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Research Article

THE OPINION OF THERAPISTS AND SPECIALIZED DOCTORS ON THE PROVISION OF MEDICAL ASSISTANCE OF PATIENTS WITH TYPE 2 DIABETES IN POLYCLINICS IN ALMATY

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ABSTRACT

Objective: The objective of this research was to study the opinion of therapists and highly specialized doctors (cardiologist, neuropathologist, and oculist) in Almaty polyclinics on the provision of endocrinological care for patients with type 2 diabetes.

Methods: The sociological study was conducted on the basis of a specially developed questionnaire. The questionnaire consisted of 23 questions. The database was created in the Microsoft Access 2010 program. Statistical processing of data was carried out using the SPSS 22.0 software package. The average relative values have been calculated with the value of their standard error.

Results: Most patients with type 2 diabetes mellitus are observed in primary health care by therapists and endocrinologists. According to 86.7% of therapists, the number of patients with diabetes exceeds the number of registered patients and the determination of blood glucose level in the daily practice of therapists will reveal a large part of them. Most of the interviewed doctors believe that they have difficulties in servicing patients due to the presence of concomitant disease in patients, low adherence of patients, and a narrow choice of drugs for treatment. According to the opinion of doctors of different specialties (endocrinologists, cardiologists, neurologists, and oculists), when examining patients with type 2 diabetes, complications from the cardiovascular system, nervous system, and organ of vision are identified.

Conclusion: The organization of outpatient care for patients with type 2 diabetes mellitus should be interrelated by therapists and cardiologists, neurologists, and ophthalmologists. It should be based on continuity and interdisciplinary approach and is aimed to ensure patient satisfaction with the quality of care and adherence to treatment and to improve the quality of life.

Keywords: Primary care, Type 2 diabetes, General practitioners, Specialists.

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INTRODUCTION

Today, there are about 451 million people with diabetes in the world, and by 2045, the number of people with this disease will increase to 693 million, while the national cost of diabetes per year is 850 billion US dollars [1]. Annually, 4 million people die from diabetes due to cardiovascular disease [2], and the costs of treating a diabetic patient increases by 60–90% as the vascular problems progress [3]. According to the National Health Service (NHS), the UK spends £ 9.8 billion annually (up to 80% of costs) for treating complications of diabetes [4]. The Berlin Declaration notes that "The policy currently implemented in relation to diabetes and its complications are not sufficient to solve this problem at its root" and stresses the need to maintain and strengthen health at the primary level in the context of primary health care, as described in the Alma-Ata Declaration. The Berlin Declaration acts as a global call for action by all countries on diabetes and identifies four main strategies that are measurable and internationally applicable: Disease prevention, early detection, timely monitoring, and access to appropriate health services.

The above mentioned four directions cover the whole range of primary health care, as described in the Alma-Ata Declaration [5-7]. Maintaining adequate glycemic control in patients with diabetes is necessary to prevent micro- and macrovascular complications and premature death [8]. In connection with the ever-increasing number of people with diabetes and the lack of endocrinologists, [9] in the context of primary health care, general practitioners carry out diabetes management while endocrinologists manage just 20% of the patients. [10]. Family doctors play a significant role in the treatment of patients with diabetes, in changing their lifestyle and preventing complications [11,12].

Diabetes management is, especially, difficult in primary health care due to the need for significant resources and the necessary knowledge of specialists. Questionnaires were completed by 362 family physicians (79% response rate). And as surveyed by family doctors, only 9% refer their patients with diabetes to secondary care [13]. The American Association for the Study of Diabetes in 2018 published standards for the provision of medical care for diabetes, based on evidence-based recommendations aimed at managing risks, in particular, cardiovascular diseases, including hypertension, integration of new technologies in diabetes management, and screening in a group increased risk [14]. The review [15] found that multicomponent professional interventions (e.g., audit and feedback, decision-making by consensus and peer review, central computerized tracking systems, and nurses who regularly contacted patients) can improve the effectiveness of the provided medical services to patients with diabetes.

MATERIALS AND METHODS

Materials

The sociological study was conducted on the basis of a specially developed questionnaire. The questionnaire consisted of 23 questions. The database was created in the Microsoft Access 2010 program. Statistical processing of data was carried out using the SPSS 22.0 software package. The average relative values have been calculated with the value of their standard error.

