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Original Article

Knowledge, Attitude and Practice about Diabetic Retinopathy among Medical Students

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ABSTRACT

Purpose: The study was conducted with the aim to decipher knowledge, attitude and practice of diabetic retinopathy among MBBS students of a medical college.

Study Design: A cross sectional survey.

Place and Duration of Study: Dow Medical College, from October 2019 to March 2020.

Methods: A cross sectional study was conducted among 3rd and 4th year medical students. A total of 133 students were questioned through specific questionnaire. After informed consent, demographic details were noted. Apart from source of information of students' knowledge, set of 14 questions were asked. In the first 7 questions information of knowledge of diabetic retinopathy was addressed. Four questions were about attitude and 3 regarding practice towards diabetic retinopathy. Windows MS Excel was used for quantitative and qualitative analysis.

Results: The mean of the overall KAP score for all students was 53.3 ± 1.2 (maximum, 70). Male students scored better in knowledge (24.8 vs 23.7) and attitude (17.3 vs 16.5). Students scored poor in identifying correct values of HbA1c and prevalence of diabetes in our country in the knowledge section. Students also lacked in identifying proper time of followup for screening of diabetic retinopathy. Many students thought uneducated people develop diabetic retinopathy earlier than educated.

Conclusion: Our study pointed out weakness in knowledge and practice of medical students regarding prevention and management of diabetic retinopathy. Proper training and teaching of students is required for improved management and counselling of diabetic retinopathy.

Key Words: Diabetic retinopathy Medical students

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INTRODUCTION

Diabetes is a non-communicable global crisis, which has become prevalent over the past years. Number of people with diabetes has increased from 108 million in 1980 to 422 million in 2014.[1] In Middle East and North Africa every 10th individual is suffering from diabetes. While is South East Asia half of the patients with diabetes remain undiagnosed.[2] It is estimated that in developed world it will increase from 51 to 72 million meanwhile in the developing countries, a 170% rise is expected from 84 to 228 million by year 2025.[3] In Pakistan diabetes will rise to 11.6 million by 2025.[4] Current prevalence of diabetes in Pakistan was 11.77%.[5]

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Diabetes is associated with various complications related to micro vessels and nerves. Ocular pathology specifically retinopathy is an emerging diabetic complication. Around 35.6% of all diabetic patients have diabetic retinopathy.[6] This has placed diabetes as the fourth leading cause of blindness.[7] However, blindness associated with diabetes is avoidable and can be delayed with prompt detection and treatment.

Risk factors of diabetic retinopathy includes duration of diabetes, increasing age, and smoking.[8] Other risk factors include hypertension, pregnancy and obesity. Type 1 diabetic patients are more prone to go blind from diabetic retinopathy. Wisconsin Epidemiologic Study of Diabetic Retinopathy (WESDR) showed that 3.6% of young patients (type 1 diabetes) and 1.6% of older (type 2 diabetes) lost their vision.[9] Duration of diabetes is a good demarcation of the progression of diabetic retinopathy. Twenty five percent of type-I diabetics have retinopathy after 5 years of diagnosis, 60% develop after 10 years, and 80% after 15 years.[10] Early screening of diabetes assists in treatment protocols. According to American Academy of Ophthalmology first fundus examination in Type 1 should be done 3 – 5 years after diagnosis and in Type 2 immediately after diagnosis.[11]

Pan retinal photocoagulation PRP can reduce risk of vision loss to < 2% for severe non-proliferative and proliferative retinopathy according to Early Treatment of Diabetic Retinopathy Study (ETDRS).[12] Early vitrectomy has benefit in very severe PDR as it improves visual acuity to 6/12 or better after vitrectomy.[13] Anti VEGF has shown promising results in patients with macular edema.

Glycosylated hemoglobin (HbA1c) levels are tested for glycemic status in diabetes mellitus. The optimal cutoff value of HbA1c for diabetic in Pakistan is taken as < 6.05%.[14] Prevention and treatment of diabetic retinopathy needs multi-disciplinary approach. Cooperation from community level and participation of practitioner together play important role.

