Insulin therapy practice performed by people with diabetes in Primary Healthcare

Prática insulinoterápica realizada por pessoas com diabetes na Atenção Primária em Saúde

Práctica de la terapia con insulina realizada por personas con diabetes en Atención Primaria de Salud

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ABSTRACT

Objective: To analyze insulin therapy performed by people with diabetes in Primary Healthcare. **Method:** A cross-sectional, descriptive and quantitative study. Data collection was carried out through an interview using a form with sociodemographic, clinical and insulin therapy variables. Absolute and relative frequencies as well as prevalence ratio were calculated and the chi-squared test was used, with $p < 0.05$ being significant. **Results:** The sample consisted of 150 patients. Most were female (66.7%), aged 50-85 years (79.3%) and some were illiterate (16.7%). Type 2 diabetes (62.0%) with complications (42.7%), and using oral hypoglycemic agents and insulin stood out. Syringes/needles (83.1%), lancets (85.5%), reagent strips (91.0%) and insulin vials (93.8%) were stored incorrectly by the majority. The correct form predominated in preparation, application and transport. Waste was disposed of incorrectly. In the general analysis most performed the insulin therapy stages inappropriately (93.3%). Sociodemographic and clinical variables did not influence insulin therapy, but there was a significant difference in the intra-group analysis for incorrect performance in some groups. **Conclusion:** Insulin therapy was inappropriately performed in most cases.

DESCRIPTORS

Diabetes Mellitus; Insulin; Primary Care Nursing; Primary Health Care; Health Education.

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INTRODUCTION

Diabetes mellitus (DM) is a chronic condition characterized by a metabolic disorder in which persistent hyperglycemia occurs due to defects in insulin secretion or action, with type 1 (DM1) and type 2 (DM2) being the most common. DM1 is an autoimmune disease which causes destruction of pancreatic beta cells, causing deficiency in insulin production. In DM2, insulin action is difficult and insulin resistance occurs, with a family history of DM, advanced age, obesity, physical inactivity, pre-diabetes or gestational DM being important risk factors[1].

At the global epidemiological level, DM is representative for the increasing number of people affected and a reduction in quality of life, with an estimated 69.0% increase in the number of cases between 2010 and 2030. It is expected that there will be 350 million people with diabetes in the world in 2025, and that there will be 18.5 million for the same period in Brazil[2].

Treatment for DM aims to control blood sugar level, reduce complications and improve patients' quality of life. People with DM1 need to replace insulin to reach baseline values of the physiological hormone. The treatment of DM2 involves changes in lifestyle regarding food and exercise, oral hypoglycemic drugs, and insulin for uncontrolled glycemic levels for a prolonged period or metabolic decompensation[3].

Insulin therapy can be performed with different types of insulin (ultrafast, fast, intermediate, prolonged, premixes), and devices with different characteristics and indications (syringe/needle, pen, insulin pump), and involves steps and care to be followed such as the storage, transportation, preparation, application and waste disposal[3-5]. Insulin therapy management based on safe practices is important for quality healthcare, and users and caregivers should be guided towards safe and effective treatment[5]. However, there are barriers to patients' adherence to insulin, including discomfort during application, daily finger punctures, in addition to the proper management of its stages[6-7].

In this context and due to the way the public health system in Brazil is organized, primary care is responsible for monitoring people with DM in order to reduce complications, disabilities and hospitalizations resulting from the disease[7]. This monitoring is essential, since insulin is a hormone which results in risky situations and therapeutic failure if handled improperly[8]. Damage can occur from the preparation phase to the waste disposal, and specific guidelines must be followed to avoid errors[5].

Most research analyzes the adherence of people with DM to insulin[9-11], but it is also relevant to study the recommended management based on safe practice of the insulin therapy stages. Thus, the aim of this study was to analyze the insulin therapy stages performed by people with DM followed up in primary healthcare.

METHOD

STUDY DESIGN

A cross-sectional, descriptive and quantitative study.

POPULATION

The population consisted of people with DM on insulin therapy treated at a Primary Healthcare Unit (*UAPS – Unidade de Atenção Primária em Saúde*) in Fortaleza, Ceará state, Brazil, which is part of the primary care network of the Unified Health System (*SUS – Sistema Único de Saúde*).