RESULTS AND DISCUSSION

A survey of doctors was conducted in almost all polyclinics in Almaty. The number of specialists in polyclinics varied. There could

be two specialists or no doctors at all. 105 doctors who agreed to be interviewed included 30 therapists, 22 cardiologists, 25 neurologists, and 28 oculists. When determining the sample size, a possible error might have occurred, not exceeding 5%. Respondents are informed about the purpose of the study and are aware of its anonymous and voluntary nature.

A total of 30 therapists took part in the survey, 90.0% of whom were women and 10.0% were men. According to the age distribution, the respondents aged 40–49 represented the largest proportion (43.3%). Among the surveyed therapists, the number of specialists with 2–5 years of professional service prevailed (56.7%). Therapists with the highest qualification grade made up 40.0%, those without a qualification grade approached to 26.7%, the number of specialists with the first qualification grade was equal to 23.3%, and those with the second qualification grade constituted 10.0% of total as mentioned in Table 1.

Table 1: Personal details of the respondents

Characteristics	Absolute number	% к "Total," $\bar{X} \pm \varsigma\bar{x}^a$
Gender		
Male	3	10.0±5.48
Female	27	90.0±5.48
Total	30	100.0±0.0
Age		
Under the age of 30	2	6.67±4.55
30–39 years old	6	20.0±7.30
40–49 years old	13	43.3±9.05
50–59 years old	9	30.0±8.37
60–69 years old	-	-
Over the age of 70	-	-
Total	30	100.0±0.0
Length of service in the profession		
Under 1 year	2	6.67±4.55
From 2 to 5 years	17	56.7±9.05
Over 5 years	9	30.0±8.37
Over 10 years	2	6.67±4.55
Total	30	100.0±0.0
Possession of qualification grades by the specialists		
I qualification grade	7	23.3±7.72
II qualification grade	3	10.0±5.48
The highest qualification grade	12	40.0±8.94
No qualification grade	8	26.7±8.07
Total	30	100.0±0.0

[a]Mean±SD

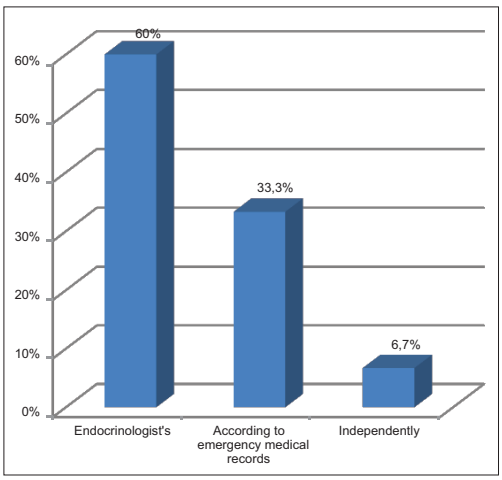

Fig. 1: Encounter of patients with type 2 diabetes to the therapists by the referral from other specialists

In most cases, patients with type 2 diabetes come to the therapists by the referral from the endocrinologist constitute 60.0%, the percentage of patients by the records of emergency medical care is amounted to 33.3%, and those who come independently comprise 6.7% (Fig. 1).

As 86.7% of therapists think on the question of the need to determine the level of blood glucose in the routine practice of therapists, it will be possible to identify the majority of cases of type 2 diabetes at an early stage, whereas 13.3% of specialists responded negatively (Fig. 2). 100% of the respondents responded negative to the question: "Is there a glucose meter in the office?".

In the view of 53.3% of therapists, the use of screening scales and questionnaires will allow to timely detect complications of type 2 diabetes. At the same time, 26.7% of therapists believe that timely preventive examinations (eye and leg examinations) will make it possible to identify these complications in a timely manner, and only 13.3% of therapists presume that the introduction of an interdisciplinary approach will help in identifying complications of diabetes mellitus and the number of some other methods used for this purpose is amounted to 6.7% (Fig. 3).

