First Presentation of diabetic Patients to Ophthalmology clinic (A survey in two peripheral hospitals in Jordan)

Rihab A.Ghanma, MD, Moh'd M. Abu Dab'at, MD**

ABSTRACT

Objectives: To assess the presentation of patients diagnosed already to have Diabetes Mellitus (DM), in terms of source of referral, eye condition on first visit, and minimal awareness of diabetic eye complications and treatment.

Methods: Ninety-five patients (all patients visiting the clinic for the first time and found to be diabetics) attending the ophthalmology clinic and diagnosed to be diabetics during a period of 3 months (April-June 2009) were included in the study. A questionnaire was filled by patients. Items asked about the duration since the patients were diagnosed to have Diabetes Mellitus, cause of presentation to ophthalmology clinic (including referral from other clinics), knowledge about blood sugar and blood pressure control effect on retinal complications of Diabetes Mellitus as well as Laser effect on the eye.

Results: More than a third (35%) of the patients visited the eye clinic after more than 11 years of DM. Quarter (25%) of them presented in the latest stage of diabetic retinopathy (proliferative diabetic retinopathy PDR). Despite that a high percentage (67%) was followed up by internists, their eye complaint was the major cause for them to come to clinic rather than referral from the DM treating doctor for regular check up. The majority know the effect of blood sugar level but not hypertension on the diabetic retinopathy. Most of them lack adequate knowledge about Laser.

Conclusion: All doctors dealing with diabetic patients especially those practicing in peripheral hospitals should establish a fixed protocol of sending the diabetic patients for eye check up routinely at the time of diagnosis of DM. Dietician and educators are mandatory compliment to diabetes clinics. Media and local institutes should be involved more actively in spreading education and advice for the continuously increasing number of diabetic patients.

Key words: Diabetes Mellitus, peripheral hospital, awareness, blood sugar level, hypertension, laser

JRMS March 2017; 24(1):12-17/DOI: 10.12816/0034762

Introduction

Diabetes Miletus (DM) is a metabolic disease characterized by high blood sugar, and leads to multiple organ complications including the eye. It is considered the third of the non-communicable disease, which are responsible for two thirds of global deaths,[1] and a quarter of world's blind population.[2] DM is becoming an epidemic in Jordan as according to a study released by the Jordanian National Centre for Diabetes states clearly that the prevalence of DM in Jordan had increased by 31.5% since 1994.[3] It has been noticed that diabetic patients present occasionally late to the ophthalmologists (this is an observation that we wanted to prove in this study, not an already proved by a previous study to refer to!), which affects the end result of management negatively. Furthermore, patients who are not aware of how important the follow up and the control of this disease and other affecting diseases- like hypertension are more likely to develop the irreversible complications. We wanted to know

From the Department of:
* Ophthalmology, King Hussein Medical Center.
Correspondence should be addressed to Dr. R. Ghanma., E-mail: dr_ghanma@yahoo.com
Manuscript received Jan 2, 2013. Accepted April 18, 2013

whether the patients are aware that their HbA1c is preferred to be between 6.5 and 7.5% (in our clinic we follow the recommendations of the NHS Diabetes Guidelines and our target is average of seven: Targets recommended by different authorities vary between 6.5-7.5%), and their blood pressure is preferred to be below 120/75. Lack of awareness and facilities for detection and monitoring of Diabetes Mellitus may contribute to the high prevalence of diabetic complications. [4] This is a prospective study that has been conducted in two eye clinics in two peripheral hospitals (Prince Hashem Bin El-Hussein military Hospital/Zarka and Prince Zeid Bin El-Hussein military Hospital/Tafeeleh) in Jordan. Our aim was to assess the presentation of patients diagnosed already to have Diabetes Mellitus (DM), in terms of source of referral, eye condition on first visit, and minimal awareness of diabetic eye complications and treatment.

Methods

A questionnaire was given to patients, who are diagnosed as Non Insulin Dependent Diabetes Miletus (NIDDM) presenting for the first time to ophthalmology clinic in two peripheral hospitals in Jordan (2/3rds from Prince Hashem Bin El-Hussein military Hospital/Zarka and a third from Prince Zeid Bin El-Hussein military Hospital/Tafeeleh). The questionnaire – which was created by the authors in simple Arabic language, were filled between 1st of April and 1st of June, 2009 (Attachment 1). Questions were asked about the age and the duration of diabetes. The patients were asked where they were followed up for the time being for their DM and the reason for them coming to our clinic. Few questions were asked about what they know about what affects the occurrence of diabetic retinopathy and the modality of treatment. Finally, the current retinal condition was added by the treating ophthalmologist. Certain answers were categorized in tables of numbers and percentages, and means were calculated for others. The approval of the local ethical committee was obtained as well as the patients' consent.