The inclusion criteria were: people diagnosed with DM1 or DM2, followed up at the health unit and on insulin therapy for at least six months. Pregnant women were excluded. The convenience sampling technique was used for selecting participants, in which people with DM using insulin were invited to participate in the study when they came to UAPS for medical consultation.

The sample was sized to estimate the prevalence of people with DM on insulin therapy with 95% confidence that the estimation error did not exceed 5% in order to meet the study objectives. It was considered that such prevalence is unknown in the population, being stipulated at 50% (assumed prevalence), as it provides a larger sample size, and that there were 245 patients on insulin therapy monitored at the service. Thus, the following expression was applied:

$$n = \frac{z^2 \cdot p \cdot (1-p) \cdot N}{\varepsilon^2 \cdot (N-1) + z^2 \cdot p \cdot (1-p)}.$$

In this formula, the z is equal to the value of the z-statistic (1.96) for the adopted confidence degree (95%), and p, N and ε correspond to the assumed prevalence (0.50), the population (245) and the tolerable error (0.05), respectively. Thus, a sample of 150 patients was calculated.

DATA COLLECTION

Data collection took place from January 2016 to December 2017, being carried out individually through an interview lasting approximately 50 minutes in a private environment. A form produced from the guidelines for insulin therapy[5,12] was used, which was pre-tested before the beginning of the study with 30 patients who did not compose the sample in order to validate the instrument. The form had two parts: 1. Sociodemographic and clinical variables (age, gender, self-reported skin color, education, marital status, situation of the person with DM in the family, occupational situation, number of people in the household, family monthly income, type of DM, time of diagnosis, places of health monitoring, complications related to DM, use of oral hypoglycemic agents and other medications, smoking, use of alcohol); 2. Insulin therapy stages: 2.1 Storage (storage area for pens, syringes/needles, lancets, reagent tapes and insulin vial); 2.2 Preparation (wash hands, roll the insulin vial to homogenize it before aspirating, aspirate regular insulin before NPH – Neutral Protamine Hagedorn); 2.3 Application (clean the application site with alcohol, pinch the skin and apply insulin with a 90° needle, wait 5 seconds after application, systematically change the application site); 2.4

Transport (hand luggage, suitcase, styrofoam/thermal bag, exposure to sunlight/excessive heat); 2.5 Disposal of syringes/needles, lancets, reagent strips, insulin vials, cotton wool and pens (polyethylene terephthalate bottle - PET, resistant rigid container, sharps container, common waste).

DATA ANALYSIS AND PROCESSING

Patient responses regarding the insulin therapy stages were analyzed in accordance with current guidelines[5,12]. The participants answered yes or no for each preparation and application procedure described. Each response to the items for storage, transportation and disposal was categorized as correct or incorrect. The following were considered correct: storage (refrigerator shelf for new pens and insulin vials in use, and room temperature for pens in use, syringes, reagent tapes and lancets); transportation (hand luggage or thermal bag/styrofoam); disposal (sharps container or rigid puncture resistant container with wide opening and cap for syringes/needles, pens, insulin vials, lancets, reagent tapes and cotton). Lastly, there was a general classification of the insulin therapy practice for each patient, only being considered adequate for those who performed all stages of the process correctly.

The Statistical Package for Social Sciences (SPSS) version 19.0 was used in the statistical analysis. The absolute and relative frequencies were determined, and the chi-squared test was applied for intra-group and inter-group analyzes to check the association between variables. A significance level of 5% was established, with a value of $p < 0.05$ being considered statistically significant. The strength of such an association was assessed by determining the prevalence ratio and its respective 95% confidence interval.

ETHICAL ASPECTS

The project was approved by the Research Ethics Committee of the Universidade Federal do Ceará, on 08/14/2014, under Opinion No. 751.330. The guidelines of Resolution 466/2012 of the National Health Council on research with human beings were observed. All participants signed the Free and Informed Consent Form. The guidelines for Observational Study in Epidemiology (STROBE) were followed.