According to the opinion of 33.3% of therapists, when advising patients with type 2 diabetes, difficulties arise due to the presence of concomitant disease, 30.0% of therapists consider low adherence of

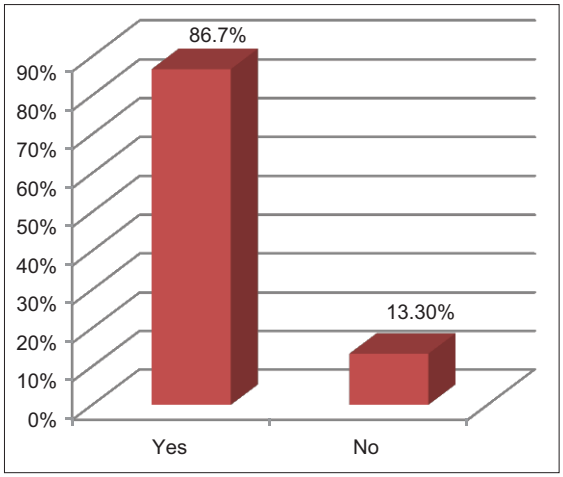

Fig. 2: The opinion of therapists on the determination of blood glucose level in routine practice

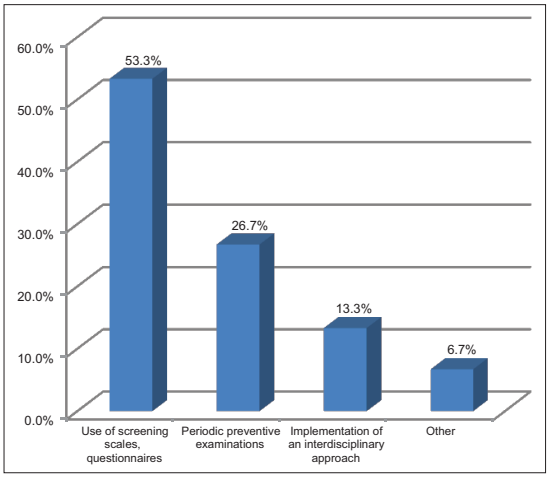

Fig. 3: The opinion of therapists on the measures to identify complications of type 2 diabetes

Table 2: Personal details of the respondents

Characteristics	The absolute number	% к "Total," $\bar{X} \pm \bar{c}x^{a}$
Gender		
Male	3	13.6±7.32
Female	19	86.4±7.32
Total	22	100.0±0.0
Age		
Under the age of 30	-	-
30–39 years old	5	22.7±8.93
40–49 years old	10	45.5±10.6
50–59 years old	7	31.8±9.93
60–69 years old	-	-
Over the age of 70	-	-
Total	22	100.0±0.0
Length of service in the profession		
Under 1 year	-	-
From 2 to 5 years	5	22.7±8.93
Over 5 years	8	36.4±10.3
Over 10 years	9	40.9±10.5
Total	22	100.0±0.0
Possession of qualification grades by the specialists		
I qualification grade	2	9.09±6.13
II qualification grade	3	13.6±7.32
The highest qualification grade	10	45.5±10.6
No qualification grade	7	31.8±9.93
Total	22	100.0±0.0

[a]Mean±SD

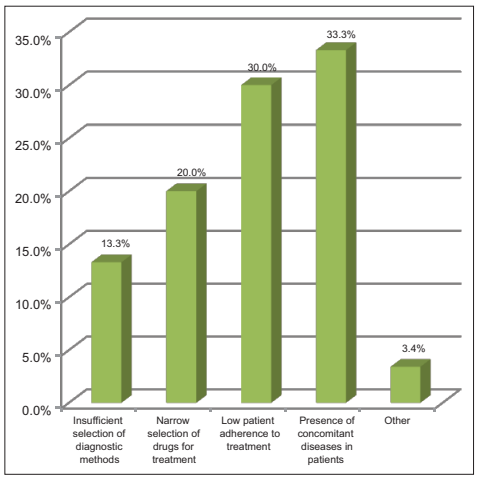

Fig. 4: The opinion of therapists on counseling patients with type 2 diabetes

patients, 20.0% of therapists believe that it is due to a narrow choice of medications, 13.3% of therapists consider an insufficient choice of diagnostic methods, and 3.3% of therapists noted other difficulties (Fig. 4).

Cardiologist

A total of 22 cardiologists participated in the survey, 86.4% of whom were female and 13.6% male. Among cardiologists, specialists aged 40–49 years were predominant, accounting for 45.5%. 40.9% of cardiologists had a work experience of >10 years. The number of doctors with the highest category made up 45.5%, while 31.8% had no qualification category as shown in Table 2.

