ORIGINAL PAPER

TRAINING BASIC UROLOGIC SKILLS DURING STUDENTS' ROTATIONS IN ROMANIAN UROLOGY CLINIC

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ABSTRACT

Increasing number of geriatric patients, the continuous raise of urological patients and the increasing demand of practical skills among young physicians require better preparation of medical students in terms of dexterity in urology. An increasing number of iatrogenic trauma due to urinary catheters placed by inexperienced medical professionals, the high numbers of urological misdiagnosis and the high cost of these aspects can be decreased by developing students' practical urological abilities. This can be achieved by introducing mandatory hands-on activities during urology modules in the students' curricula. A number of 118 fifth year medical students were trained during the 3-week urology rotation between 1st October 2018 to the 10th of December 2018. During the rotations each group of 6 to 10 students participated in a one-day medical simulation workshop where they have learned about digital rectal examination, urinary catheterization and cystostomas (suprapubic catheters). In addition, from a traditional class, besides the video presentations and the discussions with the instructor, students had to do all of the described procedures on medical simulators. All students who completed the before and after self-evaluation forms showed significant improvement in the understanding of the described procedures. Medical simulation applied during rotations to teach students basic urological skills is an efficient teaching tool. Simulators bring participants into similar to reality playing ground which makes them more responsible, more attentive and more enthusiastic when it comes to learning basic urological skills.

KEYWORDS: *digital rectal examination, medical simulation, medical students, suprapubic catheter, urinary catheter, urological basic skills*

INTRODUCTION

According to the Romanian National Institute of Statistics the population of Romania is on a continuous trend of ageing with seniors overpassing in numbers the young adults. There are significant differences between 2017 and 2018 in which it has been observed that the young generation (0-14 years) has decreased and the aged population (over 65years) has a growth of 0,3%. The index of demographic ageing raised from January 2017 to January 2018 from 107,9 to 110,7 seniors to 100 young adults. Another proof is the rapid growth of the median age of the population which is from 41,1 years in 2017 to 41,3 in 2018. A difference of 0,2 years in such a short period of time highlights this aspect [1].

In this context of ageing population, one must know that the frequency of urinary retention increases with age for both sexes. In women the encounter of this ailment occurs 10 times less frequently than men, whereas in males after 65-70 years occur to around 10% of them, while after 80 years old it rises to around 30%. The most encountered cause remains the BPH (benign prostate enlargement) [2-5].

Acute urinary retention is only one of the situations when placing a urinary catheter or cystosoma and performing a DRE – correctly – can guide the evolution of the patient to a status with less or no complications.

Prostate cancer is the second commonest diagnosed malignancy and the fifth leading cause of cancer mortality in men. Prostate cancer represents a burden for the public health system [6]. One of the acknowledged risks for this pathology is age and its mortality can be reduced via screening [7-9]. An important step of the screening process is performing the digital rectal examination.

It is not sufficient to perform these three above described procedures, but understanding when and what throughout the process can increase the quality of the medical act by producing less discomfort for the patients and less complications. Placing the suprapubic catheter and its management, placing the urinary catheter even if it is for monitoring diuresis or for the more complicated scenario of an acute urinary retention, knowing what and where to feel while doing the digital rectal exam turn our students into better prepared future doctors. The highest advantage of knowing how to do these procedures besides the confidence of the practitioners would be the better outcome of the necessary medical treatment for the Romanian ageing population.

The purpose of this study was to obtain better "after workshop" results when applying the experience and the new teaching methodology leaned from the previous 2016-2018 experience with medical simulation delivered to fifth year medical students within the urology rotation. The new methodology presumed using more anatomical models before doing the actual procedure and this time using both sexes simulators. At the end of the study we aimed to obtain better prepared fifth year medical students by not only knowing to do the three procedures – urinary catheterization, cystostoma placement and digital rectal examination – but also by having full understanding of the process.

MATERIALS AND METHOD

We used Erler Zimmer Pelvis Section Model with prostate disease [10], Advanced Patient Care Male and Female Catheterization Simulator, Advanced Patient Care Skills Trainer [11,12], video support with step by step procedure explanation, real medical equipment (catheters, gloves, trocars, lubricant gel, etc.) and artificial urine (saline water, with specific colorant, placed in a pressure bag).

