ORIGINAL ARTICLE

Diabetic Retinopathy Screening Program in National Institute of Ophthalmology and Hospital, Dhaka During COVID-19 Pandemic

Shahidul Islam[1]

Abstract:

Purpose: Purpose of this study was to evaluate basic features of diabetic patients screened for diabetic retinopathy during COVID-19 pandemic.

Methodology: This Observational study was conducted in National Institute of Ophthalmology and Hospital, Dhaka during COVID-19 pandemic from 1st July 2020 to 31st December, 2020. Patients of Diabetes Mellitus (DM) which were advised for diabetic retinopathy screening by outpatient department in NIOH are taken as study population. Detailed history was taken. Clinical examination was performed and properly recorded.

Results: Among the study population, 60% were male and 40% were female. 51% patients had no diabetic retinopathy, 4% patients had background diabetic retinopathy, 18% patients had background diabetic retinopathy with maculopathy, 9% patients had pre proliferative diabetic retinopathy with maculopathy, 14% patients had proliferative diabetic retinopathy and 4% patients remained ungraded. 42% patients were advised Anti-VEGF injections, 21% were advised LASER, 31% were advised surgery, 1% were advised injection with surgery, 3% were advised injection with LASER, 2% were advised LASER with surgery.

Conclusion: Diabetic Retinopathy screening program is necessary to diagnose Diabetic Retinopathy early which is essential to prevent diabetes induced visual morbidity. Even in pandemic period, the show must go on with essential precautions.

Key Words: COVID 19, Diabetic Retinopathy, Screening

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Introduction:

Diabetic retinopathy (DR) is one of the major complications of Diabetes mellitus (DM). Among the working age population, it is one of causes of visual morbidity[1,2,3]. Early detection and adequate treatment can prevent loss of vision[4]. The American Academy of Ophthalmology Preferred Practice Pattern recommends that patients with DM undergo an annual dilated retinal fundus examination, and the American Diabetes Association recommends dilated examinations every 2 years for patients with type 2 DM without retinopathy[5,6]. The global prevalence of DM has tripled over the past 20 years, affecting 151 million in 2000, 463 million in 2019, and a projected 700 million by 2045[7]. To prevent this irreversible microvascular disease and for early diagnosis of DR, regular screening procedures are conducted among diabetic patients in the community[8]. In the eye care centers, DR screening fundus photographs are taken from every diabetic patient according to protocol. It is affordable, easy and perfect for diagnosis[9]. According to the International Diabetic Federation statistics, around 8.4% of the total population in Bangladesh had diabetes, which puts the country among the top[10]

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high diabetes burden countries in the world[10]. Routine Diabetic retinopathy screening programs are important to prevent vision loss due to diabetes.

In December 2019, 27 cases of pneumonia of unknown etiology were identified in Wuhan City, China. Noticeably, Dr. Li Wenliang, an ophthalmologist, first recognized the symptoms of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2, now known as coronavirus disease 2019 (COVID-19) in seven of his patients while he developed the disease himself and passed away in February 2020. The outbreak of COVID-19 was sudden and unprecedented since its spread was very quick and extensive[11,12,13]. COVID-19 was declared a pandemic by the World Health Organization (WHO) on 11th March 2020 [14]. As of December, 2020, more than 73 million cases of COVID-19 with over 1.6 million deaths have been reported worldwide. Similarly. In Bangladesh over 4,92,000 COVID-19 confirmed cases and over 6800 related deaths have been reported [15].

During this world wide pandemic situation, DR screening has been continued with full efforts in Bangladesh. In a tertiary eye care center like National Institute of Ophthalmology and Hospital (NIOH), DR screening service play an important role for early diagnosis of DR.

Purpose of this study was to evaluate basic features of diabetic patients screened for diabetic retinopathy during COVID-19 pandemic.

