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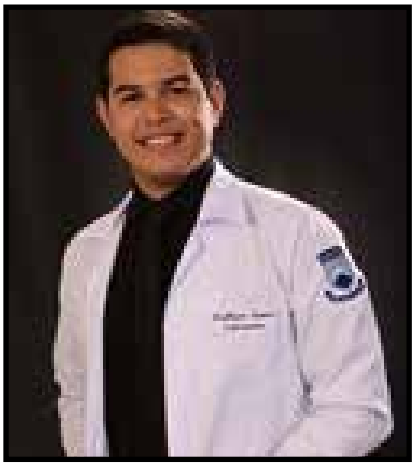

Use of low-cost simulator for Insulin Self-Application: quasi-experimental study

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ABSTRACT

Objective: To evaluate the effect of an educational intervention using a low-cost simulator in the practice of self-application of insulin among individuals with type 2 Diabetes Mellitus. **Method:** Quasi-experimental study with 136 individuals who use conventional insulin. The study will be divided into two stages, the first stage will be the pre-intervention and intervention and the second stage, post-intervention. The data will be analyzed by statistical tests. **Expected results:** The educational intervention using a low-cost simulator aimed at individuals who use insulin may favor the development of skills for the correct and safe self-application of insulin, such as remission of cutaneous signs and symptoms at injection sites.

Descriptors: Diabetes Mellitus type 2; Pharmacological treatment; Insulin.

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INTRODUCTION

The use of Injectable Antidiabetics (IADs) such as insulin, requires important care regarding the skill in preparation, administration and disposal. According to the Institute for Safe Practices in the Use of Medicines, insulin is a drug that is evaluated and classified as potentially dangerous, i.e., it presents an increased risk of damage caused by failure in use [1]. Insulin can be administered by health professionals, trained caregivers or by the duly qualified individual himself, known as self-application.

In order to carry out self-application, it is necessary that the user has cognitive and psychomotor skills and abilities, in addition to understanding the process of storage, transportation, solution preparation, application and the proper disposal of the material [2].

The frequent perforation of the subcutaneous tissue can cause lipodystrophies, especially hypertrophic, pain and edema, discomfort that can negatively influence the individual's adherence to treatment[1]. Cutaneous complications and eventual glycemic disruptions are mainly related to failures in the preparation and self-application of the hormone [3].

The main objective of the educational process of people with Diabetes Mellitus (DM) is to promote the development of knowledge, techniques, management, attitudes and behaviors for the control of the disease, providing a better quality of life, with the aim of avoiding or delaying complications[1].

Searching for strategies to improve the skills for self-administration of insulin resulting in the individual assuming responsibility for treatment should be one of the targets of health care. This practice can reduce complications and the rate of comorbidities related to uncontrolled DM, contributing to the achievement of the goals established by the Ministry of Health, in the Plan for coping with Chronic Non-Communicable Diseases.

In this sense, the educational intervention using a low-cost simulator specifically created and validated for this purpose, may provide the development of skills in individuals with DM regarding the management of self-application and consequently allow the remission and/or reduction of local signs and symptoms resulting from errors in that process.

OBJECTIVE

To evaluate the effect of an educational intervention using a low-cost simulator in the practice of insulin self-administration among individuals with type 2 Diabetes Mellitus.

METHOD

A quasi-experimental study (before and after), comparative, educational intervention and quantitative approach.

The sample will consist of individuals living with type DM-II attended at the endocrinology outpatient clinic of a hospital in the city of João Pessoa, state of Paraíba. 136 participants will be included who meet the following criteria from the sample calculation for the finite population: age over 18 years and less than 60 years; be responsible for the application of insulin, use conventional injectable treatment (regular insulin or NPH) and reside in the municipality in question. Those with chronic DM complications will be excluded.

The study will be performed in two stages: STEP 1- Pre-intervention and intervention, in which sociodemographic and clinical data

will be collected, the self-application region will be observed and photographed and the individual will then be asked to demonstrate in the simulator how to perform the technique of self-application technique in their daily life, the procedure will be recorded using a digital video type media. After recording the participant performing the technique, the researcher will present and train the technique as recommended by the Brazilian Diabetes Society (BDS) and the participant will reproduce the technique in the simulator. The material recorded in video and photography will be sent to evaluators who will be selected according to the approach to the theme, which, in turn, will evaluate the technique performed based on the step by step described by the SBD.

The self-application technique evaluating instrument was created based on the steps established by the SBD for the preparation and safe application of insulin, composed of 19 skills and with variations of yes (adequate/inadequate) and not performed. However, the instrument in question, as it has not been validated, will undergo expert evaluation in order to identify possible inadequacies and subsequent changes.

STEP 2- Post-intervention will be carried out after 30 days of the intervention, when the participant will be approached again by the researcher and the self-application sites and the technique performed in the simulator will be recorded again, which will undergo a new process evaluation by the evaluators, attesting or not the effectiveness of the educational intervention.

The educational intervention will be carried out between March and April 2020. The project was approved by the Ethics and Research Committee of the Hospital Universitário Lauro Wanderley, under opinion No. 3,457,517.

Statistical tests will be used for data analysis.

EXPECTED RESULTS

It is considered that the educational intervention using practical demonstrations with the use of a simulator can strengthen the autonomy and responsibility of the individual with DM-II, in order to favor the individual the development of the necessary skills to become a manager of their clinical/pathological condition, through proper insulin preparation and self-application.

Concerning nursing, the study will bring benefits in the sense of identifying inappropriate practices of insulin self-application and simultaneously innovative and dynamic educational strategies that involve the individual with the potential to raise awareness of behavioral modulation, favoring treatment adherence.

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Bernadete de Lourdes André Gouveia: Analysis of the manuscript;

Ana Maria de Almeida: Analysis of the manuscript and presentation of the final version;

Simone Helena dos Santos Oliveira: Analysis of the manuscript and presentation of the final version.

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