Patients with type 2 diabetes do not periodically undergo examination by cardiologists, which leads to the development of complications in

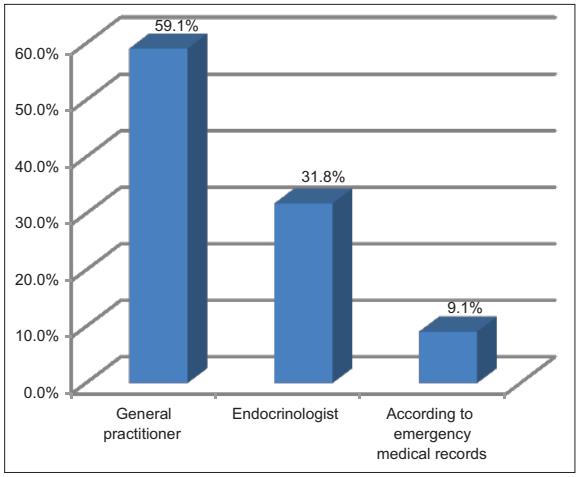

Fig. 5: Encounter of patients with type 2 diabetes to the cardiologists by the referral from other specialists

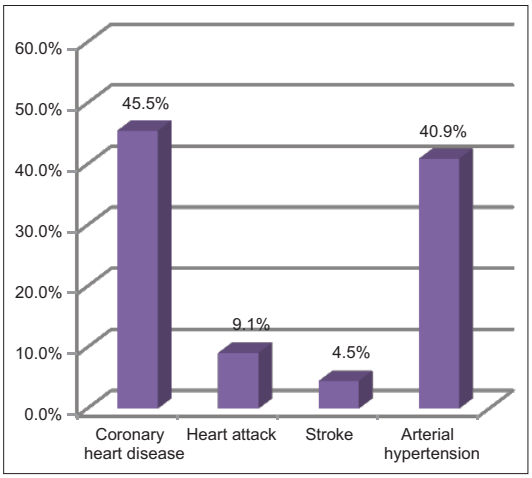

Fig. 6: Complications of the cardiovascular system in patients with type 2 diabetes

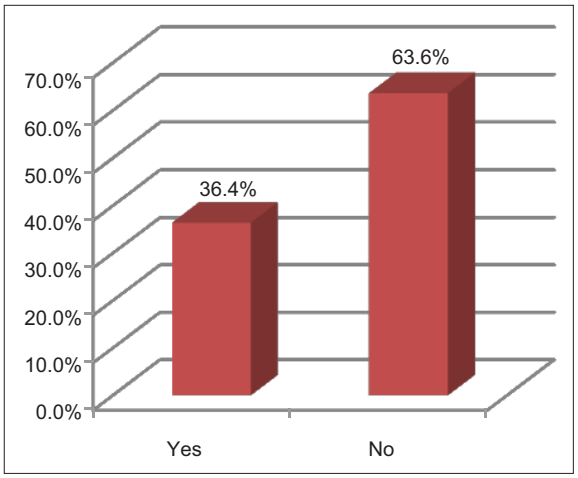

Fig. 7: Information on the level of glycosylated hemoglobin and fasting glycemia

the cardiovascular system. The interaction and continuity in the work of doctors of different specialties in the care of patients with type 2 diabetes will reduce the incidence of complications in these patients. The results of the survey showed that 59.1% of patients apply to a

Table 3: Personal details of the respondents

Characteristics	The absolute number	% к "Total," $\bar{X} \pm \varsigma\bar{x}^a$
Gender		
Male	7	28.0±8.98
Female	18	72.0±8.98
Total	25	100.0±0.0
Age		
Under the age of 30	-	-
30–39 years old	6	24.0±8.54
40–49 years old	7	28.0±8.98
50–59 years old	12	48.0±9.99
60–69 years old	-	-
Over the age of 70	-	-
Total	25	100.0±0.0
Length of service in the profession		
Under 1 year	-	-
From 2 to 5 years	4	16.0±7.33
Over 5 years	9	36.0±9.60
Over 10 years	12	48.0±9.99
Total	25	100.0±0.0
Possession of qualification grades by the specialists		
I qualification grade	5	20.0±8.0
II qualification grade	6	24.0±8.54
The highest qualification grade	11	44.0±9.93
No qualification grade	3	12.0±6.50
Total	25	100.0±0.0