RESULTS

Among the patients, the majority were female (66.7%), aged 50 to 85 years (79.3%), self-reported brown skin color (62.0%), married or in a stable relationship (52.7%), monthly family income of one to three minimum salaries (60.0%), retired (50.7%), with more than three people at home (44.7%), having less than eight years of studying (36.7%), and with a relevant number of the participants being illiterate (16.7%). The data are shown in Table 1.

Table 1 – Sociodemographic characterization of people with diabetes mellitus – Fortaleza, CE, Brazil, 2017.

Sociodemographic variables	N	%
Gender		
Male	50	33.3
Female	100	66.7
Age range (in years)		
≤ 29	11	7.3
30 – 39	06	4.0
40 – 49	14	9.3
≥ 50	119	79.3
Self-reported skin color		
White	45	30.0
Black	11	7.3
Brown	93	62.0
Indigenous	01	0.7
Civil status		
Single	33	22.0
Married/living together/consensual union	79	52.7
Widowed	18	12.0
Divorced/separated	20	13.3
Monthly Family income		
< 1 minimum salary*	32	21.3
1 - 3 salaries	90	60.0
> 3 salaries	28	18.7
Employment situation		
Employed	30	20.0
Unemployed	20	13.3
Retired	76	50.7
On leave	01	0.7
Homemaker	23	15.3
Number of people living in the home		
Live alone	09	6.0
2	39	26.0
3	35	23.3
> 3	67	44.7
Education (in years)		
Illiterate	25	16.7
< 8 years	55	36.7
8 – 12	52	34.7
> 12	18	12.0

* Minimum salary in force in Brazil during the study period (in BRL *reais*)- 2016: R$880.00; 2017: R$937.00.
Note: N=150

Most of the sample consisted of people with DM2 (62.0%), 63 had 10-19 years of diagnosis and some complication of the disease (42.7%), especially retinopathy. The majority (75.3%) used oral hypoglycemic agents, insulin and medicines for comorbidities (82.0%) such as losartan, simvastatin and acetylsalicylic acid. A total of 49 (32.7%) patients stopped smoking after DM, and 25 (16.7%) drank alcohol three times a week (Table 2).

Table 2 – Clinical characterization of people with diabetes mellitus – Fortaleza, CE, Brazil, 2017.

Clinical variables	N	%
Type of DM*		
DM*1	24	16.0
DM*2	93	62.0
Did not know	33	22.0
Time of DM* diagnosis (in years)		
0 – 9	54	36.0
10 – 19	63	42.0
20 – 29	22	14.7
More than 29 years	11	7.3
Complications related to DM*		
No complications	86	57.3
Blindness/retinopathy	19	12.7
Cardiovascular	11	7.3
Diabetic foot	08	5.3
Nephropathy	02	1.3
More than one complication	24	16.0
Use of oral hypoglycemic agent(s)		
Yes	113	75.3
No	37	24.7
Use of other medications		
Yes	123	82.0
No	27	18.0
Smoking habit		
Never smoked	94	62.7
Yes	07	4.7
Quit	49	32.7
Alcohol consumption		
Never consumed	96	64.0
Yes	25	16.7
No	29	19.3

* Diabetes mellitus.
Note: (N=150).

Table 3 – Insulin storage and supplies, preparation and application performed by people with diabetes mellitus in primary healthcare – Fortaleza, CE, Brazil, 2017.

Insulin therapy stages	N	%
Insulin storage and supplies		
Unused pens (N=37)		
Correct	37	100.0
Incorrect	0	0.0
Pens being used (N=37)		
Correct	37	100.0
Incorrect	0	0.0
Syringes and needles used (N=113)		
Correct	19	16.9
Incorrect	94	83.1
Lancets used in blood glucose testing (N=145)		
Correct	21	14.5
Incorrect	124	85.5
Reagent strips used in the blood glucose test (N = 145)		
Correct	13	9.0
Incorrect	132	91.0
Used/open insulin vial (N=113)		
Correct	07	6.2
Incorrect	106	93.8
Preparation before insulin application		
Wash their hands with soap and water (N = 150)		
Yes	143	95.3
No	07	4.7
Roll the insulin vial before aspirating (N = 113)		
Yes	90	79.6
No	23	20.4
Aspirate first to regulate if associated with NPH insulin* (N = 82)		
Yes	68	82.9
No	14	17.1
Insulin application		
Clean the application site with alcohol (N = 150)		
Yes	64	42.6
No	86	57.3
Pinch the application site at a 90° angle (N = 150)		
Yes	141	94.0
No	09	6.0
Wait 5 seconds after application (N = 150)		
Yes	99	66.0
No	51	34.0
Systematically change the application site (N = 150)		
Yes	139	92.7
No	11	7.3

* NPH: Neutral Protamine Hagedorn.
Note: (N=150).

