



Robotic surgery offers great benefits for older adults

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An increasing proportion of patients requiring treatment for malignancy are older people, which has created new challenges for oncologic surgeons. Ageing is associated with an increasing prevalence of frailty and comorbidities that may affect the outcome of surgical procedures. By decreasing complications and shortening length of hospital stay without affecting oncologic safety, surgery performed using robotics, rather than traditional laparotomy, improves the chances of a better outcome in our growing elderly populations. In addition to age, surgeons should consider factors such as frailty and comorbidities that correlate with outcome.

If surgery is determined to be the appropriate treatment modality, including in the elderly, it remains challenging. Ageing is associated with an increasing prevalence of frailty, comorbidities, decline of functional reserve, and progressive restriction in personal and social resources, which result in a greater vulnerability, functional decline, institutionalization, and falls.

Normal physiologic changes occur in major organs and may affect the response to surgical procedures. In this context, minimally invasive surgery, or more precisely minimally access surgery (MIS) could be particularly valuable, because MIS has been shown to be less physiologically disruptive than open surgery, especially in the elderly. In addition, multiple comparative studies have demonstrated that MIS is associated with shorter hospital stays and convalescence, less negative outcomes, and achieves similar oncologic outcomes as open surgery. Furthermore, robot-assisted laparoscopic surgery, considered as a natural evolution of laparoscopy, is becoming widely accepted because it allows more patients to benefit from MIS.

Elderly: Age vs. Frailty?

Most studies that deal with elderly patients and surgery used an arbitrary cut-off of 65- or 70- years of age. Age represents an independent risk factor for morbidity and mortality, which associated with some surgical procedures will lead to unacceptably high risks of postoperative complications. However,

unjustly denying elderly patients surgical procedures solely based on age or inaccurate assessment tools may deny them potentially lifesaving, or quality of life improving surgical procedures.

Defining elderly patients based on functional status might be more accurate than age to define risks associated with surgery. Of note, elderly patients who survive the first year after surgery have the same cancer-related survival as younger patients and should undergo optimal therapeutic approaches, including optimal surgery.

Benefits of MIS in Elderly Patients Compared to Open Surgery

From a patient's perspective the value of a surgery can be represented by an equation where the outcome is divided by the invasiveness of the procedure. The less invasive the procedure for a similar outcome the higher the value for the patient. This is particularly true in the frail patient whose recovery can be severely compromised by a more invasive procedure.

MIS in oncology is characterized by minimal incisions and pneumo-peritoneum to allow enough abdominal space to perform complex dissections while avoiding long scars required for open surgery. The benefits of MIS are now well established for different kind of cancers, including colorectal, urologic, pancreatic, and gynaecologic cancers.

The only downside appears to be longer operative times, but data on elderly populations in surgical oncology remain scarce. The data there is shows improved benefits of MIS compared to open surgery in the elderly, similar to their younger counterparts.

Benefits of Robotic Surgery Compared to Laparoscopy

The Da Vinci Surgical System® could be viewed as the natural evolution of laparoscopy. Reports comparing robotics to laparotomy have demonstrated reduced operative blood loss, lower incidence of postoperative complications, and faster recovery resulting in shorter hospital stay with comparable recurrence rates and survival outcome.

Finally, the main advantage of robotic surgery compared to laparoscopy is to increase MIS access to patients. Although elderly patients may particularly benefit from MIS, the adoption of standard laparoscopy has been slow. Like many centres, only 17% of patients with endometrial cancer benefitted from MIS using laparoscopy in our academic centre. Since the introduction of robotics in our hospital in 2007, the number of patients undergoing MIS for endometrial cancer has increased within two years to reach over 95% and has remained stable since. The advent of robotic surgery had decreased the use of laparotomy, providing increased benefits in the more frail elderly population, who are at higher risk for postoperative complications.

- Robotic surgery utilising the Da Vinci Surgical System is practised at all main centres in South Africa.