[a]Mean±SD

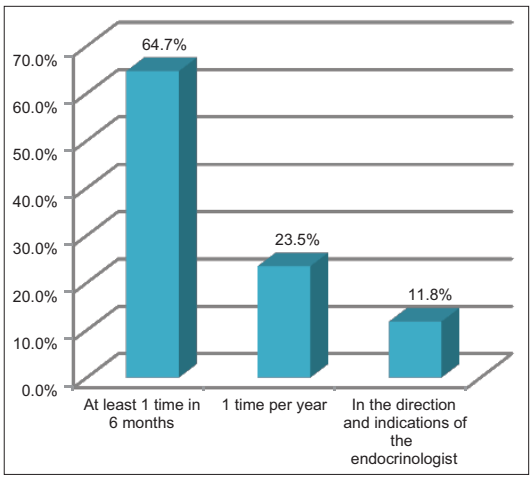

Fig. 8: Patients' referral frequency to a cardiologist

cardiologist at the direction of general practitioners, 31.8% of patients visit cardiologists according to the direction of an endocrinologist, and 9.1% of patients refer to a cardiologist only from emergency medical records (Fig. 5).

It should be noted that all cardiologists identified that there are complications from the cardiovascular system in the treatment of patients with type 2 diabetes. In the opinion of 45.5% of cardiologists, coronary heart disease is most often detected in patients, and the cases with arterial hypertension are amounted to 40.9%. At the same time, 9.1% of the respondents noted myocardial infarction and 4.5% had a stroke (Fig. 6).

About 63.6% of cardiologists believe that when the patient was treated, information about the level of glycosylated hemoglobin (HbA1c) and fasting glycemia was absent. However, in the opinion of 36.4% of

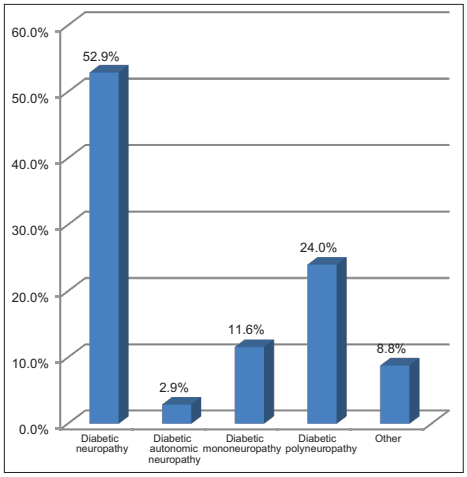

Fig. 9: Complications of type 2 diabetes at the time of a neurologists' examination

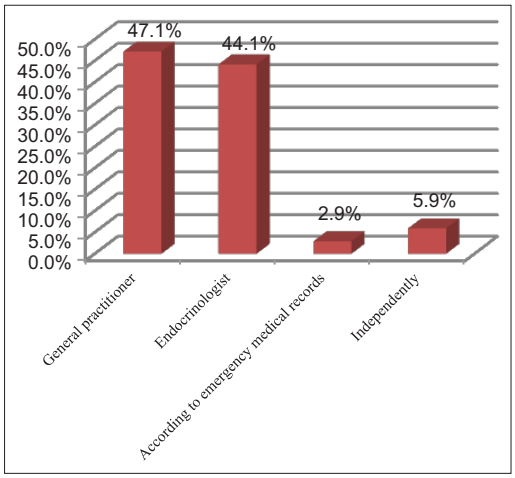

Fig. 10: Encounter of patients with type 2 diabetes to the neurologists by the referral from other specialists

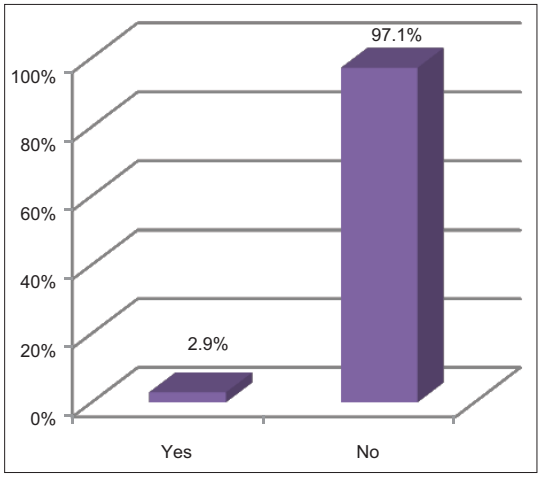

Fig. 11: Registration of patients with complications of type 2 diabetes by neurologists

cardiologists, there was information on the level of HbA1c and fasting glycemia in the patient (Fig. 7).

