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Glycemic control and awareness of foot care in diabetic foot syndrome

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Abstract. Background. The chronic complications of diabetes mellitus (DM) result from a wide variety of effects of disease. The correlation between blood sugar level and chronic complications has been demonstrated in various studies. Patient education, risk factor management, and other preventative measures are critical elements in reducing the incidence of diabetes complications such as Diabetic Foot Syndrome (DFS). **We purposed** to evaluate knowledge and attitudes towards foot care amongst patients with diabetes mellitus; in addition, we investigated the correlation between glycemic control and DFS. **Materials and methods.** This was a descriptive cross-sectional evaluation of patients who were diagnosed with diabetes mellitus seeking outpatient medical care with data being collected through patient surveys, clinical evaluation, specialty consultation, and biochemical analysis of glycosylated haemoglobin (HbA1c) serum levels. The population of the study was composed of 90 patients diagnosed with DM. **Results.** A total of 90 patients, 42 (46.7 %) females and 48 (53.3 %) males were included in the study. The rate of participants who reported completing daily self-evaluations for wounds, cracks, and discoloration on the feet was significantly higher (68.9 %) than those who reported not evaluating on a daily basis (31.1 %). Almost half of the participants were diagnosed with DFS (n = 43; 47.7 %) with the HbA1c levels of patients with DFS being significantly higher compared to the HbA1c levels of patients without DFS (p < 0.05). **Conclusions.** As a high incidence of DFS was found with a positive and statistically significant correlation between the HbA1c level and DFS presence, our study highlights the importance of close monitoring, education, and treatment given the risk of serious complications of DM such as DFS in setting of poorly controlled DM.

Keywords: diabetes mellitus; diabetic foot syndrome; blood glucose control

Introduction

Diabetes mellitus (DM) is a syndrome which can be characterized by chronic hyperglycemia; dysregulation of protein, lipid, and carbohydrate metabolism pathways; and alterations in the capillary membrane and accelerated atherosclerosis, which can occur due to absolute or relative deficiency or peripheral ineffectiveness of endogenous insulin [1]. DM is one of the most prevalent diseases in the world and can be characterized as a pandemic due to its global distribution with notably severe complications; the Inter-

national Diabetes Federation (IDF) projects that by 2045 trends suggest over 700 million individuals will have active diagnoses of DM [2].

With the discovery of insulin and oral antidiabetic (OAD) drugs, the life span of diabetic patients has extended significantly [3]. Therefore, the incidence of chronic complications developing due to increased life expectancy in patients with diabetes has also increased. These complications are important causes of mortality and morbidity in patients with diabetes [1, 3].

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The chronic complications of diabetes result from a wide variety of effects of disease. The correlation between blood sugar level and chronic complications has been demonstrated in various studies. Chronic complications of diabetes are classified into micro and macrovascular complications: Microvascular complications of diabetes include nephropathy, neuropathy and retinopathy; macrovascular complications include cerebrovascular diseases, ischemic heart diseases, and peripheral artery disease [4].

Of note, foot ulcers are especially common in patients with DM. Diabetic foot syndrome (DFS) is an ulceration of the foot that appears due to a combination of diabetic neuropathy and vascular insufficiency, and is frequently associated with wound infection [5, 6]. From among risk factors, diabetic neuropathy has been noted to be particularly notable in the development of DFS [6]. Vascular insufficiency or vascular occlusion impact the vessels, arteries and capillaries, resulting in diffuse arteriovenous shunts at the precapillary level and causing a decrease in the tissue oxygenation in risky areas [7]. Neuropathy is mainly sensory and causes a decrease in the sensation of pain, as well as the sense of vibration and position [6, 8]. In addition, callus formation occurs due to the abnormal distribution of standing pressure caused by diabetic neuropathy, leading to ischemia and microthrombi, as well as the formation of ulcer or gangrene [6, 7, 9].

The care and treatment of DFS involves the recognition of the major risk factors leading to amputation, frequent routine follow-up and evaluation, and preventive measures. Unfortunately, DFS is one of the most common causes of extremity amputations [8–10]. Therefore, training patients in foot hygiene, nail care, and appropriate footwear significantly reduces the risk of the wounds that lead to the formation of ulcer [10].