Table 3 shows the storage of supplies, preparation and application of insulin. Pen users performed correct storage. From the 150 patients, 113 used syringes attached to the needle, but 94 (83.1%) kept this material in the refrigerator for reuse, which is a practice that is no longer recommended since syringes and needles must be discarded after use. Regarding the storage of lancets and reagent strips, 85.5% and 91.0% of the patients, respectively, incorrectly stored these in the refrigerator. Insulin vials in use were incorrectly stored in the refrigerator door by 93.8% of participants. The majority washed their hands (95.3%) before preparing insulin. Moreover, homogenizing the insulin vial before use (79.6%) and aspirating regular insulin first when in combination with NPH (82.9%) was performed by most individuals. When insulin was applied, 86 (57.3%) did not clean the area with alcohol, and 66.0% of the sample waited five seconds to remove the needle. In items where the sample was not 150, patients used pens or did not associate regular insulin and NPH (Table 3).

The majority (72.6%) carried out adequate transport of insulin in hand luggage or styrofoam/thermal bag. For the waste disposal, it was highlighted that syringes and needles (82.3%), lancets (85.5%), reagent strips (91.0%), insulin bottles (93.8%) and pens (83.8%) were incorrectly disposed of in regular trash or PET bottles. In items where the sample was not 150, patients did not use the referred input, as shown in Table 4.

Table 4 – Insulin transport and waste disposal by people with diabetes mellitus treated in primary health care – Fortaleza, CE, Brazil, 2017.

Insulin therapy stages	N	%
Insulin transport		
Correct	109	72.6
Incorrect	41	27.4
Disposal of insulin therapy waste		
Syringes and needles (N = 113)		
Correct	20	17.7
Incorrect	93	82.3
Lancets (N = 145)		
Correct	21	14.5
Incorrect	124	85.5
Reagent tapes (N = 145)		
Correct	13	9.0
Incorrect	132	91.0
Insulin vials (N = 113)		
Correct	07	6.2
Incorrect	106	93.8
Cotton (N = 146)		
Correct	137	93.8
Incorrect	09	6.2
Pens (N = 37)		
Correct	06	16.2
Incorrect	31	83.8

Note: (N=150).

In the joint analysis of the insulin therapy stages for each patient, it was found that the majority did not perform the process appropriately (140; 93.3%), as only 10 people with DM (6.7%) performed all steps correctly. In the intergroup analysis, there was no statistical significance in the association between sociodemographic and clinical variables with the adequate or inadequate management of insulin therapy. In the intragroup analysis, there was a statistically significant difference for participants aged 50 years or older, in which the majority did not perform insulin therapy properly (p<0.0001). The majority of female patients, married, in an occupational situation with no income, family income equal to or greater than one minimum monthly salary, using more than three medications and having no comorbidities did not perform insulin therapy appropriately (p<0.0001), according to Table 5.

Table 5 – Association of sociodemographic and clinical variables with insulin therapy stages – Fortaleza, CE, Brazil, 2017.

