Updates in Surgery (2019) 71:397–398
https://doi.org/10.1007/s13304-018-00621-0

LETTER TO THE EDITOR

Alternative uses of virtual simulators for laparoscopy and robot-assisted surgery for medical students

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Received: 24 December 2018 / Accepted: 31 December 2018 / Published online: 8 January 2019

Keywords Simulation · Surgical training · Robot-assisted surgery

To the Editor:

We read with great interest the article by Moglia et al. entitled "Proficiency-based training of medical students using virtual simulators for laparoscopy and robot-assisted surgery: results of a pilot study" [1].

Today with the wide diffusion of the minimally invasive surgery, the skills required by surgeons have changed in comparison to those of traditional open surgery. Several randomized controlled trials had shown the usefulness of virtual reality (VR) simulators for training, making possible a gradual acquisition of the visuospatial and hand–eye coordination to overcome the limitations of the laparoscopy. Moreover, with the introduction of the da Vinci Surgical System, surgeons have to deal also with the absence of tactile feed-back and to master the technical aspects and the correct use of control interfaces, camera, clutching, and the fourth arm. Today the improvements in computer processing have led to more realistic VR simulators for laparoscopic and robotic surgery training, and thanks to the ability to provide statistical feedback on the surgeon's performance, it is possible to develop a proficiency-based curriculum for the training of residents and young surgeons.

However, possible uses of VR simulators are not limited only to surgical residents or young surgeons. In this regard, it was very interesting for us to read how the authors evaluated the possibility to extend the use of VR simulators to other beneficiaries: the medical students. Also other papers had reported the efficacy of VR simulators for training of medical students [2] and the retention of the laparoscopic surgical skills developed [3]. However, Moglia et al. were the first who tried to develop a proficiency-based training program for medical undergraduates based on surgical simulation for laparoscopic and robotic surgery, with the target to perform until proficiency a selection of tasks at each VR simulator [1]. We think that although the primary intent was to make a pilot study to evaluate the feasibility of introducing a simulation-based program at undergraduate level, a very interesting result is that the creation of a curriculum for medical students can increase awareness and interest in surgical career. This could be particularly important, in a period in which Italy is witnessing a lack of medical doctors that after their master's degree choose a specialization in surgery. Moreover, the diffusion of the VR simulators to medical students at undergraduate level has also the potentiality to identify individuals with low innate aptitude for a surgical specialty and advise them to consider specialization in a non-surgical career [4, 5]. Indeed, it is a common experience for all that the majority of individuals of either gender can be trained in surgery to achieve proficiency and become a competent surgeon; few subjects are born naturally gifted, and with the right training become master surgeons, whereas others are born with a low level of aptitude for precise manipulative skills and hence are not suited for a surgical career in which a technical operative competency is essential for a good patient outcome. Today there is an increasing interest for a reliable test which provides an objective assessment of innate ability for psychomotor manipulative for surgery, especially in view of the increasing evidence that the current selection process, which has remained largely unchanged for many decades, may no longer be fit for purpose to modern surgical practice. The use of VR simulators in surgical residents' training curricula is well established in most centers. Why not use them as an integral component for

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resident selection? Published studies have confirmed that VR simulators provide reliable objective assessment of the innate ability for psychomotor manipulative skills of individuals which determine those candidates who are suited for a surgical career, and perhaps what is more important, those who cannot acquire technical competence, despite extensive surgical training [4, 5].

In conclusion, the spread of virtual simulators is rapidly increasing such as their alternative uses. Indeed, as emerged from the cited article also medical students can benefit from VR simulators for their training but most of all for the awareness of having an attitude for a possible surgical career.

Funding No funding was received.

Compliance with ethical standards

Conflict of interest The authors declare that they don't have any conflict of interest.

Research involving human participants and/or animals This article does not contain any studies with human participants or animals performed by any of the authors.

Informed consent For this type of study formal consent is not required.

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