Glycated Hb measurements are performed with HbA1c measurements are very valuable in the routine follow-up of DM [11, 12]. The American Diabetes Association (ADA), the European Association for the Study of Diabetes, and the IDF, concluded that a cut-point of HbA1c ≥ 6.5 % can be used to diagnose DM [13]. Studies established the importance of maintaining well-controlled glycemia as evidenced by HbA1c to prevent diabetic complications [14]. In a recent systemic review, there was an increased risk of all-cause and cardiovascular mortality when HbA1c levels are above 9.0 % in diabetics [15].

In this study, we aimed to evaluate the depth of knowledge of diabetic foot and the attitudes towards foot care in patients with DM. In addition, we investigated the correlation between the level of glycaemic control (HbA1c) and DFS presence.

Materials and Methods

Design and Setting

This study was designed as a descriptive cross-sectional evaluation of patients who were diagnosed with DM according to the ADA criteria. The population of the study was composed of 90 patients diagnosed with DM who applied to the Diabetes outpatient clinics of Taksim Training and Research Hospital and the Hospital of Turkish Diabetes Association between 1st August and 30th December 2004.

The inclusion criteria of the study were as follows: being 18 years old and older, being diagnosed with DM for at least 1 year, being an outpatient clinic patient, having cognitive competence, patients without cognitive impairment or severe mental illness, and participating in the study voluntarily.

Patients were informed about this study, and verbal and written consent was obtained from each participant patient. Data was collected through a questionnaire prepared during mutual interviews with the patients, physical examination to determine incidence of DFS, orthopaedic consultation when necessary, and by collecting blood samples from the patient to determine the HbA1c value for glycaemic control. In the clinical examination of patients' feet, DFS was verified the presence or absence of corns, keratosis, cracks, mycosis, claw toes, hollow foot, flat foot and ulcers [16].

To carry out this study, written permission was obtained from the institutions where this study was conducted, ethical approval was obtained from the Ethics Committee of the Taksim Education and Research Hospital for the thesis of specialization in medicine which was registered at the archive of the Databases of National Thesis Center of the Council of Higher Education (No: 643629/2005).

Statistical Analyses

The statistical analyses were performed using the SPSS 24.0 (IBM, Statistical Package for Social Sciences). The data of the study were evaluated using the descriptive statistical methods (mean, standard deviation), as well as the student t-test for comparing quantitative data. The chi-square test was used to compare qualitative data. Pearson's correlation test was used to examine the correlation between parameters. The results were evaluated at a confidence interval of 95 %, and at a significance level of $p < 0.05$.

Results

The study was conducted on a total of 90 patients, 42 female (46.7 %) and 48 males (53.3 %) in the age range of 21 and 81 years, with a mean age and standard deviation (SD) of 54.91 ± 11.61 years. The mean HbA1c level was $8.72 \pm SD 2.43$ (Table 1). Regarding the professions of the patients, 38.9 % were housewives, 27.8 % were retired and 18.9 % were self-employed (Table 1). About a third of the participants ($n = 28$; 31.1 %) did not attend regular follow-up visits, while 72 (68.9 %) of them continued their regular follow-ups. The number of patients who attended regular follow-up once a month, once every 2 months, once every 3 months or once every 6 months were 14 (15.6 %), 11 (12.2 %) 13 (14.4 %), and 24 (26.7 %), respectively (Table 2).

When evaluating the foot hygiene and self-evaluation, 53 participants (58.9 %) reported that they cut their toenails straight and not too short and 69 (76.7 %) participants cut their toenails without any noted bleeding. The number of patients who checked and did not check for cracks, wounds, and discoloration on the feet every day were 62 (68.9 %) and 28 (31.1 %), respectively.

Approximately one third of the participants ($n = 30$; 33.3 %) reported that they had previously experienced wounds in their feet. Almost half ($n = 40$; 44.4 %) of the pa-

tients reported treating any noted wounds in their feet themselves, 38 (42.0 %) consulted the healthcare professionals, 2 (2.2 %) preferred to consult people other than healthcare professionals, and 10 (11.1 %) reported that they did not care about the ulcers in their feet.

Twenty-nine (32.2 %) were treated in the outpatient clinic due to the wound in their feet, 8 (8.9 %) were hospitalized once for treatment, and 5 (5.6 %) were hospitalized multiple times for treatment. It was found that 12 (13.3 %) of them had been operated due to the wound in their feet.

As part of their typical routine, 76 (84.4 %) patients reported warming their feet by wearing socks, while 1 (1.1 %) preferred to use hot iron, 2 (2.2 %) preferred hot water pack, and 11 (12.2 %) preferred methods such as using a heater.