About 64.7% of respondents think that patients with type 2 diabetes mellitus should visit cardiologists' office at least once every 6 months,

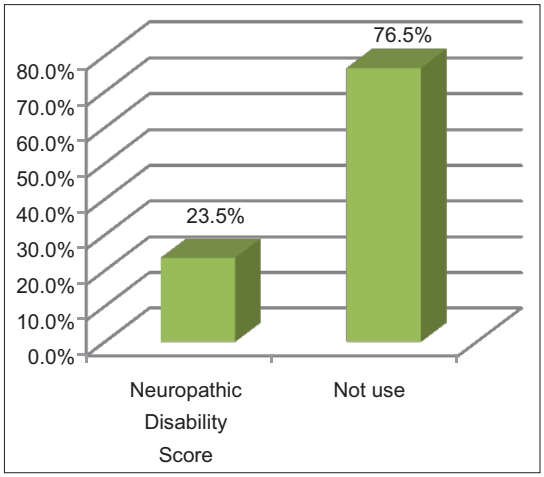

Fig. 12: Application of integrated scales to assess clinical symptoms of complications of type 2 diabetes

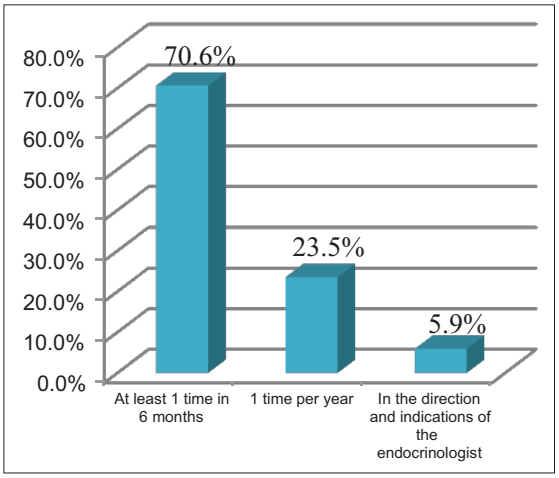

Fig. 13: Application of integrated scales to assess clinical symptoms of complications of type 2 diabetes

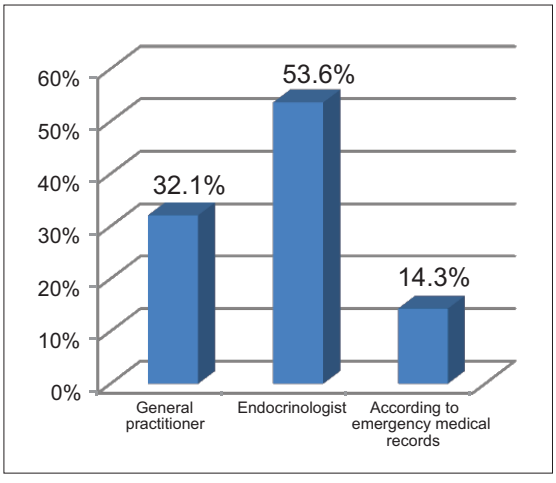

Fig. 14: Encounter of patients with type 2 diabetes to the oculists by the referral from other specialists

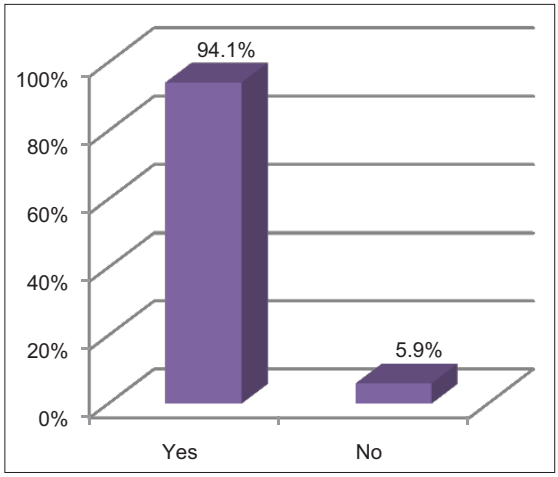

Fig. 15: The opinion of vision specialists on counseling the complications of the eyes in patients with type 2 diabetes