Methodology:

This Observational study was conducted in National Institute of Ophthalmology and Hospital, Dhaka during COVID-19 pandemic from 1st July 2020 to 31st December, 2020. Patients of Diabetes Mellitus (DM) which were advised for diabetic retinopathy screening by outpatient department in NIOH are taken as study population. Informed written consent was taken from each patient. Detailed history was taken. Clinical examination was performed and properly recorded. Proper ocular examinations were done first by torch light then under Slit lamp. Visual acuity was measured by Snellen's chart. Fundus photography was performed in both eyes. A proforma was prepared to record the data on particulars of the patients.

Grading of diabetic retinopathy was performed according to NHS Diabetic Eye Screening Programme [16]. According to that procedure

R0 = No retinopathy

R1 = Background retinopathy

• Microaneurysm (s)

• Retinal hemorrhage (s)

• Venous loop

• Any exudate or cotton wool spots in the presence of other non-referable features of DR

R2 = Pre-proliferative retinopathy

• Venous beading

• Venous reduplication

• IRMAs

• Multiple deep, round or blot hemorrhages

R3 = Proliferative diabetic retinopathy (PDR)

M0 = No maculopathy

M1 = Maculopathy

U = Ungraded

Some additional precautions were taken for safety during pandemic according to protocol[17]:

(1) Screening of all visitors for: body temperature for fever, history of respiratory symptoms, recent overseas travel, and possible contact or exposure to COVID-19 cases.

(2) Universal face-covering with surgical or N95 masks by staff and all visitors. Patients had to wear surgical masks.

(3) Protective plastic shields installed on all slit-lamps which are used during eye examinations.

Results:

A total number of 1645 of Diabetic patients were screened From July 2020 to December 2020 during pandemic period.

Gender Distribution

Month	Male	Female	Total
July, 2020	56	30	86
August, 2020	83	84	167
September, 2020	180	160	340
October, 2020	222	132	354
November, 2020	216	144	360
December,2020	238	100	338
Total	995	650	1645

Table: 1 : Gender Distribution

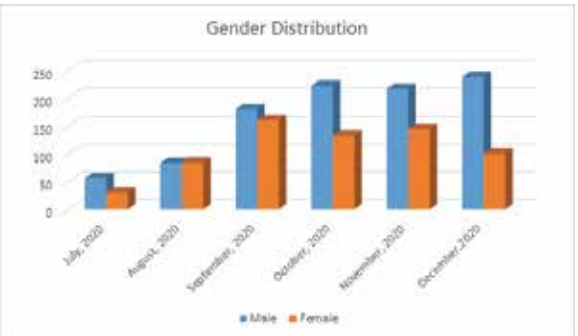

Figure 1 : Gender Distribution

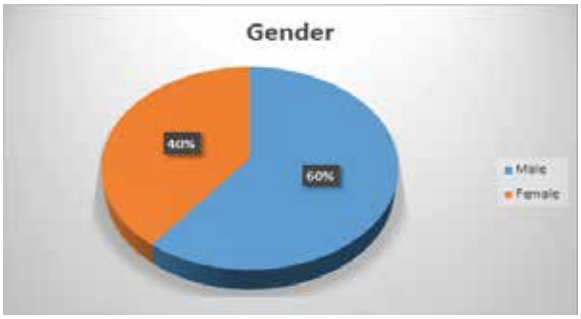

Figure 2 : Gender Distribution

Grading of Diabetic Retinopathy (DR)

Grading of Diabetic Retinopathy	Number	Percentage
R0M0 (No DR)	844	51%
R1M0 (Background DR)	058	4%
R1M1 (Background DR with Maculopathy)	298	18%
R2M1 (Pre Proliferative DR with Maculopathy)	149	9%
R3M1 (Proliferative DR with Maculopathy)	232	14%
U (Ungraded)	064	4%
Total	**1645**	**100%**