During the urology rotation all groups of students having from 6 to 10 members participated at a 150 minutes workshop. All the members of each group were assisted during the workshop. The same three educational videos were showed in order to avoid differences. All the videos were in the English language, no complaint from the Romanian or English students was shown about this aspect. The videos were shown one by one and they were discussed with the assisting doctor. Questions were allowed during and after the presentation in order to avoid the possibility of the student to forget unclear aspects. After the video session ended and all the aspects from the videos were discussed with the same assisting doctor, the instructor (trained professional) showed each procedure one by one, step by step discussing with the participants the new compared aspects. The first discussed procedure was the DRE (Digital Rectal Exam) followed by female urinary catheterization, male urinary catheterization and finally the placement of the suprapubic catheter. Besides the actual procedures, small technical tips were discussed and also how to manage the autostatic catheters and their complications.

In order to assess the efficacy of this type of training, beside the enthusiasm of the students, we gave a form with question assessing their level of knowledge and dexterity before the workshop and similar ones after the workshop. The questionnaire was anonymous and it was completed only by the students who wanted to fill this form. It was given via social media to their group channels.

The difference between these students starting from October 2018 and the students who received similar training in the years 2016-2018 is supposed to be given by the enriched equipment with more simulators and the pedagogic experience gained by the instructors in the previous period. In addition, assessing the unclear aspects from the previous students (evaluated via before-after forms) the instructors knew what, when and why to emphasize some aspects.

RESULTS

The results showed increased utility of this type of medical education activity not only from a subjective point of view, but also objectively by assessing the level of understanding of the trained procedures. To all the students it was explained that score 1 means no understanding and totally unclear procedure, no manuality, score 2 meant some understanding of the procedure, but lack of manuality, score 3 meant understanding and limited procedural experience, score 4 meant fully understanding of the procedure with sufficient manuality and score 5 meant fully understanding associated with high confidence of doing the procedure under observation with no help needed.

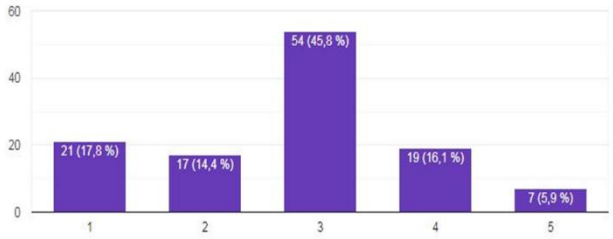

Figure 1 – What is your level of understanding and performing DRE BEFORE the medical simulation workshop?

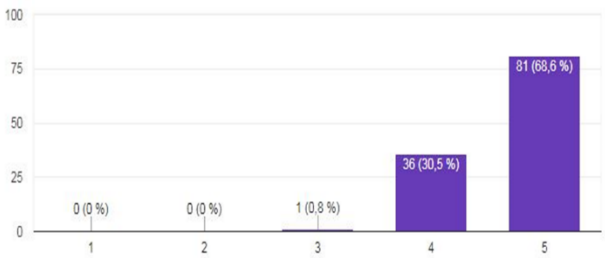

Figure 2 – What is your level of understanding and performing DRE AFTER the medical simulation workshop?

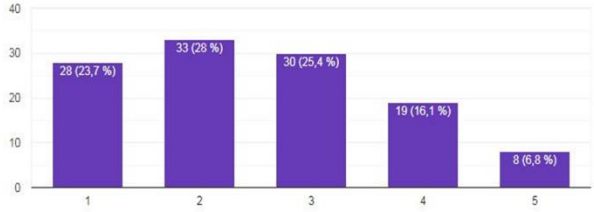

Figure 3 – What is your level of understanding and performing urinary catheterization BEFORE the medical simulation workshop?

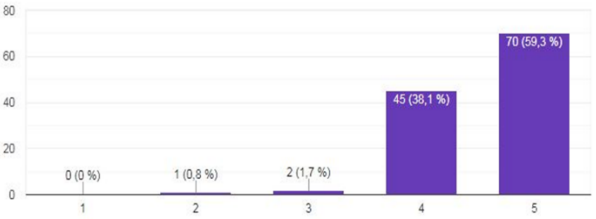

Figure 4 – What is your level of understanding and performing urinary catheterization AFTER the medical simulation workshop?