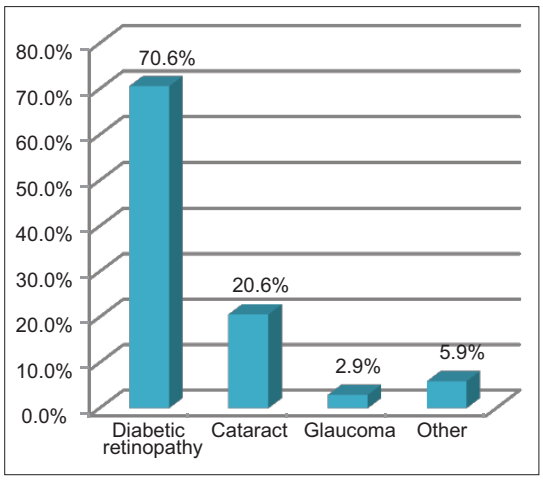

Fig. 16: Complications of type 2 diabetes at the time of an oculists' examination

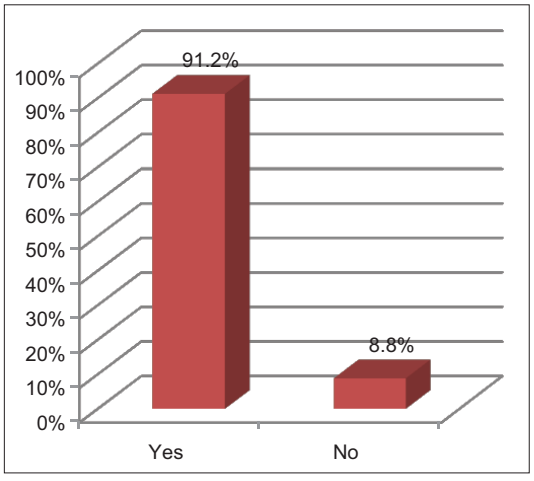

Fig. 17: Registration of patients with complications of type 2 diabetes by vision specialists

whereas 23.5% of cardiologists believe that once a year is enough for them. In this case, according to 11.8% of cardiologists, it is necessary to visit cardiologists by the referral from and indications of the endocrinologist (Fig. 8).

Neurologists

In total, 25 neuropathologists took part in the survey, 79.4% of them were females and 20.6% of males. By the age groups, the largest proportion (38.2%) constituted neurologists aged 40–49 years. The percentage of neuropathologists with >10 years of work experience

Table 4: Personal details of the respondents

Characteristics	The absolute number	% κ "Total," $\bar{X} \pm \varsigma\bar{x}^a$
Gender		
Male	5	17.9±7.24
Female	23	82.1±7.24
Total	28	100.0±0.0
Age		
Under 1 year	-	-
From 2 to 5 years	9	32.1±8.83
Over 5 years	13	46.4±9.42
Over 10 years	6	21.4±7.75
Total	-	-
Under 1 year	-	-
From 2 to 5 years	28	100.0±0.0
Length of service in the profession		
Under 1 year	-	-
From 2 to 5 years	8	28.6±8.54
Over 5 years	13	46.4±9.42
Over 10 years	7	25.0±8.18
Total	28	100.0±0.0
Possession of qualification grades by the specialists		
I qualification grade	4	14.3±6.61
II qualification grade	7	25.0±8.18
The highest qualification grade	9	32.1±8.83
No qualification grade	8	28.6±8.54
I qualification grade	28	100.0±0.0