Results

Ninety five questionnaires were filled by diabetic patients presenting for the first time to ophthalmology clinic. Fifty nine percent were females and the average age of the whole sample is 61 years (37-85). Forty percent of them were diabetics for five years or less. Thirty five percent had DM for more than 11 years. A quarter of them were diabetics between 6-11 years (Table I). Sixty seven percent were followed up regularly by the internist/endocrinologist in the hospital, 12% by health centre general practitioner and 10% were followed up by the internist in the health centre. Eight percent were not followed up regularly but renew the medications monthly (Table II). When asked about the reason for their visit to ophthalmologists, the answers were 26% for the sake of check up, as 24% were officially referred by their treating physician and 2% were advised by people around them or affected by media. Seventy four percent visited the clinic because they have eye complaint, which can be not related to DM (Table III). Forty one patients (43%) were free of diabetic retinopathy clinically. Seven percent had only mild non-proliferative diabetic retinopathy (NPDR), 20% had moderate NPDR, 4% had severe NPDR and 25% were having proliferative diabetic retinopathy (PDR) (Table IV). Seventy nine patients (83%) answered yes when asked whether blood sugar level affects the diabetic retinal changes, while 14% did not know the answer to this question. Forty percent did not know if high blood pressure has any effect on diabetic retinal changes (Table V and VI). Fifty seven patients (60%) did not know whether LASER is harmful or beneficial in the treatment of diabetic retinopathy, 19% answered yes it is beneficial, while 21% answered yes it is harmful to the eye. Sixty six percent did not know the answer when asked whether doing LASER makes blood sugar level strict control unnecessary, while 28.4% thought they still need to strictly control your blood sugar when you are treated with LASER [Table VII and VIII].

Table I: Duration of Diabetes Mellitus.

Duration of Diabetes Mellitus (Total)	0 -5 years	6 – 10 years	11 + years
Number of patients	38	24	33
Percentage	40	25	35

Table III: Diabetes Mellitus Follow Up.

Follow up by:	None	Health Centre/ medicine	Health centre/ internist	Hospital/ internist/ Endocrinologist	Hospital/ internist/ medicine renewal
Number (total of 95)	3	11	9	64	8
Percentage	3	12	10	67	8

Table III: Causes of the First Visit to Ophthalmologist.

Cause of presentation to Ophthalmology clinic	**Referred by his internist or family doctor**	**Media/people living around**	**Ocular complaint**
Number (total of 95)	23	2	70
Percentage	24	2	74

Table IV: Retinal Condition on the First Visit to Ophthalmologist.

Diabetic Retinopathy stage	**No Diabetic Retinopathy (DR)**	**Mild Non proliferative DR (NPDR)**	**Mod NPDR**	**Severe NPDR**	**Proliferative Diabetic Retinopathy (PDR))**
Number (total of 95)	41	7	19	4	24
Percentage	43	7	20	4	25

Table V: Is Blood Sugar Level Related to Diabetic Retinopathy?

Is Blood sugar level related to Diabetic Retinopathy?	**Yes**	**No**	**I Do not know**
Number (total of 95)	79	3	13
Percentage	83	3	14

Table VI: Is Blood Pressure Level Related to Diabetic Retinopathy?

Is Blood pressure level related to Diabetic Retinopathy?	**Yes**	**No**	**I Do not know**
Number (total of 95)	33	24	38
Percentage	35	25	40

Table VII: Is LASER Harmful to the Retina/Eye?

Is LASER harmful?	**Yes**	**No**	**I Do not know**
Number (total of 95)	18	20	57
Percentage	19	21	60

Table VIII: Doing LASER permits less strict blood sugar control?

Doing laser permits less strict Blood Sugar control?	**Yes**	**No**	**I Do not know**
Number (total of 95)	5	27	63
Percentage	5.6	28.4	66

Discussion

From our everyday practice we noticed that the diabetic patients present late to the ophthalmologist. We also noticed that a high number of them present for the first time in the latest stages, which makes it difficult for us to preserve useful vision despite using all available modalities of treatment. Although diabetes mellitus could have been there for a long time, furthermore, they were followed up regularly by a physician, despite all that they did not visit the ophthalmologists before. The usual trend is that the internist, particularly endocrinologist, refers the newly diagnosed diabetic patients to ophthalmologists.