Table 2 : Grading of Diabetic Retinopathy

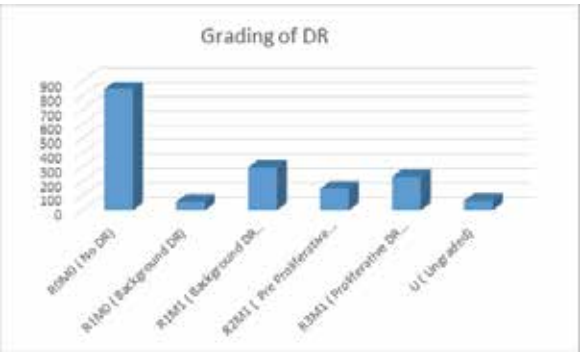

Figure 3 : Grading of Diabetic Retinopathy

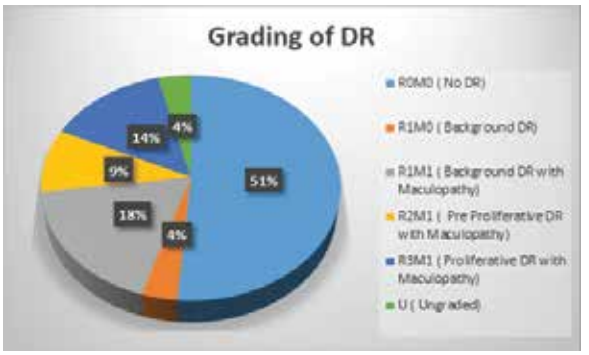

Figure 4 : Grading of Diabetic Retinopathy

Treatment plan advised from Department of Vitreo-Retina

Treatment Plan	Number	Percentage
Injection (Anti-VEGF)	233	42%
LASER	117	21%
Surgery	173	31%
Injection with Surgery	006	01%
Injection with Laser	017	03%
LASER with Surgery	010	02%
Total	**1645**	**100%**

Table 3 : Advised Treatment Plan

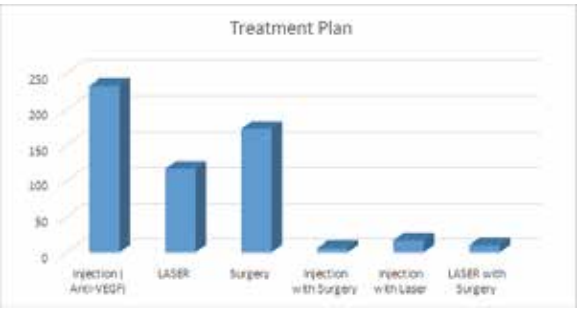

Figure 5 : Advised Treatment Plan

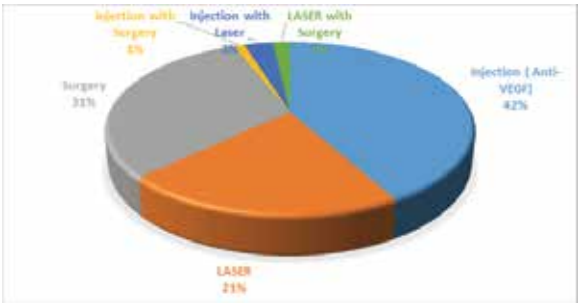

Figure 6 : Treatment Plan

Discussion

Diabetic retinopathy (DR), which is considered a major preventable cause of blindness that affects 35% of people with diabetes. Diabetic Retinopathy Screening is the primary process to prevent this blindness[18]. Timely and regular screening and treatment can reduce the consequent complications by up to 90%[19]. During Covid situation Screening Process is maintaining its journey with the help of extra precautions to prevent infections.

In this Study, 60% patients were male and 40% patients were female. Male patients were more than female. In sociocultural situation like Bangladesh male patients are more accessible to any health care services than female. Life style, smoking, betel nut chewing, outside working environmental pressure were also responsible for more in male patients [20]. This study has similarities with Somya K et al study[21] which was also conducted during Covid pandemic. In that study 78% patients were male. But in some studies, like Márcia S Q et al, female patients were more predominant than male (60%)[22].

