Beyond the operating room: the expanding role of robotics in healthcare

Robotic surgeries help with faster recoveries, reduced hospital stays and a faster return to normal life for patients; the costs however, remain a drawback

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Robotic surgeries are becoming increasingly common. The State-run Kidwai Memorial Institute of Oncology in Karnataka recently achieved a milestone by completing 1,000 robotic surgeries. File photograph used for representational purposes only | Photo Credit: Special Arrangement

The word ‘surgery’, in general, sparks anxiety in the mind of a person thinking about it: most believe that it is a a painful process, they worry about big cuts on the body leaving scars and

the need to refrain from active life due to prolonged recovery times. Now however, with advanced technologies like robotic surgery, many of these factors are easily overcome and patients are able to have smooth and fast recoveries with minimal cuts and pain.

What is a robotic surgery?

In a robotic surgery, the surgeon makes 'keyhole' cuts in the body, in order to insert robotic instruments and a three-dimensional camera. The surgeon then sits on the console, a little away from operating table, and on this console, he operates various controls, and accordingly, the instruments in the body moves with utmost precision to perform the whole surgery. It is important to underscore that the whole surgery is done under the direction of the surgeon, and not independently by the robot. It is akin to driving a car, where the driver controls all the movements of the car.

Advantages of robotic surgeries

Robotic instruments are very fine, and they have greater degree of freedom of movement and better dexterity compared to humans. The camera has a very high magnification, which gives a very clear picture of the operating field which helps minimise errors in the surgery, and therefore, there are fewer complications.

Since there are very small cuts there is less pain, smaller scars, faster recovery and hardly any pain in the postoperative period for the patient. Such surgeries also help reduce the length of stay in hospital, minimise ICU stays and call for fewer antibiotics, as the risk of infection is reduced. This means patients can recover and return to work or their regular activities much earlier than in conventional surgeries.

Role of robotic surgery in various fields

Colorectal surgery: Robotic surgery is especially helpful in rectal cancers, more so in low rectal cancers where access is very difficult. It is very helpful in performing sphincter-saving procedures which help reduce the chances of permanent colostomies in low rectal cancers, and also urogenital dysfunction caused due to damage to the pelvic nerves. It also has increased benefits in obese male patients who have a narrow pelvis.

Gynae-oncology: A meta-analysis of robotic surgery in endometrial cancers, compared with laparoscopy and laparotomy showed that robotic surgery had less estimated blood loss and thereby less blood transfusions were needed, there were lesser intraoperative complications and there was lesser conversion to open surgery. Likewise, robotic surgery has an important role to play in various other benign gynaecology conditions.

Urology: Robotic surgery is of maximum use for urologists, especially for prostate cancer surgeries and partial nephrectomies for kidney cancers.

Drawbacks

Despite all its advantages, the main drawback of robotic surgeries is the increased cost of surgery, which means it is not affordable by all. It is hoped that with newer developments it may become cheaper in the near future. The other important aspect is that not all surgeons can perform a robotic surgery as it needs a proper training in order to have the expertise to perform one.

There is no doubt that robotic surgery has revolutionised the treatment of many cancers and made such surgeries much more easily tolerable for most patients, but it is important to find a surgeon adequately trained to operate on a robot to give the best of results.

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