It was noticed obviously that a large group of patients in the survey have been diagnosed to have DM for a long time. So, it's either that the treating doctors/nurse do not spend enough time with their patients to explain the complications to encourage patients to follow up their eyes,

provided the treating doctor already did the job and referred the patient to the ophthalmologist (24%). What is worrying is that a group of patients -despite a small one (8%)- visit the clinic to renew medications only, which means they are not even checked for being controlled or not on the drugs they are renewing monthly.

Another fact that is worth mentioning is that almost three fourths (74%) come to the eye clinic because of an eye complaint, despite the fact that diabetic retinopathy is not always symptomatic. A study from Los Angeles noticed that persons with bilateral moderate NPDR had the most substantial decrease in quality of life compared with those with less severe DR.[5] Whenever the patient is complaining due to his diabetic eye complications means that either both eyes are affected and/or needs treatment that occasionally is not effective to regain his useful vision particularly when the stage of his disease is advanced. The media or the community around had a minor effect on the diabetic patients' increase awareness (2%), in contrary to a study from Saudi Arabia (Al Qasem region) in which relatives and friends, in addition to media, were the major sources of information (73.8 and 47.1% respectively.[6] A study from India released different percentages from ours, among those who were aware that DM could affect the eye, 36 per cent learnt this through the media, 32 per cent from other eye specialists and 30 per cent from their general practitioners or physicians.[3] In a study to investigate the demographic characteristics and awareness of diabetic retinopathy among new cases of DM attending the vitreo-retinal service of a tertiary eye care centre in Nepal, fundus evaluation was done for the first time in 48.6 %, although almost four-fifths had duration of diabetes of five years or more. Diabetic retinopathy was found in 78 % of the cases, with 16.7 % already at the proliferative stage and about 40% exhibiting clinically significant diabetic macular oedema.[7] Another study conducted 16 years ago shows that those presenting with proliferative diabetic retinopathy in Indians were 19%, 20% among Malay patients.[8] Kanski text book of ophthalmology states that 5% of type 2 DM will have diabetic retinopathy at presentation.[9] In our study, 43% of patients had no diabetic retinopathy at presentation. Another study conducted in Jordan showed a different percentage (56.8%) for those presenting without retinal changes.[10] It was surprising that 25% presented in the latest stage of diabetic retinopathy which carries a high risk of irreversible visual loss, on their first presentation to the eye clinic. This reflects on the end result of management, as whatever is tried to help those patients will not be very rewarding. This last fact can be the reason behind patients' apprehensive idea about LASER and ophthalmology procedures in general. The patient always refers to the experience of those he/she knows, in the absence of a reliable education from the medical helpers and the media. Therefore, we noticed that 19% thought of LASER as harmful to the eye. Sixty percent could not tell if LASER is of benefit or not. Fortunately, 83% realize the fact that they need to control their blood sugar to prevent/delay the eye complication of diabetes. A study from Baltimore found that only 13% of newly diagnosed diabetics and 36% of those diagnosed for more than one year knew that strict control could prevent eye problems.[11] On the other hand, 65% are not aware of the adverse effect of uncontrolled blood pressure on the diabetic eye complications. We face a group of patients who either resent(it means dislike or hate, while recent is adjective of time) the use of LASER, as we mentioned above, or the other way around that the use of LASER means they can be less strict in their blood sugar control as their eyes are taken care of by the LASER. This wrongly perceived notion affect the final result of LASER which effect vanishes with the poor blood sugar control. Our Questionnaire is defective in some aspects are considered important in any chronic disease, which is the level of education. The group of patients enrolled were from suburban areas with an average age of 61 years, which favours the assumption that most of the patients got a maximum of school level of education.

Conclusion

All doctors dealing with diabetic patients especially those practicing in peripheral hospitals should establish a fixed protocol of sending the diabetic patients for eye check up routinely at the time of diagnosis of DM. Dietician and educators are mandatory

compliment to diabetes clinics. Media and local institutes should be involved more actively in spreading education and advice for the continuously increasing number of diabetic patients. These preventive measures are expected to affect the diabetic complications positively in their prevalence and severity.

