Letter to Editor

Teaching pharmacology of autonomic nervous system drugs through medical simulation to phase-1 medical students

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Sir,

Prescribing appropriate and precise drugs is a major area of concern for junior doctors [1]. The gap between theory and practice should be bridged and efforts should be made to blend this philosophy with integrated system of learning medicine in pre-clinical phase[2]. Patient contact is seen as a tool to enhance learning experience in early years, however not all cases can be observed in pre-clinical phase given the time constraint. A balance between learning theory and practice must be maintained to cover all outcomes of the curriculum. Hi-fidelity medical simulation offers a safe bet for using, analyzing and learning drugs on mannequin in controlled simulated clinical setting[3]. This innovative method of teaching clinical pharmacology provides hands-on experience to students for observing the effects of drugs and also indirectly enforces the concepts of critical thinking, problem solving and team work amongst medical students.

The school of medicine at Taylors University follows an integrated, system based, problem based medical curriculum in preclinical phase.

Medical subjects like physiology and pharmacology are taught from semester one of MBBS curriculum. Students are also exposed to regular teaching in clinical skills lab on mannequins and on simulated patients. We decided to teach clinical pharmacology of autonomic nervous system to students of phase-1 MBBS course using hi-fidelity medical simulation. Four basic scenarios which were appropriate for knowledge of Phase-1 students were developed. These scenarios warranted the use of drugs like adrenaline, atropine, noradrenaline, and beta blockers. Students were given online reading material one week prior to the session. On the day of the session, students were briefed about the various parameters that they were supposed to observe and record during the session. Parameters recorded were pulse rate, blood pressure, respiratory rate, and pupil size. Students were divided into small groups and a group leader was appointed to coordinate activities. Students observed and recorded their findings and collectively decided on one drug to be given with rationale for each case. At the end of the session an interactive discussion about the

mechanism of action, effects, use and side effects of autonomic nervous system drugs was conducted. A didactic lecture on drugs was conducted on the next day.

DREEM [The Dundee Ready Education Environment Measure] feedback was taken from the students after the session and results were analyzed to see the effectiveness of this innovative teaching methodology[4.] The DREEM gives a global score out of 200 for the 50 items it contains[4]. In our study the average overall DREEM score was 143.9 with a range of 106 to 162 which indicated more positive than negative feelings about teaching pharmacology through hi-fidelity simulation. DREEM core also has five sub-scales[4]. In our study perception for learning subscale score was 37.72+/-3.08 which indicated "more positive approach to teaching". Perception for teacher's subscale score was 29.40 +/- 2.98 which indicated "moving in right direction". Academic self-perception subscale score was 24.00 +/- 2.63 which indicated "feeling more on positive side". Perception of atmosphere subscale score was 36.03 +/-2.06 which indicates a "more positive atmosphere" and social self-perception subscale score was 16.72 +/-2.06 which indicates "not too bad". Overall the scores indicated that students appreciated, enjoyed, liked the use of hi-fidelity medical simulation in teaching clinical pharmacology and most of them also understood the content of study during the session. Our study concludes that use of hi-fidelity medical simulation to teach components of clinical pharmacology in early years of MBBS curriculum is rewarding as well as challenging. It is a small step in integrating theory with practice in early years of our medical curriculum.

References

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