

ASSESSMENT OF THE KNOWLEDGE OF PEOPLE WITH DIABETES MELLITUS ABOUT THE HANDLING AND ADMINISTRATION OF INSULIN

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ABSTRACT

Diabetes mellitus is a chronic endocrine-metabolic disease characterized by hyperglycemia, with glycemic control being crucial for the prevention of micro- and macrovascular complications. Therefore, it is necessary to introduce pharmacological treatments, such as insulin therapy. The process of self-administering insulin is still an obstacle for many patients, so this study aimed to assess the knowledge of insulin users at the Central University Outpatient Clinic (AUC) about the handling and administration of insulin, detecting the rate of errors and correct responses. This was a quantitative, cross-sectional, methodological study approved by the Ethics and Research Committee of the Evangelical University of Goiás. The research was conducted with 50 AUC patients who use insulin and answered a questionnaire designed to assess errors and correct responses regarding insulin handling and administration. The results showed that the highest error rates were related to the amount allowed for use of the same syringe, homogenization of NPH insulin, and cleaning of the vials. On the other hand, the items with the highest accuracy were the correct technique for removing air bubbles from the syringe, contraindications for application in injured areas, and application in a clean place. The results demonstrate that there are significant deficiencies in the knowledge of insulin-dependent patients about the handling and application of insulin, a reality that compromises the effectiveness of treatment, insulin and glycemic control, and increases the risk of complications associated with diabetes. Thus, continuous guidance on insulin application with the patient is essential to ensure greater patient safety and therapeutic effectiveness.

Keywords: Health Education; Diabetes Mellitus; Insulin

INTRODUCTION

Diabetes mellitus (DM) is a chronic endocrine-metabolic disease characterized by hyperglycemia, and glycemic control is crucial for the prevention of micro- and macrovascular complications of diabetes mellitus. Therefore, it is necessary to introduce pharmacological treatments aimed at achieving glycemic control, combined with lifestyle changes and physical activity. Currently, there are a wide range of therapeutic options for treating hyperglycemia in DM2, including insulin therapy (PITITTO-ALMEIDA, 2021).

The therapy involved in the treatment of diabetes mellitus is complex and presents a high risk of direct and indirect harm to the patient, due to failures during prescription, acquisition of insulin and supplies, preparation, self-administration, and disposal of waste generated. As such, the process of self-administering insulin is still an obstacle for many patients, influenced by multiple factors, such as fear of piercing their own skin, lack of knowledge, non-adherence to treatment, and metabolic control (VIANA, 2016; RODRIGUES, et al, 2012).

This study aimed to assess the knowledge of insulin users at the Central University Outpatient Clinic (AUC) regarding insulin handling and administration, detecting the rate of errors and correct responses.

METHODOLOGY

This was a cross-sectional, quantitative methodological study with a descriptive exploratory approach, approved by the Ethics and Research Committee of the Evangelical University of Goiás with Certificate of Ethical Review number: 77132123.3.0000.5076.

The total estimated population was 60 patients who use insulin, treated at the Central University Outpatient Clinic (AUC) in Anápolis for 3 months, who agreed to participate and signed the Informed Consent Form (ICF), with the sample determined by convenience.

Data collection was performed by applying a questionnaire to participants who agreed to participate in the study and signed the TCLE. For data analysis, the quantitative results obtained were tabulated in relative frequency (%) and absolute frequency (n) in Microsoft Excel®.

RESULTS

Data were collected from 50 AUC patients who use insulin, signed the TCLE, and answered the questionnaire, with the first three questions regarding the type of diabetes, how long they have been using insulin, and which professional provided guidance on insulin handling and application. Based on these questions, it was found

that 42 patients (84%) have type 2 diabetes; 43 (86%) had been using insulin for more than 3 years, and 44 (88%) had received guidance on insulin handling and use from a doctor, 4 (6%) from a nurse, and 2 (4%) from a pharmacist.

The remaining questions reveal the research participants' knowledge about insulin storage, correct application technique, homogenization of NPH insulin, and some contraindications. Thus, in order to analyze this information, questions Q3 to Q15 were tabulated, and the description of the number of correct and incorrect answers in absolute frequency (n) and relative frequency (%) is shown below (Table 01).

Table 01. Absolute (n) and Relative (%) Frequencies of Correct and Incorrect Answers to the Questionnaire

Item evaluated by the questionnaire	Correct n	Errors n
Q4. Storage location of sealed insulin	29	21 (42.0)
Q5. Conduct in case of frozen insulin	30	20
Q6. Need for skin fold	31	19 (38.0)
Q7. Contraindication for application on areas with scars	38 (76.0)	12
Q8. Need for application on clean tissue	36	14
Q9. Need to wait for 70% alcohol to dry	26	24
Q10. Relationship between time taken out of the refrigerator and pain reduction	22	28 (56.0)
Q11. Method of homogenizing NPH insulin	17	3
Q12. How to clean the bottles	17 (34.0)	33 (66.0)
Q13. How to aspirate insulin	24	26 (52.0)
Q14. What do you do if there are air bubbles in the syringe?	40	10
Q15. Amount allowed for syringe use	10	40

Source: The authors themselves (2024).

Based on the data presented, it can be seen that question Q15 had the highest error rate (80%), followed by questions Q11 and Q12 (33%). These questions refer respectively to the quantity allowed for use of the same syringe, homogenization of NPH insulin, and cleaning of vials, so that there is a greater chance of patients reusing syringes, inadequately homogenizing NPH insulin, and contaminating insulin vials, resulting in low effectiveness of drug treatment and preventing adequate pharmaceutical care.

In addition, it is important to note that, in terms of correct answers, question Q14 had the highest rate (80%), followed by questions Q7 (76%) and Q8 (72%). Therefore, there is extensive knowledge regarding the correct technique for removing air bubbles from the syringe (), the contraindications for application in areas with scars, wounds, and lipohypertrophy (), and the importance of applying insulin in a clean area. These

issues are fundamental for the correct technique of insulin application and the consequent effectiveness of therapeutic action.

CONCLUSION

The results of the study demonstrate that there are significant deficiencies in the knowledge of insulin-dependent patients regarding the handling and application of insulin, a reality that compromises the effectiveness of treatment, glycemic control, and increases the risk of complications associated with diabetes mellitus. Although in some aspects there are a considerable number of correct responses, the application technique must be 100% correct to ensure the greatest therapeutic effect.

Thus, it is important to emphasize that correct and quality guidance on insulin administration is essential for patients at every consultation, so that insulin-dependent patients receive ongoing health education, with the aim of ensuring greater patient safety and therapeutic efficacy. In addition, the study has some limitations that should be highlighted, such as the fact that the sample is small and focused only on AUC patients, which impacts the representativeness of the data. Therefore, it is hoped that the scientific discussion will not end here. On the contrary, further research on the topic is expected in order to assess patients' knowledge about insulin handling and administration and ensure health education that leads to more effective treatment.

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