Peripatetic Column

The Surgeon of The Future

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Although Lord Lister's discovery of antisepsis is considered a bench mark in the development of surgery, John Hunter had introduced the concept of experimental surgery almost 100 years before him. But surgery at that time was unsafe, brutal and meant only as a last choice. Lister's contribution of carbolic dressings, theatre design and ventilation was a move to make surgery safe. Burgmen (1880) introduced steam sterilization and Halstead (1889) rubber gloves which reduced the chances of infection further. The use of surgical cautery in the early part of the century reduced blood loss and the discovery by Landsteiner (1930) of Blood Groups made the possibility of blood transfusion, there by saving many lives. Flemming introduced penicillin in 1940 which helped save many infected patients. Surgery was so far concentrating on survival and safety. This was no doubt helped by development in Radiology which made diagnosis more accurate, anaesthesia which added safety to the operation and better suture materials which strengthened the craftsmanship of the surgeon. Surgery had now become fairly safe, major operations possible and survival assured. The best surgeon was the man with eagle eyes, lions heart and lady's fingers.

The last 50 years has seen surgery move into sophistication. Prof. Medawar's work on tissue typing and immuno suppression (1960) introduced a whole new chapter of transplant of organs. You could now replace new organs for old. The discovery by Prof. Hopkins of rod lens system fibre optics, flexible endoscopes led to visual evidence of several internal diseases. We could now see, biopsy, and even treat internal diseases without opening the patient up. This led to an explosion in instrument technology and created a new speciality, like Gastroenterology. In 1986, the French surgeons introduced the concept of keyhole surgery. Laparoscopy although known for several years as diagnostic technique now became an operative technique. The demonstration of laparoscopic cholecystectomy by making three small openings (ports) revolutionized the concept of surgery. You could now operate without opening the abdomen but by making windows in the abdominal wall and passing instruments through them including a camera. Surgeons now operated looking at TV screens. Parapassu development of instruments for knotting, cutting and suction brought the range of full surgical operations in the hands of the laparoscopic surgeon. So popular is this technique, now called minimum access surgery that it has made inroads into thoracic, neuro and orthopaedic surgery. The patient has a shorter stay, lesser complications and better cosmetics. Minimal access surgery is undoubtedly the surgery of tomorrow. Advances in computers and artificial intelligence brought forth the idea of Robotics. Robots were now trained to perform sophisticated operations including

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brain surgery. The skill lay in priming the robot, knowledge of computers and electronics. The surgeon would now sit outside the theatre on a carousal and manipulate the robot into performing surgery. A new concept is to perform minimal access surgery using natural body orifices or organs. The instruments could be introduced through the vagina or through the stomach thereby making it a scarless job.

The latest development of i-Snake (1996) is all set to further revolutionise surgery. An i-Snake is a flexible surgical robot which can enter the body through key holes or natural orifices. The long tube houses special motors, sensors and imaging tools for abdominal surgery, and even cardiac surgery. According to surgeon Ara Drazi, the unrivalled imaging and sensing capability, coupled with the accessibility and sensitivity of i-Snake will enable more complex and therapeutic procedures than are currently possible.

Surgery is clearly moving away from the surgeon. The new qualities of the surgeon will need computer literacy, knowledge of robotics and skill on the computer board. One wonders if things will get automatic? Will a surgeon be needed at all? And this is not science fiction. Perhaps in future, the best Surgeon will be the one who does not operate at all.

APPROACHING AN AGE OF REASON WITH ANTIPLATELET THERAPY

Compared with clopidogrel, more potent antiplatelet therapy resulted in lower rates of stent thrombosis in patients treated for acute coronary syndromes. ***Prasugrel*** reliably reduced the prevalence of stent thrombosis, irrespective of stent type or time period (early and late stent thrombosis) and for a broad range of clinical presentations and procedural and lesion characteristics.

The TRITON-TIMI 38 study has been criticised for not reflecting current clinical practice with its use of a 300 mg loading dose of clopidogrel rather than the recommended 600 mg. The lower loading dose of clopidogrel results in a delay of 6-8 h before achieving its full. Furthermore, a 60 mg loading dose of prasugrel, as used in TRITON-TIMI 38, seems superior to even a 600 mg dose of clopidogrel.

The usefulness of prasugrel as a therapeutic agent is intricately linked to its bleeding risk.

Andrew E Ajani, Jeffrey Lefkovits, The Lancet, 2008; 371 : 1315-16.