References

1. **WHO Library Cataloguing-in-Publication Data.** Global status report on non-communicable diseases 2010. Reprinted in 2011. *ISBN* 978 92 4 156422 9
2. **Saikumar SJ, Giridhar A, Mahesh G, Elias A, Bhat S.** Awareness about eye diseases among diabetic patients: a survey in South India. *Community Eye Health* 2007; 20(61): 16–17.
3. **Ajlouni K, Khader YS, Batieha A, Ajlouni H, El-Khateeb M.** An increase in prevalence of diabetes mellitus in Jordan over 10 years. *J Diabetes Complications* 2008;22(5):317-324. Epub 2008 Apr 16.
4. **M. W. Mwangi, G. G. Githinji, F. W. Githinji.** Knowledge and Awareness of Diabetic Retinopathy amongst Diabetic Patients in Kenyatta National Hospital, Kenya. *International Journal of Humanities and Social Science*, Vol. 1 No. 21 [Special Issue - 2011:140-146]
5. **Mazhar K, Varma R, Choudhury F**, ***et al.*** Severity of diabetic retinopathy and health-related quality of life: the Los Angeles Latino Eye Study. Ophthalmology. 2011;118(4):649-55. Epub 2010 Oct 29.
6. **Mohieldein AH, Alzohairy MA. , Hasan M.** Awareness of diabetes mellitus among Saudi nondiabetic population in Al-Qassim region. *Saudi ArabiaJournal of Diabetes and Endocrinology* 2011; 2(2): 14-19
7. **Thapa R, Poudyal G, Maharjan N, Bernstein PS.** Demographics and awareness of diabetic retinopathy among diabetic patients attending the vitreo-retinal service at a tertiary eye care center in Nepal. *Nepal J Ophthalmol* 2012;4(7):10-16. doi: 10.3126/nepjoph.v4i1.5844
8. **Tan CH, Lai YK.** Characteristics of Diabetic Retinopathy Patients at Initial Presentation. *Med J Malaysia* 1996;51(2):188-192
9. **Kanski Clinical Ophthalmolog text book. J. Kanski, B. Bowling.** Retinal Vascular Diseases. *6th edition 2007*. Chapter 16, p 567.
10. **Ahmed E. Khatatbeh, Fakhry S. Athamneh, Ahmed F. Al Shobaki ,*et al.*** Retinal Manifestations of Diabetes on the First Visit of Jordanian Diabetics to the Ophthalmology Clinic. *Journal Of The Royal Medical Services* 2012;19(2):56-59
11. **Muñoz B, O'Leary M, Fonseca-Becker F, *et al.*** Knowledge of Diabetic Eye Disease and Vision Care Guidelines among Hispanic Individuals in Baltimore With and Without Diabetes. *Arch Ophthalmol* 2008; 126(7):968-974.

Attachment 1: The questionnaire filled in this study:

استبيان مريض السكري الذي يراجع لأول مرة في عيادة العيون

الاسم: [redacted]

الرقم: [redacted]

العمر: ٦٤ سنة

ذكر | أنثى

هاتف: [redacted]

المدة الزمنية التي يعاني منها المريض من مرض السكري: سنتين

المريض يراجع عيادة باطنية/ غدد حاليا في:

- لا يراجع في أي مكان/ لا يأخذ علاج
- مركز صحي/ فقط يجدد العلاج
- مركز صحي/طبيب باطني
- مستشفى / عيادة باطنية / غدد

سبب مراجعة عيادة العيون:

- أرسل من قبل طبيبه الباطني أو طبيب المركز الطبي
- اخبره من حوله بضرورة مراجعة طبيب عيون لمن يعاني من مرض السكري بشكل دوري
- يشكو من عينيه ✓

مخاوف المريض من زيارة عيادة العيون للسكري:

نسبة السكر بالدم لها علاقة مباشرة باعتلال الشبكية الناتج عن السكري: نعم / لا (لا نعلم)

ضغط الدم له علاقة باعتلال الشبكية الناتج عن السكري: نعم / لا ✓

هل الليزر يؤذي العين: نعم / لا

الليزر يغني عن التنظيم الصارم للسكري: نعم / لا (لا نعلم)

ملاحظات:

وضع الشبكية في الزيارة الأولى (تعبأ من قبل د. رحاب): مع د. محمد ابو الصبعات .

No DR.