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EDITORIAL

Uro-Technology Journal: past and future in urology

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In the last decade, we have assisted in the introduction of new technologies in the medical area and the development of tailored, patient-specific therapeutical strategies to improve oncologic and functional outcomes respecting the quality of life for patients [1]. Innovations have also characterized urology, with the application of new optical technology and robotics to surgery. The era of the Da Vinci system® (Intuitive Surgical) as one competitor for robotic surgery has been recently interrupted by the introduction of 2 new robots such as HUGO™ (Medtronic) and VERSIUS (CMR surgical). The end of this monopoly can represent a chance for new challenges for developing new technologies in robotic surgery which could further reduce surgical trauma and improve surgical outcomes. At the same time, new molecular imaging technologies, including image-fusion devices and image-augmented navigation, have been developed and proposed for application in the surgical field. During these procedures, preoperative CT or MRI scans can be arranged into 3D images and linked to sensors that track the position of surgical instrumentation, in real-time, relative to the elaborated images [2, 3]. In this way, it is possible to help the surgeon to identify anatomic and vascular structures by superimposing the formatted images on a video-assisted view of the operative field (i.e. during laparoscopic or robotic procedures), or by co-registering these images with other imaging modalities and fusing them into one augmented compound image, with the aim of improving surgical accuracy [2]. If in a recent past we have focused our research to reduce the surgical trauma for the patients, actually mostly efforts are addressed to improve surgical precision integrating robotic procedures with imaging technologies.

This has been translated into the development of three-dimensional (3D) models derived from radiological images to help the surgeon to have a detailed preoperative understanding of the surgical anatomy of the patient, thus improving surgical precision and outcomes [4].

In order to gain the best result, a multidisciplinary approach is fundamental, and this orchestra should include a strict collaboration between radiologists, urologists, and bioengineers. Once the 3D models have been elaborated, they can be printed and integrated into augmented reality procedures, thus helping the surgeon in surgical strategies by preoperative identification of anatomic anomalies and tumor characteristics. Furthermore, they can also be used in surgical training and patient counseling. Finally, the 3D models and augmented reality could be integrated into robotic technologies to improve surgical outcomes and reduce intraoperative complications.

As occurred in the therapy of oncologic diseases, new technologies have also been proposed for the treatment of urologic benign diseases. Some years ago, it could be considered an imaginative the idea to treat benign prostate hyperplasia in an outpatient setting. The introduction of new surgical devices such as REZUM, UROLIFT, I-TIND and prostatic artery embolization, has turned this idea into reality, reducing hospitalization, complications' rate, convalescence and improving patients' quality of life [5]. The future is now and surgical technologies are growing more and more towards micro-invasive and precision surgery to maximize sparing surgery in respect of the quality of life of the patient.

URO-TECHNOLOGY JOURNAL (UTJ) is a new open access, peer-reviewed, international journal which emphasizes the basic and clinical research relevant to all urologic diseases, the novel technological developments in the field of urology and their application in clinical practice. The diagnosis, therapy, epidemiology, prevention, biomarkers, pathology and surgical innovations (such as artificial intelligence, augmented reality and mini-invasive surgery) in urology are included but not limited to the scope of this journal. The aim of this journal is represented by a wide range of urological issues such as oncology, functional urology, reconstructive urology, andrology, sexual medicine, laparoscopy, robotic surgery, endourology and surgical technologies.

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urologists in the field of new technologies, will engage to guarantee to the readers to be always updated with new surgical innovations in urology but also supply an accurate analysis of urologic topics which could help our daily activity.

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