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Diabetology Care During COVID-19 Lockdown in Bosnia and Herzegovina – Diabetologists and Patients Perspective

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ABSTRACT

Introduction: COVID-19 pandemic suddenly affected all countries and health care systems from different perspectives including severe disruption of chronic disease services including diabetes. Diabetes is a serious condition and highly present in Bosnia and Herzegovina population, so provision of diabetes care is a important part of good control. Countries had different responses to adopt diabetes care under new circumstances as well as Bosnia and Herzegovina. **Aim:** To investigate and evaluate the impact of the COVID-19 pandemic on the provision of diabetology care in Bosnia and Herzegovina from the perspective of patients and diabetologists. **Methods:** Online survey for diabetologists and patient organizations have been developed with adopted question for different perspectives. The survey has been conducted online early September 2020. Collected data were analyzed in SPSS software for descriptive statistics. **Results:** 25 diabetologists and 24 diabetes patient organizations responded. 72% of diabetologists believe that pandemic has partially altered work with patients and 56% believe that the organization of diabetes care has successfully responded to the new circumstances but 80% believe that the diabetes care system should change. 75% of patient organizations thought that the organization of diabetes care did not adequately respond and 87.5% believe system should change. **Conclusion:** No significant differences found between RS and FBiH when it comes to majority of questions. Both diabetologists and patients consider that system of diabetes care in Bosnia and Herzegovina should be improved in future. It has been also found that diabetologists in Bosnia and Herzegovina responded and adopted their practices similar to other countries.

Keywords: Diabetes, COVID-19, Bosnia and Herzegovina, Healthcare system.

1. INTRODUCTION

In early 2020, countries around the world faced a pandemic of a new respiratory virus from the coronavirus family designated as COVID-19. Given the many unknowns related to the health implications and impact of the virus, many countries have implemented various measures to prevent its spread, which include closing borders, wearing face masks, lockdown and mobility restrictions, all to reduce contact and potentially spread the infection. The consequences of the measures taken have mostly affected the global economy, job losses, fear among the population, but in addition to economic ones, the consequences for health systems are not negligible (1).

World Health Organization (WHO) published results of the survey about healthcare services under coronavirus circumstances, and concluded that prevention and treatment services for non-communicable diseases (NCDs) have been severely disrupted since the COVID-19 pandemic began (2).

About 49% surveyed countries have partially or completely disrupted services for treatment for diabetes and diabetes-related complications. The most common reasons for discontinuing or reducing services were cancellations of planned treatments, a decrease in public transport available and a lack of staff because health workers had been reassigned to support COVID-19 services. (2)

Good control of diabetes is a prerequisite for preventing the development of chronic complications (3), so continuous monitoring and consultation with a diabetologist is the key to successful therapy.

Diabetes is significant health problem in Bosnia and Herzegovina, and based on IDF Atlas

2017 it is estimated that there are more than 366 thousands adults with diabetes in BiH with prevalence of 12,5% (4).

The health system in Bosnia and Herzegovina is decentralized and divided between two main administrative main units–Republic of Srpska (RS) and Federation of Bosnia and Herzegovina (FBiH) and further into thirteen subsystems, each of which provides health care at the level of primary, secondary and tertiary health care. Primary health care includes family medicine, secondary hospitals and specialist services, including diabetology, while tertiary care includes large clinical centers that also provide diabetology care (5, 6).

2. AIM

The aim of this study was to investigate and evaluate the impact of the COVID-19 pandemic on the provision of diabetology care in Bosnia and Herzegovina from the perspective of patients and diabetologists.

3. MATERIAL AND METHODS

The research was conducted through an online questionnaire delivered to the e-mail addresses of diabetologists available on the website of the diabetologists` associations and patient organizations which have internet sites or social media profiles. Two questionnaires were developed–one for diabetologists and one for patients to investigate the specifics of these two groups, and both included questions related to the assessment of diabetology protection from the perspective of the respondents. The questionnaire for diabetologists had 21 questions about the place of employment, the number of patients and general diabetes care practices, and the impact of new COVID-19 caused circumstances on its provision, while the questionnaire for patients had 17 questions adapted to the specifics of patients` views on new circumstances.