This study was therefore carried to evaluate knowledge, practice and attitude of medical students regarding diabetic retinopathy. Their knowledge was addressed by the understanding that they had about diabetic retinopathy as a complication of diabetes. Attitude was perceived as their own ideas and feelings while practices are the ways that they put knowledge and attitude together to implement actions.

METHODS

A cross sectional study was conducted amongst 3rd and 4th year medical students of Dow Medical College who rotated in Ophthalmology Department from October 2019 to March 2020 during their clinical rotation. Owing to ethical considerations permission was obtained from institutional review board. Confidentiality of the data was maintained at all levels. A total of 133 students were questioned through specific questionnaire. After informed consent, demographic details were noted. Apart from source of information of students' knowledge, set of 14 questions were asked. In the first 7 questions information of knowledge of diabetic retinopathy was addressed. Four questions were about attitude and 3 regarding practice towards diabetic retinopathy.

Table 1: *Questionnaire.*

What is normal HbA1c level?		
What is prevalence of diabetes in Pakistan?		
What are the risk factors of diabetes?		
What are the symptoms of diabetic retinopathy?		
Which diabetics are at greater risk of DR?	Type 1	Type 2
Control of diabetes is important in prevention of DR?	Yes	No
Duration of diabetes is important in prevention of DR?	Yes	No
Visual loss due to DR can be prevented?	Yes	No
More uneducated people develop DR?	Yes	No
Routine examination is must for all DR?	Yes	No
Early detection can prevent visual loss?	Yes	No
What are the treatment options for DR?		
What advice will you give to the patients?		
How often should diabetic visit ophthalmologist?		
What advice will you give to patients?		

The knowledge questions were assigned marks according to the answers. Each correct answer was rewarded 5 marks and 0 if the person was unaware or gave wrong answer. While questions regarding attitude were asked with option of yes or no. Cumulative marks of questions related to knowledge, attitude and practice were classified into 3 groups. Excellent response was 75 – 100%, fair was 50 – 74% and 0 to 49% was poor.[15] Data was collected and analyzed and coded via Windows MS Excel. Graphical analysis was used for qualitative data while mean and standard deviation was calculated for quantitative data.

RESULTS

A total of 133 students were questioned from 5th semester to 8th semester. Mean age of the students were 21.3 ± 1.3 years. Among 133 students 18% were male and 82% were females. Further details are found in Table 2.

Table 2: *semester distribution and education of diabetic retinopathy of medical students.*

Variables	N	%
Semester		
5th	19	14.3
6th	42	31.6
7th	33	24.8
8th	39	29.3
Education about diabetic retinopathy acquired from		
Medical college education	50	37.6
Internet	31	23.3
Books and combination of sources	38	28.6
Journals and continued medical education	14	10.5

Regarding knowledge, 39.1% of the students did not have any idea regarding value of HbA1c and 36.8% gave wrong answer. Only 6% answered correctly regarding prevalence of diabetes in Pakistan. Ninety seven percent students responded that duration of diabetes was important in developing diabetic retinopathy and 98.5% responded that control of diabetes was significant in prevention of diabetic retinopathy.

Symptoms and risk factors of diabetes were assessed by scoring. Majority of the students identified risk factors of diabetic retinopathy as uncontrolled diabetes. Variable other risk factors like obesity, smoking, hyperlipidemia and sedentary lifestyle were also recorded along with uncontrolled sugar levels. Ninety three percent reported that symptoms of diabetic retinopathy were blurred vision, vision loss and floaters and 52.6% students considered type 1 diabetes to be more associated with diabetic retinopathy than type 2. Regarding attitude, 89.5% of the students considered that visual loss due to diabetes can be prevented and 95.5% responded that routine ophthalmic examination is must for all diabetic patients. Role of early detection of diabetes in preventing diabetic retinopathy was highlighted by 96.2% students. Seventy three percent students had the concept that diabetic retinopathy was more common in uneducated patients.

Ten percent students did not know about the time of followup for a diabetic patient and 46.6% responded that 6 months to 1 year was the followup time. Thirteen percent students were unable to give advice to the patients.