Per clinical evaluation, examination by a physician revealed that 47.8 % of the patients had diabetic foot disease, while 52.2 % did not have the diabetic foot disease (Table 3). Among the participants, the number of patients with DFS and without DFS were 43 (47.7 %) and 47 (52.2 %), respectively. The mean HbA1c levels of patients with DFS and without DFS were 9.38 ± 2.60 and 8.11 ± 2.12 , respectively; and the difference was statistically significant ($p < 0.05$). The correlation between mean HbA1c and the diabetic foot disease was found to be positive and statistically significant in terms of the DFS presence and the mean HbA1c level in patients with DFS ($r = 0.306$, $p = 0.046$; $p < 0.05$) (Table 5).

Although there was no statistically significant correlation between the duration of DM and being treated at the outpatient clinic for foot ulcers, it was noteworthy that the rates of outpatient treatment for foot ulcers in patients with DM for more than 6 years were higher compared to the patients with DM for less than 6 years. There was also no statistically significant correlation between the duration of DM and presence of diabetic foot disease ($p > 0.05$) (Table 4).

Discussion

In the present study, we investigated the knowledge and attitudes of the patients diagnosed with DM regarding diabetic foot syndrome and diabetic foot care, along with the

correlation between HbA1c level, which was an indicator for glucose regulation, and presence of DFS.

The majority of participants were males, with a mean age of approximately 55 years. In another study conducted to evaluate the knowledge levels concerning diabetic foot care and self-care activities in diabetic patients in Turkey, it was determined that Diabetes Self-Care Scale score averages were significantly different between the patients in the age group of 56 to 65 years [17].

Age has been shown as an important factor for complications [18]. In a cross-sectional trial, that evaluated 187 elderly diagnosed with Type 2 DM, female gender, older age, presence of calluses and claw toes were found to be determinants of DFS development [16]. A lack of proper foot hygiene and care coupled with poor glycaemic control can be associated with the risk of diabetic foot development; a cohort trial in Costa Rica found that men who needed insulin due to insufficient glycaemic control had more incidence of lower limb amputations [19]. Irregular monitoring of HbA1c and use of inappropriate shoes have also been shown to increase the predisposition to the development of foot complications in women with DM2 [20].

The care with feet is an effective measure that can prevent not only DM complications such as DFS but also additional poor outcomes such as the increased risk for falls amongst elderly populations with diagnoses of DFS which can also be associated with a lower quality of life index [21]. According to some researchers, gender may also play a role with past studies showing women reporting increased attention to foot hygiene and monitoring when compared to male counterparts [22]. A trial conducted in southern Brazil with 1,515 people with DM, found that foot care among men is significantly lower than women [22]. It is important to weigh the factors that act as potential barriers to self-care in DM for men and women.

In a previous study conducted by V. Viswanathan et al., in India on 250 patients with DM, with the aim of evaluating their knowledge about diabetic foot disease, the authors found that 67.2 % of the participants had little knowledge

Table 1. Demographic characteristics

		n	Mean \pm SD
Age		90	54.91 \pm 11.61
		n	%
Gender	Female	42	46.7
	Male	48	53.3
Educational Level	Illiterate	16	17.8
	Literate	14	15.6
	Primary school	39	43.3
	High school	13	14.4
	University	8	8.9
Profession	Housewife	35	38.9
	Retired	25	27.8
	Officer	4	4.4
	Skilled worker	9	10.0
	Other	17	18.9

about the principles of foot protection and diabetic foot complications [23].

In the present study, 68.9 % of the cases were performing foot checks daily. The rate of foot checks on a daily basis among the patients, who participated in a training program, was found to be higher compared to the patients who did not participate in a training program; however, the difference was not statistically significant. This result is consistent with the literature, supporting the importance of education in diabetic foot care [18].

The key to preventing the formation of DFS is patient education. Patients should be educated regarding the necessity of the quality foot care through checking their feet regularly using a mirror when needed, monitoring for the formation of callus or cracks in the skin, cleaning and protecting the small wounds appropriately, paying attention to overall foot hygiene, caring for and cutting the nails regularly, and selecting suitable, comfortable socks and shoes carefully [24].

