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EXPERIENCE REPORT

Use of simulation for teaching in cardiology: experience report of medical students

Uso de la simulación para la docencia en cardiología: relato de experiencia de estudiantes de medicina

Utilização de simulação para ensino em cardiologia: relato de experiência de acadêmicos de medicina

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Abstract

Simulation can be defined as the technique used to replace or amplify real experiences, which can be in an environment of total or partial immersion, which evokes or replicates essential aspects of daily practice, in an interactive way. This is a descriptive study, of the experience report type, based on the reports of nine medical students. The benefits reported by academics show that simulation allows the use of this controlled environment in the teaching of cardiology, where the error does not have a direct harmful consequence to the patient, on the contrary, even these situations generate a learning opportunity with the discussions generated around of the proposed scenario. This allows students to feel less pressured, insecure, creating an environment with greater comfort and safety. These reports reinforce the benefits of the method for the learning process, highlighting the possibility of repetition without harming the patient.

Descriptors: Simulation Training; Education, Medical; High Fidelity Simulation Training; Cardiology; Patient Safety.

Resumén

La simulación se puede definir como la técnica utilizada para reemplazar o amplificar experiencias reales, que pueden ser en un ambiente de inmersión total o parcial, que evoca o replica aspectos esenciales de la práctica diaria, de manera interactiva. Se trata de un estudio descriptivo, del tipo relato de experiencia, basado en los informes de nueve estudiantes de medicina. Los beneficios reportados por académicos muestran que la simulación permite el uso de este ambiente controlado en la enseñanza de la cardiología, donde el error no tiene una consecuencia perjudicial directa para el paciente, por el contrario, incluso estas situaciones generan una oportunidad de aprendizaje con las discusiones generadas. alrededor del escenario propuesto. Esto permite que los estudiantes se sientan menos presionados, inseguros, creando un ambiente con mayor comodidad y seguridad. Estos informes refuerzan los beneficios del método para el proceso de aprendizaje, destacando la posibilidad de repetición sin dañar al paciente.

Descriptores: Entrenamiento Simulado; Educación Médica; Enseñanza Mediante Simulación de Alta Fidelidad; Cardiología; Seguridad del Paciente.

Resumo

Simulação pode ser definida como a técnica utilizada para substituir ou amplificar experiências reais, podendo ser em ambiente de imersão total ou parcial, que evoca ou replica aspectos essenciais da prática diária, de uma forma interativa. Trata-se de um estudo descritivo, do tipo relato de experiência, realizado a partir do relato de nove discentes do curso de medicina. Os benefícios relatados pelos acadêmicos mostram que a simulação permite a utilização desse ambiente controlado no ensino de cardiologia, onde o erro não incide em uma consequência danosa direta ao paciente, pelo contrário, mesmo essas situações geram uma oportunidade de aprendizado com as discussões geradas em torno do cenário proposto. Isso permite que os alunos se sintam menos pressionados, inseguros, gerando um ambiente com maior conforto e segurança. Esses relatos reforçam os benefícios do método para o processo de aprendizagem, destacando a possibilidade de repetição sem gerar dano ao paciente.

Descritores: Treinamento por Simulação; Educação Médica; Treinamento com Simulação de Alta Fidelidade; Cardiologia; Segurança do Paciente.

Introduction

With globalization, we see ourselves in an increasingly technological reality, which makes it inevitable to rethink teaching, seeking the inclusion of new resources in the education of individuals. The first contact of medical students with medical practices, highlighted here those related to cardiology, can generate anxiety and nervousness, which certainly interfere in the teaching-learning process. This is justified by the desire to learn and accomplish something so important, which concentrates so many variables, but such desire is accompanied by the insecurity of unpreparedness.

The need for scenarios conducive to learning and the organization of health care has made the changes in concepts in student environments increasingly in evidence[1,2]. From this, one thinks about Simulation-Based Teaching (EBS), which comprises a method widely used in the health area, mainly in medical training. Studies with pre- and post-test application methods show the effectiveness of using simulation as a teaching methodology in medical training[3].

Simulation can be defined as the technique used to replace or amplify real experiences, which can be in an environment of total or partial immersion, which evokes or replicates essential aspects of daily practice, in an interactive way[4].

Given the above and considering the student as the main actor in the teaching-learning process, the aim of this article is to report the experience of medical students from different periods regarding the use of simulation as a teaching method in cardiac assessment.

Methodology

This is a descriptive study, of the experience report type, based on the report of nine medical students on the use of simulation as a teaching methodology in cardiology. Bibliographic research was also used to support the discussion on the main theme.

Experience Report

Simulation, today, is the first contact of students with medical practice, where some report that with this methodology they had the opportunity to transpose theory into practice in a lighter way, without the burden of the first contact directly with a human being, reducing the anxiety factor and the fear of a possible conduct error in the cardiac evaluation.

The use of simulation for the study of cardiology is currently one of the most important teaching tools in relation to learning the propaedeutic elements. As for the first mentioned point, it was unanimous among academics how much the simulation helps in learning cardiac auscultation, as in addition to becoming familiar with the auscultation points, they also learn the differences between sounds of different cardiac conditions thanks to the use of simulators that allow such situations. The possibility to better explore behaviors through repetition is also a positive factor in using simulation.