Variables	Insulin therapy				Intragroup p-value*	PR‡ (95%CI§)	Intergroup p-value†
	Adequate		Inadequate				
	N	%	N	%			
Age (in years)							0.102
< 50	0	0	30	100.0	-		
≥ 50	10	8.3	110	91.7	**< 0.0001**		
Gender							0.817
Male	3	6	47	94	0.206	0.857 (0.231 – 3.174)	
Female	7	7	93	93	**< 0.0001**	1.011 (0.925 – 1.1104)	
Civil status							0.001
Single	0	0	33	100.0	-		
Married/Stable union	2	2.5	77	97.5	**< 0.0001**	0.12 (0.027 – 0.485)	
Divorced/Widowed	8	21.1	30	78.9	**< 0.0001**	1.235 (1.044 – 1.460)	
Education (in years)							0.662
< 8	6	7.5	74	92.5	0.527	1.313 (0.386 – 4.463)	
≥ 8	4	5.7	66	94.3	0.499	0.981 (0.901 – 1.068)	
Employment situation							0.502
Making income	8	7.5	98	92.5	0.058	1.66 (0.367 – 7.509)	
No income	2	4.5	42	95.5	**< 0.0001**	0.969 (0.890 – 1.054)	

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Variables	Insulin therapy				Intragroup p-value*	PR‡ (95%CI§)	Intergroup p-value†
	Adequate		Inadequate				
	N	%	N	%			
Monthly Family income							0.915
< 1 minimum salary	2	6.3	30	93.8	0.058	0.922 (0.206 – 4.129)	
≥ 1 minimum salary	8	6.8	110	93.2	**< 0.0001**	1.006 (0.908 – 1.113)	
DM‖ diagnosis (years)							0.076
< 10 years	1	1.9	53	98.1	0.011	0.198 (0.026 – 1.517)	
≥ 10 years	9	9.4	87	90.6	0.004	1.083 (1.006 – 1.116)	
DM‖ complications							0.402
Yes	3	4.7	61	95.3	0.206	0.576 (0.155 – 2.141)	
No	7	8.1	79	91.9	0.128	1.038 (0.955 – 1.128)	
Number of medications							0.189
< 3	1	2.4	41	97.6	0.011	0.286 (0.037 – 2.186)	
> 3	9	8.3	99	91.7	**< 0.0001**	1.065 (0.989 – 1.147)	
Other comorbidities							0.495
Yes	9	7.3	114	92.7	0.011	1.976 (0.261 – 14.946)	
No	1	3.7	26	96.3	**< 0.0001**	0.962 (0.880 – 1.052)	

* Intragroup analysis performed by the Chi-squared test with p-value; †Intergroup analysis performed by the Chi-squared test with p-value; ‡PR: prevalence ratio; §CI: confidence interval; ‖DM: diabetes mellitus

DISCUSSION

When analyzing the insulin therapy practice of people with DM, it was found that most did not perform the steps appropriately. In this regard, studies claim that sociodemographic and clinical characteristics influence this process[5,13-17]. There was a prevalence of female patients, corroborating with the current situation which shows the increase in DM in women, especially because they seek health services more than men, adding to the chances of diagnosis[13]. Most participants were over 50 years old, as DM2 is more common in those over 40 due to overweight, physical inactivity and family history of DM[14]. Brown colored people stood out, but there is no research which relates skin color or ethnicity with DM, especially due to the miscegenation existing in Brazil[15]. Regarding the social support network, the majority did not live alone, and were married or in a stable relationship. Thus, having family members or a social network is a support which facilitates follow-up of the therapy[16]. However, a study showed that if the person with DM has many responsibilities at home such as taking care of children/older adults, they tend to not perform insulin therapy properly due to lack of time[13].

Those who were retired and having a monthly income of one to three minimum wages prevailed in the study. Research shows that being retired facilitates insulin therapy, as those who work may have difficulties related to the hours and handling of insulin outside the home[17]. Studies also show that people with low-income and DM have less control of the disease and more comorbidities[18-20]. Regarding education, the results were similar to a study carried out in Portugal, in which most patients had less than eight years of studying, and there were also illiterate patients, claiming that having more education facilitates treatment[21].

The most reported diagnosis time of DM was 10 to 19 years. This is an important factor for monitoring patients due to the association between disease duration and therapy with the development of micro and macro-vascular complications of DM[22], noting that the majority had at least one complication of DM, thus configuring as an important health problem. DM is often associated with other conditions such as systemic arterial hypertension and dyslipidemia, corroborating the findings of this research in which the majority used drugs for comorbidities in addition to oral hypoglycemic agents and insulin[23]. Some participants were smokers and consumed alcoholic beverages, which negatively interferes with insulin therapy, as it increases the risk of complications from DM, and is also a risk factor for other cardiovascular diseases[23].