Overall KAP Score

The mean of the overall KAP score for all students was 53.3 ± 1.2 (76%). The knowledge score was 23.9 ± 1.77 (68%), attitude score was 17.7 ± 0.5 (85%) and practice score was 11.7 ± 0.65 (78%).

The mean overall score for males (54.66 ± 4.04) was higher than for females (53 ± 3.86). The male students scored better in knowledge and attitude while females scored better in practice.

Table 3: *Shows KAP Score by Gender.*

Variables	Mean + SD			
Gender	Knowledge Maximum: 35	Attitude Maximum: 20	Practice Maximum: 15	Total Maximum: 70
Male	24.8 + 5.0	17.3 + 3.9	12.5 + 3.2	54.6 + 4.04
Female	23.7 + 4.6	16.5 + 3.6	12.8 + 3.4	53 + 3.86
P value	0.15	0.12	0.34	

DISCUSSION

Our results of study will help in establishing a uniform pathway to assist us in promoting methods of teaching amongst students in areas where they lag behind. Need for CME and encouraging students to read medical journals will be our proposed methods. Study is going to play important role in prevention of diabetic retinopathy in community too since these students are the first one to come in contact with patients in their teaching clinics.

Maximum KAP score in our study was 76%. A similar study conducted in Pakistan found KAP score of more than 70%.[16] Our study revealed that knowledge information about diabetic retinopathy was good amongst students 68.5% (KAP: 23.9/35). Whereas study in Switzerland reported mediocre knowledge among their students.[17] Majority of the students according to our study results were able to identify risk factors of diabetic retinopathy correctly like study of Odisha.[18] Many of our students could not tell prevalence of diabetic retinopathy in Pakistan. This is in accordance with study conducted in Saudia where 40% did not know the prevalence.[19]

A positive attitude was found amongst our students as 95% believed that diabetes was preventable with early detection and therefore required routine

ophthalmic assessment. It was similar to the study conducted in Odisha.[18]

Seventy four percent of students believed that diabetes was more prevalent among uneducated population. Such results have also been reported in a study at Saudia.[19] This shows confusion prevailing among students regarding practice towards diabetes. Another study highlighted the salient reasons for low KAP status. It included a busy schedule, less resources, inadequate periodic training in eye care and absence of retinal evaluation training.[20]

Practice assessment revealed that our students lagged behind in this area. Only 8.6% students identified correct modalities of treatment of diabetic retinopathy like intravitreal injection, laser procedures and surgical procedures. A fair percentage was totally unaware of the idea that how frequent should be the followup be done by an ophthalmologist.

Limitations of this study are that we considered knowledge of 3rd year students equal to the 4th year students who have completed their ophthalmology teaching and clinical rotation by that time. Comparison between these two groups of students should also be done. It was a single center study and do not represent the overall picture of all our medical students.

CONCLUSION

Our study pointed out weakness in knowledge and practice of medical students regarding prevention and management of diabetic retinopathy. It also assisted us in deciphering common confusion faced by our students regarding treatment modalities. There is a dire need to conduct workshops and seminars to address the teaching modalities of our medical system. Special attention is required in teaching our young graduates to aid in treating this reversible cause of blindness prevailing in our society.

Ethical Approval

The study was approved by the Institutional review board/Ethical review board

(**IRB-1296/DUHS/Approval/2021).**

Conflict of Interest

Authors declared no conflict of interest.

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Author's Designation and Contribution

Shehla Dareshani; Associate Professor: Concepts, *Design, Literature Search, Data Acquisition, Data Analysis, Statistical Analysis, Manuscript Preparation, Manuscript Editing, Manuscript Review.*

Fiza Farooq; Post Graduate Student*: Design, Data Acquisition, Data Analysis, Statistical Analysis, Manuscript Review.*

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Dr. Zaheer Sultan; Consultant Ophthalmologist: *Concepts, Design, Literature Search, Data Acquisition, Data Analysis, Statistical Analysis, Manuscript Preparation, Manuscript Editing, Manuscript Review.*