In this study, 51% patients had no diabetic retinopathy, 4% patients had background diabetic retinopathy, 18% patients had background diabetic retinopathy with maculopathy, 9% patients had pre proliferative diabetic retinopathy with maculopathy, 14% patients had proliferative diabetic retinopathy and 4% patients remained ungraded. 4% cases remained ungraded due to any opacities in axis like corneal opacities, cataract or vitreous opacities. This study had similarities with Márcia S Q et al study where most of the patients presented without diabetic retinopathy[22]. Rest of the patients presented with diabetic retinopathy. In Somya K et al study, 15% had proliferative diabetic retinopathy and 4% remained ungraded[21]. Irini C et al study also had similar results11.

Treatment plan was advised by vitreo retina specialist from outpatient department of vitreo retina. 42% patients were advised Anti-VEGF injections, 21% were advised LASER, 31% were advised surgery, 1% were advised injection with surgery, 3% were advised injection with LASER, 2% were advised LASER with surgery. In Irini C et al study, patients were advised in similar pattern, Anti-VEGF injections, LASER, Surgery etc[11].

Although there was risk of COVID infection, Ophthalmologist and staffs were proving proper services to ensure the screening procedure taking preventive measure.

Conclusion:

DR screening program is an important part of national eye care services. Pandemic situation is not over yet. New variants are emerging day by day. Both patients and Ophthalmologists are adapting with this new normal situation.

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ORIGINAL ARTICLE

Skin Colonization of Staphylococcus Aureus in Atopic Dermatitis Patients: A Case-Control Study at SMAMCH

Kismat Ara Islam[1], Md. Shah Zaman[2], Emily Akter[3], Monira Yeasmin [4]

Abstract:

Background: Atopic dermatitis is a common chronic, relapsing inflammatory skin condition characterized by pruritus and erythematous patches with typical morphological features and distribution. Staphylococcus aureus is a gram-positive, round-shaped bacterium, with the ability to colonize the skin of patients with atopic dermatitis. A correlation between the severity of the eczema and colonization with S. aureus has been demonstrated. This study aims to evaluate the prevalence of staphylococcus aureus colonization on eczematous and non-eczematous skin with atopic dermatitis and the influence on atopic dermatitis severity. **Materials & Methods:** This was a case control study conducted among 30 diagnosed patients of atopic dermatitis as case and another 30 age and sex matched healthy individual as control. Both case and control were collected from the outpatient department of Shaheed Mansur Ali Medical College Hospital (SMAMCH) between the period of January 1st, 2012 and June 30th, 2021. For atopic dermatitis patients, two samples were collected using sterile cotton swab stick. One swab was taken from the eczematous lesion and the other from non-eczematous skin. Skin swabs for bacterial culture were sent to the Department of Pathology, Shaheed Monsur Ali Medical college & Hospital for the isolation and identification of recognized bacterial pathogens. **Results:** Patients were predominantly male, 17 (56.7%) male and 13 (43.3%) female. As for disease severity, 7 (23.3%) had mild disease, 19 (63.3%) had moderate disease and 4 (13.3%) had severe disease. Bacterial colonization by staphylococcus aureus was present among 23 (76.7%) of the patients. Staphylococcus aureus was isolated in 53.33% of the eczematous lesions and in 33.33% of non-eczematous skin of patients with atopic dermatitis. S. aureus was isolated in 3 (42.9%) patients with mild dermatitis, 16 (84.2%) with moderate dermatitis and in 4 (100.0%) with severe dermatitis. S. aureus was not isolated in non-eczematous skin of atopic patient. **Conclusion:** This study confirmed that the skin of patients with atopic dermatitis was more frequently colonized with S. aureus than that of non-atopic. The more severe the dermatitis, the higher the rate of colonization. S. aureus is also more often present in non-eczematous skin of atopic than of non-atopic.

Key words: Atopic dermatitis, Staphylococcus aureus

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