In the analysis of the insulin therapy stages, the storage of syringes, reagent strips, lancets and vials of insulin were performed incorrectly, especially syringes attached to the needle for the purpose of reuse. This practice is no longer recommended due to skin lesions which can cause lipodystrophy, which can interfere with the inoculation and adequate action of the hormone given the unpredictability of insulin absorption in places with lipohypertrophy[24]. The reuse of syringes and needles can occur due to the lack of inputs, and despite records of greater availability of these materials in the UAPS, these may not be sufficient to meet the demands of the population[7]. Opened insulin vials were mistakenly stored on the refrigerator door by the majority, which can negatively interfere with insulin bioavailability, changing the appropriate glycemic control[5].

Most of the subjects performed the insulin preparation and application stages correctly, but some did not homogenize the insulin vial during preparation and/or did not first aspirate regular insulin in case of combination with

NPH, which may reduce the effectiveness of the insulin hormone and cause undesirable clinical responses[25]. Regarding cleaning the application site with alcohol, a study showed that disinfection is generally not necessary when applications are carried out in non-institutional environments, such as homes[24]. Still, most participants rotated the application site in this stage, which reduces complications such as lipodystrophy and uncontrolled glycemia[26]. The patients performed the skin fold for applying the needle at 90º to avoid injecting the insulin into the muscle tissue, but almost half of the people with DM did not wait for five seconds to remove the needle from the site, which may cause insulin reflux with a reduction in dose and expected effect[24].

No participants in this study exposed the hormone to sunlight and they performed correct transport, demonstrating the practice linked to the literature[5,24]. In the last step which involves the disposal of inputs, a significant portion neglected to dispose of pens, syringes/needles, lancets, reagent tapes and insulin vials correctly, using ordinary garbage or PET bottles. The proper disposal would be in a sharps collector (Descartex®), or containers such as bottles of fabric softener, with a lid, wide mouth and being material which is resistant to perforation[17].

In a study conducted in São Paulo, nurses were primarily responsible for advising on disposal, however the guidelines were insufficient, requiring adoption of a specific protocol for waste disposal at home[27]. Inadequate disposal poses a risk to patients' families, especially when there are children in the household, in addition to the population and the environment, as these materials can spread Human Immunodeficiency Virus (HIV), and/or Hepatitis B and C, requiring guidance to empower patients in the therapeutic process[28]. Moreover, family members can be guided to help in the disposal.

The performance of insulin therapy was inadequate for most people with DM because they did not correctly perform all the steps for proper therapeutic efficacy. Therefore, although this is not an interventionist study, the need for health education practices for self-care is evident, as patients can receive timely information in a consultation and are unable to incorporate everything that was instructed by health professionals[29]. The support group strategy can continue teaching and learning, as it increases success in the insulin therapy process, contributing to self-care. Besides, there is the telephone teaching strategy, which showed an improvement in the competence of people with DM to apply insulin[25].

The sociodemographic and clinical variables in this study did not influence insulin therapy, however there was a significant difference in insulin therapy in the groups aged 50 years or older, female, married, in an occupational situation with no income, with family income equal to or greater than one minimum salary, using above three drugs and no comorbidities, which was done in a more inadequate way. In spite of this, greater education and the number of people in the household were associated with more correct insulin therapy in other studies[16,21]. On the other hand, despite a higher level of education, some patients are unable to understand and follow the treatment measures. One justification is that understanding and following health guidelines is something complex which is beyond the education level, requiring the functional health literacy of each individual[30]. This fact can also be related to difficulties in the therapeutic relationship, given that the professional becomes a health educator, and a resolution of biases depends on understanding the patients' individual questions, and must adapt to each particular reality[29].

The external validity of the study can be considered a limitation, which can be restricted due to the participation of individuals monitored in a single health institution. However, this study contributes to the healthcare of people with DM, as it points out the need for educational activities in the context of insulin therapy aimed at both patients as well as their families and caregivers. The need for research which can assess the effectiveness of these educational strategies is also highlighted.