In our study, the majority of patients who performed daily foot checks paid attention to calluses, hardness, cracks and discoloration of the skin on their feet; 2.2 % of them made the sole examination with a mirror and 27.8 % used moisturizer or talcum powder. These results indicate that the patients usually attach importance to the changes in their foot skin. In a study examining the attitudes of the patients with Type 2 DM towards foot and foot ulcer care in Thailand, it was found that patients with foot ulcers had less

understanding of foot care compared to those without foot ulcers suggesting that one means to prevent foot ulceration and its complications is to educate diabetic patients about appropriate foot care [25]. In studies conducted in Finland, the knowledge and attitudes of the patients, who were followed up by the podiatrist group for a year, were found to be significantly higher compared to the group performing their own foot care this highlighting the importance of longitudinal follow-up.

In a study conducted on patients with Type 2 DM in Spain, 36 % were found to have poor foot care, 73 % did not go to a podiatrist regularly, 76 % cut their nails with scissors, 75 % did not check the inside of their shoes, 38 % had symptoms of neuropathy, and 17 % had symptoms of vasculopathy; thus, for about a quarter of participants, the risk of developing a diabetic foot had significantly elevated due these risk factors [26].

Among the participants of our study, 81.1 % selected special and appropriate shoes, 30% checked their shoes before putting them on, 65.6 % walked barefoot at home or outside, and 65.6 % wore their shoes or slippers without socks. In a study conducted in Italy on the epidemiology of the diabetic foot, it was found that 15 % of the patients with DM and 6–20 % of the hospitalized patients with DM developed foot ulceration [27]. Diabetic patients are recommended to wear shoes that are made of soft materials fitting their feet perfectly. Before wearing, the inside and outside of shoes should be checked every time [28].

Table 2. Situation related to DM

		n	%
Time since the diagnosis of DM	Less than 1 year	10	11.1
	1–5 years	19	21.1
	6–10 years	20	22.2
	11–20 years	31	34.4
	More than 20 years	10	11.1
Frequency of consultation for DM	Once a month	14	15.6
	1 time in 2 months	11	12.2
	1 time in 3 months	13	14.4
	1 time in 6 months	24	26.7
	No regular check	28	31.1
Type of medical center for the DM follow-up	University Hospital	4	4.4
	State Hospital	54	60.0
	State Health Center	5	5.6
	Private Medical Center	9	10.0
	Diabetes Center	9	10.0
	Diet only	9	10.0
Type of treatment for DM	Oral antidiabetic	4	4.4
	Insulin	45	50.0
	Oral antidiabetic + insulin	30	33.3
	Yes	11	12.2
Training about DM	No	11	12.2
	Less than 1 year	79	87.8

Table 3. Situation related to foot care

		n	%
1	2	3	4
Knowing that there are special foot exercises for people with DM	Yes	15	16.7
	No	22	24.4
	I do not know	53	58.9
Frequency of leg and foot exercises	No exercise	75	83.3
	Sometimes	8	8.9
	Everyday	7	7.8
Pre-checking the temperature of the water for washing feet	Yes	38	42.2
	No	52	57.8
Checking for cracks, wounds, and discoloration on the feet every day	Yes	62	68.9
	No	28	31.1
Use of cream or talcum powder for the feet	Yes	25	27.8
	No	65	72.2
Warming a cold foot	Wearing socks	76	84.4
	With a hot iron	1	1.1
	Hot heat bag	2	2.2
	Heater	11	12.2
Toenail care	No	3	3.3
	Once a week	6	6.7
	Every 15 days	37	41.1
	Once in a month	44	48.9
Toenail cut	Straight, not too short	53	58.9
	With the sinking places	8	8.9
	Round, short	29	32.2
Bleeding when cutting a toenail	Yes	21	23.3
	No	69	76.7
The frequency of taking walks	No	33	36.7
	Everyday	35	38.9
	Every 3-4 days	9	10.0
	Once a week	6	6.7
	Once in a month	7	7.8
Walking barefoot at home or outside	Yes	59	65.6
	No	31	34.4
Wearing slippers without socks or open toe cups	Yes	48	53.3
	No	42	46.7
Checking the inside of the shoe every time before wearing it	Yes	27	30.0
	No	30	33.3
	Sometimes	33	36.7
Considerations when choosing socks	Wool, not tightening the wrists	1	1.1
	Cotton, not tightening the wrists	31	34.4
	Mercerized, does not tighten the wrists	12	13.3
	Synthetic, easy to tighten	19	21.1
	None	27	30.0

