Simulation in open surgery

La simulación en cirugía abierta

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The increase in minimally invasive procedures has greatly diminished surgical specialty residents' training to perform open surgery. This deficit impacts patient care, especially surgical services, care, and training.[1]

Traditional general surgery training has changed in the last decade. These changes include fewer hours per week in surgical training, the opening of more subspecialty slots, few exchange or fellowship programs, increased organizational efficiency in the operating room, and increased complexity of cases needing interdisciplinary treatments.[1]

In 2013, an increase of 20 to 1,000% in endovascular or percutaneous procedures was reported, while open gastrointestinal or vascular procedures decreased by 30 to 70%. This increase is also in trauma centers where many cases are managed non-surgically.[1]

The increasing complexity of the cases seen in surgical centers does not allow the teaching of the primary surgical skills necessary for the surgeon of any specialty. Cadaveric and animal models have been used to train these skills. With the inclusion of technology in the training of residents, virtual and augmented reality software and haptic movements are used. Training personnel should evaluate and supervise simulation teaching strategies for surgical skills training. In addition, acquiring appropriate simulators for complex case scenarios for training open surgical procedures should be evaluated.[1]

The skills necessary for open surgical procedures are essential in a resident in training and should be developed before starting technical procedures in laparoscopic surgery. More quality research should be done on the benefits of simulation in open surgery, and this should stimulate the development of simulators with more accurate and objective evaluation tools.[2]

Simulators are implemented for patient safety, allowing practice in a safe environment and objective evaluation of the development of these skills.

The selection of models for simulation in open surgery is limited, but some simulators are used for open surgery; examples are the open lobectomy bench model and silicone tubing for anastomosis (BOPT). Another model is the Virtual Reality Educational Surgical Tool (VREST)-Virtula Lichtenstein Trainer, used for inguinal hernia repair.[2]

The development of new simulators is critical. Imperial College London is developing a simulator for inguinal hernia repair using the Lichtenstein technique.[2] Limb and Things UK/USA and Pharmacobiotics Ltd are the manufacturers of surgical training simulators such as suture pads, venipuncture simulators, injections, central venous catheter placement, benign lesion simulators, and others, but research is still needed to validate the models and investigate their benefit.[2]

Simulation in open surgery has promising results, although there are few studies in the literature with its limitations. There is much to be done, especially research on the benefits of simulation in open surgery and the acquisition of skills and then see the effect on procedures performed in the operating room by residents;

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this should make us achieve standardization in simulation.[2]

It is important to reiterate that skills in open surgery should be a prerequisite for acquiring skills in laparoscopic surgery and that simulation centers can include open surgery simulators, taking into account costs, monitoring, check listing, feedback, etcetera. Doing so will increase resident competencies, patient safety, and fewer hours in the operating room.[2]

REFERENCES

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