[a]Mean±SD

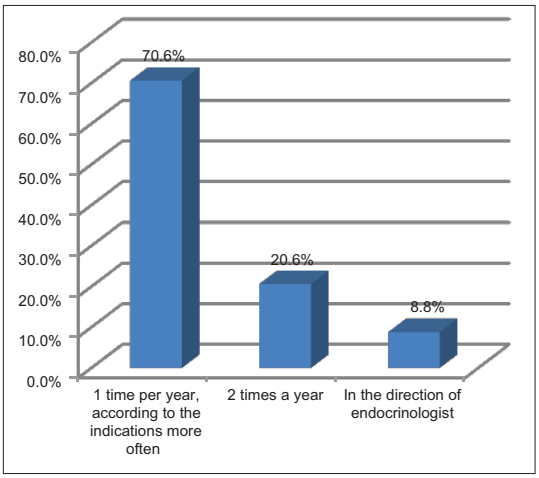

Fig. 18: Patients' referral frequency to a vision specialist

prevailed and reached 61.8%. Doctors with the highest category made up 55.9%, those with the second qualification grade comprised 17.6%, and the number of neurologists possessing the first qualification grade reached 5.9% as shown in Table 3.

As shown by the results of the survey, at the time of the examination, neuropathologist determined 52.9% of cases with diabetic neuropathy, 23.5% of cases with diabetic polyneuropathy, and 11.8% of cases with diabetic mononeuropathy (Fig. 9).

Nearly 47.1% of the respondents indicated that the patients with type 2 diabetes come to see a neurologist by the referral from the therapist or GP, while 44.1% noted that they were referred from the endocrinologist (Fig. 10).

About 97.1% of the surveyed neurologists answered negatively to the question "Do you keep records of patients with complications of type 2 diabetes?" (Fig. 11).

The majority of 76.5% of neurologists do not apply complex scales to assess the clinical symptoms of complications of type 2 diabetes in their practice, while 23.5% of neurologists use the neuropathy disability score scale (Fig. 12).

About 70.6% of the interviewed respondents believe that patients should visit the neuropathologists at least once every 6 months. However, 23.5% of neurologists assume that only once a year should be enough for them, whereas 5.9% of neuropathologists claim that there is a need to refer to the direction from and indications of the endocrinologist (Fig. 13).

Vision specialists

A total of 28 oculists were participated in the survey. Among them, the number of women was 82.4% and men 17.9%. By age groups, the largest proportion was made up of specialists aged 40–49 years (46.4%). Among vision specialists, the number of those with >5 years of work experience prevailed and accounted for 46.4%. The number of doctors with the highest qualification grade was 32.1%, the number of those who did not have the qualification grade was 28.6%, with the respondents having the second qualification grade comprising 25.0%, and the percentage of doctors who had the first qualification grade constituted 14.3% as mentioned in Table 4.

As the results of the survey have shown, 53.6% of the respondents claim that patients come to see the oculist by the referral from the endocrinologist, 32.1% of patients turn to the oculists for the appointment of the GP, and only 14.3% of patients are enrolled in emergency medical records (Fig. 14).

Nearly 94.1% of the ophthalmologists claim that, when patients were treated, there were complications from the eyes, while 5.9% of the respondents noted their absence (Fig. 15).

According to the survey, at the time of the examination, 70.6% of oculists in patients with type 2 diabetes revealed diabetic retinopathy, while 20.6% revealed cataracts, 2.9% revealed glaucoma, 5.9% - others. This provision indicates the development of eye complications in patients with type 2 diabetes (Fig. 16).

About 91.2% of the surveyed ophthalmologists record patients with diabetic retinopathy, while 8.8% of the respondents gave a negative response (Fig. 17).

According to 70.6% of ophthalmologists, patients with type 2 diabetes should visit the ophthalmologists once a year, and if there are some medical reasons, they should see a doctor more often. Moreover, 20.6% of the surveyed ophthalmologists believe that it is necessary to be examined by a doctor 2 times a year. Furthermore, 8.8% of the interviewed specialists think that patients see the oculists by the referral from the endocrinologists (Fig. 18).

CONCLUSION

Therefore, as the results of the study have shown, the doctors of different specialties have difficulties in counseling patients with type 2 diabetes and this situation might be due to the presence of existing complications in patients and insufficient knowledge of specialists. The situation is complicated by the fact that, in some clinics, there are no necessary specialists. To improve the level of care, patients should be referred to refresher courses for physicians and doctors of various specialties (endocrinologists, cardiologists, neurologists, and oculists).

CONFLICTS OF INTEREST

All authors have none to declare.

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