The end of the table 3

1	2	3	4
Considerations when choosing shoes	A little big	2	2.2
	Just fit	11	12.2
	Pointed toe	1	1.1
	Fits + round toe	62	68.9
	Big + round toe	9	10.0
	Fits right + pointed toe	3	3.3
	Perfect fit + high heels	2	2.2
What to do in a minor wound situation	Self treatment	40	44.4
	Consulting the neighbor	2	2.2
	Consulting the doctor	38	42.2
	Disregard	10	11.1
Knowing that people with DM have more frequent foot wounds	Yes	83	92.2
	No	7	7.8
Knowing that people with DM have more frequent foot wounds	Yes	68	75.6
	No	22	24.4
Foot wounds experience	Yes	30	33.3
	No	60	66.7
Being treated in the outpatient clinic for a wound in the foot	Yes	29	32.2
	No	61	67.8
Hospitalization for a wound in the foot	No	77	85.6
	Once	8	8.9
	More than once	5	5.6
Surgery for a wound in the foot	Yes	12	13.3
	No	78	86.7
Knowledge of the need for regular foot care in patients with diabetes	Yes	88	97.8
	No	2	2.2
Checking the soles of the feet	Using a mirror	2	2.2
	Trying to look himself	65	72.2
	By having someone in the family look	11	12.2
	Only when visiting a doctor	12	13.3
To know the difficulty of treating foot wounds in patients with diabetes	Yes	88	97.8
	No	2	2.2
Knowing that small wounds on the feet can grow and deepen in a short time in diabetics	Yes	82	91.1
	No	8	8.9
Knowing that foot sores in patients with diabetes can be larger than they actually appear	Yes	81	90.0
	No	9	10.0
Knowing that diabetic patients' feet can be cut due to injuries	Yes	86	95.6
	No	4	4.4
Whether there is currently DFS disease	Yes	43	47.8
	No	47	52.2
Want to get information about diabetic foot	Yes	87	96.7
	No	3	3.3
Suggestions	Let the course open	6	6.7
	Send a brochure home	32	35.6
	TV, radio show	37	41.1
	Various activities	11	12.2
	No suggestions	4	4.4

The aim of the training program about DM is to improve metabolic control, prevent acute and chronic complications, and improve the quality of life. Previous studies have found that the rate of complications is 4 times higher in patients, who did not receive any training about DM, compared to those who receive training about DM [29].

In a case-control study conducted by A. Nicolucci et al. on 2772 patients in Italy, it was observed that irreversible risk factors such as advanced age, male gender, presence of Type 1 DM, and prolonged duration of DM as well as reversible risk factors such as the presence of uncontrolled hypertension, the absence of regular doctor visits and the lack of training on DM increased the development of complications [29].

Their findings suggested that the impact of limited training or education surrounding DM could be as negatively impactful on complication rate as uncontrolled hypertension and other reversible risk factors. Ensuring that the individuals attain self-caring abilities through providing them with training on DM has been shown to be an efficient and cost-effective intervention; researchers have calculated that providing regular training about DM and enabling the patients with DM to attain self-care skills can result in a decrease in the complication rate by over 30 % [29].

In our study, the mean HbA1c levels of patients with diabetic foot disease were significantly higher when compared to the mean HbA1c levels of patients without diabetic foot

disease. The correlation between HbA1c and the diabetic foot disease was found to be positive and significant in terms of the diabetic foot presence and the HbA1c level in patients with diabetic foot disease. In various studies, intensive glycaemic control has been observed to affect the occurrence and progression of DM complications dramatically. Each increase in HbA1c above 8 % by 1 % leads to an increase in the development of microvascular complications by 40–50 % [30]. Long-term HbA1c levels of less than 7.1 % reduces microvascular complications by 70 % [14]. It has been proven that a 1 % decrease in HbA1c reduces all DM-related complications by 21 %, all DM-related deaths by 27 %, myocardial infarction by 14 %, and microvascular complications by 37 % [14]. E. Ozer et al. found a significant difference between the HbA1c levels of the groups of patients with and without DM. In the study including 126 patients with DM in the group receiving training and 129 patients with DM in the group not receiving training, the quality of life was found to be lower in patients, who were female, were on insulin therapy, had no training on DM, and who had an HbA1c level of more than 8 % [31].

Training is the cornerstone in the treatment of patients with DM. The training of patients with DM yields significant benefits such as making the patients with DM feel better, avoiding side effects that may occur with better control of the disease, reducing treatment costs, and increasing compliance with the treatment [32, 33].