CONCLUSION

Most people with DM followed up in primary healthcare did not perform insulin therapy appropriately, which can interfere with the efficiency and safety of the process. The sociodemographic and clinical variables did not influence the adequacy of insulin therapy, but it was found that women over 50 years old, married, with a family income equal to or above one minimum salary, using over three medications and without comorbidities were factors which were associated to not performing insulin therapy properly.

Health education activities for people with DM should be implemented in primary care with the aim of improving self-care, as empowering the individual about the health-disease process contributes to adequate management of insulin therapy at home. It highlights the importance of health professionals creating support groups for patients, as well as conducting home visits, which is essential for monitoring, especially those individuals with physical or cognitive limitations. Family members and caregivers must also be inserted to assist in managing insulin therapy.

In addition, the multidisciplinary health team, which includes nurses, physicians and pharmacists, must be able to identify patients' questions or needs in order to adequately guide the insulin therapy stages within their scope of action in the Primary Healthcare Units.

RESUMO

Objetivo: Analisar a insulinoterapia realizada por pessoas com diabetes na Atenção Primária em Saúde. **Método:** Estudo transversal, descritivo e quantitativo. A coleta de dados foi realizada por meio de entrevista, utilizando-se formulário com variáveis sociodemográficas, clínicas e etapas da insulinoterapia. Foram calculadas frequências absoluta e relativa, razão de prevalência e foi usado o teste de qui-

quadrado, sendo significante o p < 0,05. **Resultados:** A amostra foi composta de 150 pacientes. A maioria era do sexo feminino (66,7%), faixa etária de 50-85 anos (79,3%) e havia analfabetos (16,7%). Destacou-se o diabetes tipo 2 (62,0%) com complicações (42,7%), em uso de hipoglicemiantes orais e insulina. Seringas/agulhas (83,1%), lancetas (85,5%), fitas reagentes (91,0%) e frascos de insulina (93,8%) foram armazenados incorretamente pela maioria. No preparo, aplicação e transporte predominou a forma correta. Resíduos foram descartados incorretamente. Na análise geral das etapas da insulinoterapia, a maioria a realizava de forma inadequada (93,3%). Variáveis sociodemográficas e clínicas não influenciaram na prática insulinoterápica, mas na análise intragrupo houve diferença significante para realização incorreta em alguns grupos. **Conclusão:** A insulinoterapia foi realizada de forma inadequada na maioria dos casos.

DESCRITORES

Diabetes Mellitus; Insulina; Enfermagem de Atenção Primária; Atenção Primária à Saúde; Educação em Saúde.

RESUMEN

Objetivo: Analizar la insulinoterapia realizada por personas con diabetes en la Atención Primaria en Salud. **Método:** Estudio transversal, descriptivo y cuantitativo. La recolección de los datos fue realizada por medio de la entrevista, utilizando formulario con variables sociodemográficas, clínicas y etapas de la insulinoterapia. Fueran calculadas frecuencias absoluta y relativa, razón de prevalencia y fue utilizado la prueba de qui-cuadrado, siendo significante el p < 0,05. **Resultados:** La amuestra fue composta de 150 pacientes. La mayoría era del sexo femenino (66,7%), rango de edad de 50-85 años (79,3%) y hubo analfabetos (16,7%). Destacó se la diabetes tipo 2 (62,0%) con complicaciones (42,7%), en el uso de hipoglicemiantes orales y insulina. Seringas/agujas (83,1%), lancetas (85,5%), tiras reactivas (91,0%) y frascos de insulina (93,8%) fueran almacenados incorrectamente por la mayoría. En el preparo, aplicación y transporte predominó la forma correcta. Residuos fueran descartados incorrectamente. En el análisis general de las etapas de la insulinoterapia, la mayoría realizaba de forma inadecuada (93,3%). Variables sociodemográficas y clínicas non influenciaran en la práctica de la terapia de insulina, pero en el análisis intragrupo hubo diferencia significante para realización incorrecta en algunos grupos. **Conclusión:** La insulinoterapia fue realizada de forma inadecuada en la mayoría de los casos.

DESCRIPTORES

Diabetes Mellitus; Insulina; Enfermería de Atención Primaria; Atención Primaria de Salud; Educación en Salud.

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