The link to access questionnaire on the MS Forms platform has been sent by e-mail together with consent letters in September 2020. Statistical analysis of collected data has been conducted in the SPSS program.

4. RESULTS

Total number of participating diabetologists was 25 out of 45 invited; 40% from RS and 60% from FBiH while we received answers from 24 patient organizations out of 55 invited; 42% from RS, 54% from FBiH and one organization from District Brčko.

Detailed overview of diabetologists answers to key survey questions is provided in Table 1. In Table 2 we present patients organizations answers to the key survey questions.

A total of 72% of diabetologists surveyed believe that the COVID-19 pandemic has partially altered work with patients with diabetes. 24% of them believe that the pandemic has led to a complete change in the way they work, while only 4% believe that it has not affected the work with patients. A total of 64% of diabetologists claim to have had more than 10 newly diagnosed patients with diabetes in the previous period, with no significant difference between entities. Slightly more than half of the respondents (56%) believe that the organization of diabetes care has successfully responded to the new circumstances and challenges

Questions and Answers	Frequency of Answers
Place of work	
Clinical center/Clinic	13 (52%)
Hospital	8 (32%)
Primary care Health Center	3 (12%)
Private office	1 (4%)
In the period before the pandemic, I daily examined diabetes patients through regular controls:	
< 10	7 (28%)
10-20	10 (40%)
>20	8 (32%)
In the period before the pandemic, patients come for examinations:	
Spontaneous arrival	1 (4%)
Arrival at the previously scheduled time	24 (96%)
During the pandemic period, patients come for examinations:	
Spontaneous arrival	6 (24%)
Arrival at the previously scheduled time	14 (56%)
Non of these	5 (20%)
During the pandemic period, patients were provided with counseling by:	
Scheduled examinations	12 (48%)
Telephone consultations	13 (52%)
Do you think that the number of examinations of patients has decreased due to the new circumstances:	
Yes	24 (96%)
No	1 (4%)
Do you think that the new circumstances will affect the treatment outcomes:	
Yes	11 (44%)
Partially	13 (52%)
No	1 (4%)
Have you changed patient therapies in the past period:	
Yes	19 (76%)
No	6 (24%)
What do you think is the biggest problem that patients have encountered	
Inability to have face to face examination	21 (84%)
Inability to obtain prescriptions	4 (16%)
Inability to adjust / change treatment terapije	0

Table 1. Diabetologists answers to key survey questions.

caused by COVID-19 while 80% of surveyed diabetologists believe that the diabetes care system in Bosnia and Herzegovina needs imminent change. Fisher's accuracy test did not determine a significant difference in the frequency of answers to these questions between diabetologists working in the RS and FBiH.

Patient organizations answering the question about the availability of diabetologists during the COVID-19 pandemic, it was found that a statistically significant number of associations (70.83%) answered that the availability of

Questions and Answers	Frequency of Answers
Patient organizations members are:	
Diabetes type 1	4 (16,7)
Diabetes type 2	0
Both	20 (83,3%)
In the previous period, regular controls were performed:	
Regularly	0
With delays	15 (62,5%)
None	9 (37,5%)
Do you think that the number of examinations of patients has decreased due to the new circumstances:	
Yes	24 (100%)
No	0
Do you think that the newly formed circumstances will affect the treatment outcomes:	
Yes	18 (75%)
Partially	6 (25%)
No	0
What do you think is the biggest problem that patients have encountered	
Inability to have face to face examination	23 (95,8%)
Inability to obtain prescriptions	0
Inability to adjust / change treatment terapije	1 (4,2%)
The most common reason patients contacted you was:	
Fear of lack of therapy	8 (33,3%)
Inquiries about how to visit the physician	6 (25,0)
Deterioration of diabetes control	8 (33,3%)
None of the above	2 (8,3%)

Table 2. Patient organizations` answers to key survey questions.

diabetologists was significantly reduced ($X^2(2, N = 24) = 16.75; p < 0.001$). 25% of them answered that access to a diabetologist was completely disabled. Fisher's accuracy test found a significant difference in the answers between the associations from the FBiH and RS ($p = 0.044$) considering the question related to treatment prescription and dispensing. Within the FBiH, 69.2% of associations responded that therapy was prescribed and raised for several months; this percentage in RS associations was 20%. On the other hand, as many as 50% of associations from RS stated that taking over therapy during the pandemic period was limited. The largest number of associations (70.83%) believed that during the COVID-19 pandemic, a diabetologist could only be contacted by telephone with no significant difference between entities. The largest number of associations (70.83%) considered that the fear of going for therapy was one of the main causes of the lack of therapy in patients. The largest number of associations (75%) thought that the organization of diabetes care did not adequately respond to the challenges imposed by the COVID-19 pandemic, while 87.5% of them believe that the system should change.

