Hence the importance of analyzing per and postoperative data of patients submitted to these new techniques.

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