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RESULTS OF IMPLEMENTATION OF DECISION-PROBLEM BASED LEARNING WITH VIRTUAL PATIENTS IN SURGERY IN THE FRAMES OF TAME: TRAINING AGAINST MEDICAL ERROR PROJECT REALIZATION

11.20–11.40 **WEDNESDAY**

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Keywords: *medical error, surgery, course*

Today together with traditional methods of teaching there is a range of modern innovative methods of student training. In the framework of the TAME: Traning Against Medical Error Project (Erasmus + 561583-EPP-1-2015-1-KZ-EPPKA2-CBHE-JP (2015-2944 / 001-001), pedagogical method of D-Problem-Based Learning (D-PBL) was introduced at ZSMU, an innovative for Zaporizhzhia State Medical University approach.

The aim of the research is to specify the outcomes of the implementation of learning on Virtual Patients in Surgery within the TAME: Training Against Medical Errors Project.

In the frames of the TAME: Training Against Medical Error Project implementation a methodology of using Virtual Patients in surgery was introduced at ZSMU. To realize the project during 2016-2018 academic years a database of Virtual Patients (VP) of surgical direction with medical errors was developed, the academic curriculum was modernized and elective course for 32 students of the 6th year of the specialty "General Medicine" was implemented. For the training of the students the D-BPL methodology with branch cases (Virtual Patients) was used. For analysis the students were divided into 2 groups: 1st group consisted of 14 male students and 2nd group was formed by 18 female students. Other 12 students who were taught traditionally formed the control group. The statistical analysis was conducted on the PC using the students' database (both branch and control groups) in the software application «STATISTICA® for Windows 6.0» (StatSoft Inc., № AXXR712D833214FAN5). A non-parametric statistical method - Mann-Whitney U test (for quantitative attributes) was used to measure the reliability of the difference among two independent samples.

The training in the frames of "Training on medical error in Surgery" elective course lasted 6 weeks and included 48 hours for classwork (36 hours for tutorials and 12 hours for lectures) and 72 hours for independent work (120 hours in total).

Before the beginning of the tutorials the pre-assessment was conducted for the students involved to evaluate the initial level of their knowledge in the field of Surgery (36 questions on finding right answer were used), the average index was (56,42%), wherein the index of the students of the 1st group had only a tendency to the highest one and did not reliably differ ($p>0,05$) from the index of the 2nd group (54,93%).

Three months after the tutorials on-line evaluation of students' knowledge was conducted to identify the sustainability of knowledge on Surgery after some period of time. For this reason a test of 36 questions was created (6 questions per one case): 2 single questions for finding the best answer directly related to a case; 2 single questions for finding the right answer related to a disease; 2 open questions connected with the disease (on diagnostics or management strategy). The average results of the assessment (65,34%) were reliably higher ($p<0,001$) than the results of the pre-assessment (56,42%), and also higher than the results of the assessment of students of the control group (52%). Comparison of the results of the 1st and 2nd groups showed no reliable difference ($p>0,05$), (65,64%) and (65,11%) respectively.

The results of the State Licensing Examination KROK-2 and the rate value of the correct answers of the sub-test "Surgical profile" of the students, who were taught according to the D-PBL training methodology with VPs and medical errors, were also taken into consideration.

Thus, the average result of the 1st and 2nd groups on the State Licensing Examination KROK-2 had only the tendency ($p>0,05$) to the highest result of the control group and measured up to respectively (79,99%) against (77,73%). The comparative analysis showed that the result of the 1st group (76,79%) was reliably lower ($p<0,01$) then the result of the 2nd group (82,49%).

However, the average result of the sub-test "Surgical profile" (80,98%) was higher ($p<0,05$) than the control group's results (75,21%). Wherein, it was found that the 1st group (77,43%) had a reliable decreasing ($p<0,05$) of knowledge in comparison with the results of the 2nd group (83,75%).

The students were trained in safe environment according to the D-PBL methodology with Virtual Patients and medical errors, and this training contributed to knowledge improvement on the discipline ($p<0,01$) and results improving in the sub-test "Surgical profile" of the State Licensing Examination KROK-2 ($p<0,05$) in the comparison with the control group.

The gender-related comparative analysis showed that the students of the 2nd group (female gender) had higher ($p<0,01$) results to the ones of the 1st group on the State Licensing Examination KROK-2 and the sub-test "Surgical profile" ($p<0,05$).

In the medical practice, it will become the basis for avoiding medical errors, limiting harm and improving overall health-care safety.

VIRTUAL PATIENTS ENHANCING LIFELONG LEARNING IN UROLOGY AND ONCOLOGY

11.40–12.00 **WEDNESDAY**

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Keywords: *lifelong learning, virtual patients*

Lifelong learning of physicians in Czechia is organized by professional medical associations receiving significant support from pharma and biotechnology industries. Despite the delayed onset of technology-enhanced learning, there have been several e-learning projects and online platforms for case-based learning launched recently.

"Renal carcinoma and virtual patients" (ca-ledviny.cz) is a new project aimed at scenario-based learning with all cases associated with this type of kidney cancer.

Although the target group involves oncologists and urologists, this educational platform has the potential to become an interesting learning resource for specialists in other medical disciplines as well.

The experience from the WAVES knowledge alliance helped to design a sustainable project and to accelerate its early phase.

WAVES knowledge alliance 562463-EPP-1-2015-1-UK-EPPKA2-KA (Erasmus+).