There are cardiac conditions where auscultation is only exacerbated with the use of maneuvers. In the evaluation of real patients this leads to fatigue, which affects the evaluation in a short time and for academics this can be a complicating factor due to the lack of experience. With the use of simulation, these students could make contact with the sound heard, whether it is a murmur or a pathological sound, and learn the necessary maneuver to exacerbate the sound, which facilitates later learning in practice in health units.

To corroborate the idea of the previous paragraph, the report of an academic is necessary. In hospital practice, her group attended to a patient with mitral valve insufficiency. To differentiate this insufficiency from that of the tricuspid valve, it is necessary to perform auscultation with the performance of the Rivero-Carvallo maneuver. As the group of students was large and they needed time to detect the sound heard, the patient was getting tired and uncomfortable, some students did not have the opportunity to take the assessment to spare the patient. So, at the appropriate time, these students used the simulator to learn the behavior performed on the patient, and the students who had already done the auscultation could also, through the simulator, solidify the acquired knowledge, even though the simulator was not exactly like the human.

There are several conditions that affect the heart, generating different sounds with subtle differences. That said, the difficulty of auscultation is highlighted, as it requires training, and, to train, there is a need for patients with a range of comorbidities so that these sounds can manifest. In this case, the importance of simulation is highlighted again, through the students' reports, as this method allows for expanding the possibilities of training and affinity with cardiac assessment.

It is worth noting that the sounds of simulators are not identical to those of human beings, even so it is proven both in the report described and, in the literature, how much this method is effective and relevant for teaching in medicine. Another difficulty reported is how much the handling of highly technological equipment for simulation, for this, students always count on the presence of teachers, technicians or monitors who guarantee the handling and learning with these technologies.

In this report, the importance of simulations that do not use state-of-the-art equipment, but situations in the physician's daily life, is also highlighted. The use of weekly practices of electrocardiogram interpretations of real patients made by the academic league of cardiology provides binding students with detailed learning of the interpretation of this exam, understanding its variables and variants and, through this, enabling medical students to interpret this exam in clinical practice.

Discussion

The use of EBS is currently an important tool in medical education, given the benefits acquired by this method. For this practice to be carried out, the planning of activities to be developed must be based on considering the learning objective, the availability of trained instructors and

facilitators and the available infrastructure, using scenarios with actors, exams, low or high mannequins' technology, which will lead to the simulation of service situations that may be of low, medium or high complexity. The association of feedback methods and the possibility of repeating the actions promote learning in a risk-free and controlled environment, following gradual stages of skills acquisition to provide medical academic qualification for care[5].

The benefits reported by the academics show that the simulation allows the use of this controlled environment in the teaching of cardiology, where the error does not have a direct harmful consequence to the patient, on the contrary, even these situations generate a learning opportunity with the discussions generated in light. of the proposed scenario. This allows students to feel less pressured and insecure, creating an environment with greater comfort and safety.

Another positive point found is the fact that the academic can revisit scenarios previously found, remounting situations experienced in health units, or previous simulations. This allows for the synthesis of learning in the assessment of cardiac patients. The importance of simulating the interpretation of cardiac exams is also highlighted. This practice allows the medical student to be a professional who has skill and competence in interpreting tests that are necessary for urgent and emergency care, such as the electrocardiogram.

There are some counterpoints in transposing information from a robotic product to the organicity of a living being, as it is still not possible to accurately reproduce the heart sound as found in human beings. However, even with some constituting discrepancies, it is possible to reliably approach the reality of a living being since algorithms and materials are increasingly refined and structured to minimize this difference.

It is important to emphasize that the simulations enable a more contextualized cardiology approach, within pathological conditions that involve the involvement of other systems. This, of course, translates as a bonus since cardiovascular diseases progress with different conditions.

Final Considerations

The reports of medical school students about EBS allow us to identify the challenges that the methodology brings to the academy. These reports reinforce the benefits of the method for the learning process, highlighting the possibility of repetition for synthesis, discussion of variables and consequences without causing harm to the patient.

The simulation has satisfactory effectiveness for teaching and retaining knowledge in the field of medical cardiology. The repetition of simulated cases in different levels of severity and scenarios has a great advantage in the method of medical teaching in cardiology due to its proximity to reality and the absence of real risks. Thus, the use of simulation reduces the anxiety and stress of medical students, especially about the study of cardiology, as cardiac patients may have clinical conditions that cause these symptoms in academics.

In addition, the methodology used enables students to acquire fundamental knowledge and skills to deal with unpredictable situations, which can be fatal or drastically impact people's quality of life. More studies and experiences are needed on the use of simulation for learning cardiology to identify facilities, challenges, and repercussions regarding the use of the method.

Thus, with the establishment of important criteria for the methodological design that involves the definition of the relationship number of participants and facilitators, duration of practice, materials, resources, application period, among others, they can improve the results in the clinical practice of cardiology during the academic background of medical students.

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