Evaluation of Effectiveness of the "Local Anesthesia" Educational Module Groups of Students with Varying Levels of Professional Training

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Abstract

Today, the lack of realistic practice among students leads to many mistakes in practice and fear of the future work. The purpose of this work is to study the effectiveness of applying the newly developed educational module in the discipline "local anesthesia in dentistry" in groups of students with different levels of professional training. In this study, a new concept of learning to perform inferior alveolar nerve block (IANB) was tested. The study involved 240 people (80 in each of the 3 groups – students, residents and dentists, then the groups were divided into equal subgroups – 40 people in each). After the briefing, the subgroups started studying the program: subgroup 1 of each group followed the Skull-Phantom-Simulator (PSS) training module, where the training format included skill-building exercises on the skull followed by phantom practice and an exam on a hybrid simulator. Subgroup 2 of each group used the Phantom-Skull-Simulator (PSF) training module, where the training format included skill-building exercises on a semi-anthropomorphic phantom followed by a correction practice on the skull and an exam on a hybrid simulator. The study showed the effectiveness of using the Phantom-Skull-Simulator (PSS) system for educational purposes for residents (the efficiency of the procedure was increased by 90%), both types of simulations are equally suitable for training doctors, and the Skull-Phantom-Simulator (SPS) system is more suitable for teaching students – the efficiency increased by 83.36%.

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Introduction

The quality evaluation criteria of specialist training require modern educational technologies. Simulation techniques can model not only an individual nosological condition but provide the student's integration into the nearly real clinical conditions.

Educational standards stipulate that undergraduate students cannot be involved in independent clinical activity, while constant training on standardized patients can lead to learning situations which are far from real clinical practice.

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The complexity of the educational process in the discipline "local anesthesia in dentistry" largely results from the lack of simulators with an integrated assessment scale and feedback. Traditionally, a cadaver preparation is the gold standard of the educational model. Thiel embalmed cadavers are most suitable for educational purposes, including the training in maxillofacial anesthesia due to the preserved mobility of the temporomandibular joint, tissue elasticity and relatively good color rendering[1]. Additionally reported the high training efficiency of Thiel-embalmed cadavers stressing the students' good tolerance of the environment where they work with the cadavers, the convenience and the close to natural condition of the cadavers[2]. The authors indicated that the preservation of the periodontal complex allows hands-on training in teeth extraction.

The effectiveness of simulation training for students performing anesthesia for the first