Table 4. Correlation between the foot condition and the duration of being diabetic

		Duration of being diabetic												p
		< 1 year		1–5 years		6–10 years		11–20 years		> 20 year		Total		
		n	%	n	%	n	%	n	%	n	%	n	%	
Do you check for foot wounds every day?	Yes	8	80.0	12	63.2	17	85.0	18	58.1	7	70.0	62	68.9	0.288
	No	2	20.0	7	36.8	3	15.0	13	41.9	3	30.0	28	31.1	
What would you do in case of a minor foot wound?	Self treatment	6	60.0	13	68.4	6	30.0	13	41.9	2	20.0	40	44.4	0.296
	Consulting to friends	–	–	–	–	1	5.0	1	3.2	–	–	2	2.2	
	Consulting to doctors	2	20.0	4	21.1	11	55.0	15	48.4	6	60.0	38	42.2	
	Ignoring	2	20.0	2	10.5	2	10.0	2	6.5	2	20.0	10	11.1	
Have you been treated for a foot wound?	Yes	1	10.0	3	15.8	6	30.0	14	42.5	5	50.0	29	32.2	0.076
	No	9	90.0	16	84.2	14	70.0	17	54.8	5	50.0	61	67.8	
Do you currently have DFS?	Yes	4	40.0	5	26.3	9	45.0	19	61.3	6	60.0	43	47.8	0.154
	No	6	60.0	14	73.7	11	55.0	12	38.7	4	40.0	47	52.2	

Table 5. Correlation between DFS and HbA1c level

Currently having DFS?	HbA1c		p
	n	Mean ± SD	
Yes	43	9.38 ± 2.60	0.012*
No	47	8.11 ± 2.12	

Notes: * — $p < 0.05$ indicates significance; DFS — Diabetic Foot Syndrome.

Conclusions

A positive correlation was found between the HbA1c level and DFS grade. Good glycaemic control, regular foot assessment, appropriate footwear, patient education, and early diagnosis of foot lesions are important prevention methods for DFS. Therefore, DM centres should be established and developed for an optimized access to care for treatment and regulation of blood sugar amongst this high-risk patient population. In particular, patients and their families would likely benefit from detailed education and training on a longitudinal basis relating to DM management as well as foot hygiene and self-evaluation skills.

Data availability. The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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Резюме. Актуальність. Хронічні ускладнення цукрового діабету (ЦД) є наслідком широкого спектра патогенезу захворювання. Кореляція між рівнем цукру в крові та хронічними ускладненнями була продемонстрована в різних дослідженнях. Навчання пацієнтів, управління факторами ризику та інші профілактичні заходи є найважливішими елементами зменшення частоти ускладнень ЦД, зокрема синдрому діабетичної стопи (СДС). **Мета дослідження** — оцінити рівень знань та ставлення до догляду за ногами серед хворих на цукровий діабет, а також встановити кореляцію між глікемічним контролем та розвитком СДС. **Матеріали та методи.** Проведене описове перехресне дослідження хворих на цукровий діабет, які зверталися за амбулаторною медичною допомогою. Проведений аналіз даних, зібраних за допомогою опитувань пацієнтів, клінічної оцінки, консультацій суміжних спеціалістів та визначення рівня глікованого гемоглобіну (HbA1c) у сироватці крові. У дослідження включені 90 пацієнтів із діагнозом ЦД. **Результати.** Із 90 хворих на ЦД, включених

у дослідження, під спостереженням перебували 42 (46,7 %) жінки та 48 (53,3 %) чоловіків. Серед учасників дослідження число осіб, які повідомили про щоденне самооцінювання стану ніг (наявність ран, тріщин та зміни кольору шкіри), було вірогідно вищим (68,9 %), ніж тих, хто повідомив, що не проводив оцінку щодня (31,1 %). Майже в половині учасників діагностований СДС (n = 43; 47,7 %), при цьому рівні HbA1c у пацієнтів із СДС були вірогідно вищими порівняно з показниками HbA1c у пацієнтів без СДС (p < 0,05). **Висновки.** У дослідженні був виявлений високий рівень захворюваності на СДС із позитивною та статистично значущою кореляцією між рівнем HbA1c та наявністю СДС. Проведене дослідження підкреслює важливість ретельного моніторингу, навчання та дотримання рекомендацій лікарів з огляду на ризик серйозних ускладнень ЦД, зокрема СДС, при незадовільно контрольованому ЦД.

Ключові слова: цукровий діабет; синдром діабетичної стопи; глікемічний контроль; навчання