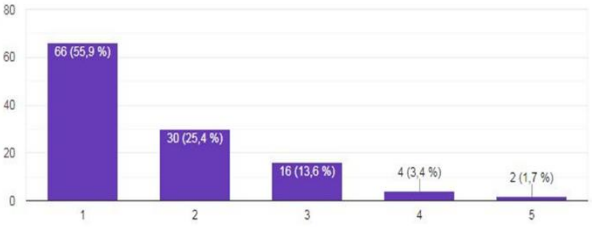

Figure 5 – What is your level of understanding and performing SUPRAPUBIC catheterization BEFORE the medical simulation workshop?

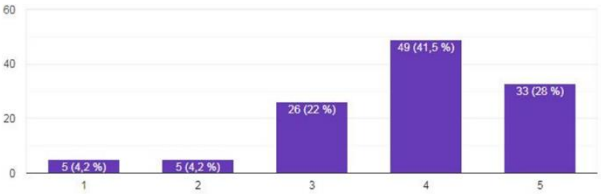

Figure 6 – What is your level of understanding and performing suprapubic catheterization AFTER the medical simulation workshop?

We concluded that Digital rectal examination should be done 93,8% with examination gloves, 6,2% with sterile gloves, 0% only in lateral decubitus, 0% only “a jeun”. At the end of the workshop 67,2% of the students understood that the first part of the

prostate can be palpated is the apex, 26,6% answered the base of the prostate, 6,2% answered – the prostatic urethra and 0% voted for the seminal vesicles. 98,4% would perform urinary catheterization with sterile gloves. 92,2% of the participants would place the suprapubic catheter to patients who would have acute retention of urine with no possibility/success of placing the urinary catheter or to whom it is contraindicated to apply one.100% of the students consider this activity useful, 0% little useful and 0% useless.

DISCUSSION

The main discussion that should be addressed is how and when to measure the transferability of this trained procedures in real life scenarios. A part of the students who attended these workshops managed to apply the learned skills while assisting the doctors in the emergency room, but there is no standard assessment tool that can be safely applied in these situations. In addition, some of the students participated at the simulation activity at the beginning of the rotation, thus having limited urology experience, while other groups attended at the end of the rotation after seeing more patients and after they have spent more time with their assistant professors. Some of the students also attended these types of activities during conferences, summer practice or private workshops. Controlling the exclusion of these students from the data obtained via the online questionnaire was not taken into consideration due to its anonymous character. All of the parameters were followed to remain as standard as possible – time, materials, video presentations, instructor, but the most invariable variable was the homogeneity of the group. Some students were more skillful, while others did not have this natural inclination, thus making the training longer for them while taking time from others.

When compared to medical simulation specialty literature one important factor should be highlighted: the presence of the certified instructor during these workshops. Gomar et al. [10] and the research of Riviere [11] highlight the importance of having as an instructor on procedural skills a certified doctor/nurse with clinical experience. In some countries (including UK) trained medical simulation experts with no previous medical expertise are use as instructors. Developing and training simulation instructors with no medical expertise it is a well-known trend accepted worldwide due to lack of enough medical personnel to do it all, but with the risk of not delivering the best quality medical simulation teaching experience. Gomar et al. [10] sustains that when one is taking into consideration the complexity of learning transfer and the necessity to induce context perception in order to extract the utmost gain out of simulation-based training requires clinical experience besides the abilities of a debriefer or a simulation professional instructor. This is important because students should also learn besides the practical abilities also the metacognitive skills needed in order to decontextualize and recontextualize after simulation in real clinical settings [10]. Confidence into applying the acquired practical skills is also another factor which should be addressed. Miles [12] in his dissertation talks about nurses gaining practical abilities thorough medical simulation and also about the importance of gaining confidence. After his research he concludes that participants begin to gain confidence when they engage in simulation and clinical activities. This means that medical simulation cannot replace the real-life experience, but can only contribute to perfecting it.

CONCLUSION

Using medical simulation to teach the basic procedures of urology such as the above described is a useful tool which raises the enthusiasm for the subject itself, giving it more attention and dedication. At some point, one can say that by introducing this type of „serious gaming" will help the future doctors become better care-givers and thus improving the quality of life of the patients who have to undergo urologic basic examination or procedures.

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