The chi-square test did not determine a significant difference in the frequency of responses between diabe-

tologists and patients when it comes to the success of the response of diabetology care to the new circumstances ($X^2(1, 49) = 4,971; p = 0,055$). The same test did not determine a significant difference in the frequency of responses between these two groups when it comes to the need to change the existing system of diabetology care ($X^2(1, 49) = 0.50; p = 0.746$).

5. DISCUSSION

In response to the new situation, numerous world professional associations (ADA, IDF, EASD), as well as local ones, have given guidelines on how to prevent and treat COVID-19 in patients with diabetes (7-10).

At the very beginning, it was clear that people with chronic diseases have more severe clinical pictures and a lower survival rate in case of infection with COVID-19, which certainly includes diabetes. Epidemiological studies show that poorly controlled diabetes is a risk factor for various infectious diseases and understanding how diabetes affects COVID-19 severity is critical to designing tailored treatments and clinical management of individuals affected by diabetes (11).

There is a perception that people with diabetes are at higher risk both of infection and severe disease from COVID-19 (12).

Even short-term hyperglycemia can stun the innate immune system (13) and evidence suggests that in the context of COVID-19, acute hyperglycemia may be a greater risk factor for adverse outcomes than a diagnosis of diabetes (14).

Beside evidences that COVID-19 infections can seriously impact diabetes patients, it is important to draw attention to the fact that people who are not infected, but have diabetes, are exposed to health risks because their regular health care is compromised (15). We have found that diabetes care has been mainly provided by telephone consultation and telemedicine. Telemedicine has suddenly reached the widespread adoption many proponents have championed for years. Recognizing the necessity of telemedicine in light of the current crisis — both to address increased treatment needs and to prevent unnecessary in-person. Previous studies have proven that telemedicine in diabetes management can be beneficial (16), so it can be expected that current experiences could be built up and developed for the future of diabetes care which has been shown should be reorganized. Some countries found telemedicine as useful tool for managing patients of diabetes during this lockdown period (17). Jones MS et al from USA found that virtual care for diabetes management in the hospital is feasible and can provide similar outcomes to traditional face-to-face care (18). Both diabetologists and patients included in our study claimed that new circumstances will affect treatment outcomes. Study from China showed that people with diabetes perceived risk of COVID-19 infection and increased their smoking and drinking during the pandemic (19). COVID-19 also risks contributing to worse diabetes outcomes due to disruptions caused by the pandemic, including stress and changes to routine care, diet, and physical activity. The major concern patient with diabetes had was fear of lacking needed therapy (33,3%) while diabetologists considered main stress patients will have is due to inability to have

regular face to face visits. Study from Denmark showed that these factors are also present among patients (20).

Evidence relating to COVID-19 and diabetes is limited but continuing to emerge. Share of experiences from diabetologists and patients from different countries will be beneficial source for further developments of diabetes care and preparedness for potential similar crisis. Different countries responded in a different specific ways but mainly introduction of telemedicine and change of standard practices is found, so this could be valuable experience for future diabetes care development directions.

6. CONCLUSIONS

This is a first and pilot study on how diabetologists and patients in Bosnia and Herzegovina reacted on COVID-19 circumstances effect on diabetes care. No significant differences found between RS and FBiH when it comes to majority of questions except patients fear on potential treatment shortage. Both diabetologists and patients consider that system of diabetes care in Bosnia and Herzegovina should be improved in future. It has been also found that diabetologists in Bosnia and Herzegovina responded and adopted their practices similar to other countries. Share of experiences from diabetologists and patients from different countries will be beneficial source for further developments of diabetes care and preparedness for potential similar crisis.

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