

## ORIGINAL ARTICLE

### Case Study on the Complications of Diabetes- Awareness

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#### Abstract

**Objective:** To find out awareness of different complications of diabetes among diabetic patients. **Methods & Patients:** It is a cross section, hospital based study. A questionnaire was prepared. Randomly selected patients were requested to fill that form. **Result:** Awareness about involvement of eyes, coronary artery, stroke, kidney and neuropathy were in 65.9%, 83.5%, 15.4%, 74.7% and 64.8% respectively. Last blood sugar was 301 to 400 mg% in 28.5% patients. Sixty eight percent of our patients were not doing any physical activities (exercise or walking). 54.9% of our patients aware that they should visit ophthalmologist even if blood sugar is control. **Conclusion:** Although most of patients aware about the disease and its complications but their blood sugar was poorly control and they are not performing physical activities. So we should have program to educate patients in this regard.

**Keywords:** Awareness, complications, diabetes and diabetic patients

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#### Introduction

415 million people have diabetes in the world and more than 35.4 million people in the Middle East and North Africa (MENA) region. By 2040 this will rise to 72.1 millions according to one survey<sup>1</sup>, there were 3.4 million cases of diabetes in Saudi Arabia in 2015. Prevalence of diabetes in adults was 17.6%. Surveys from KSA suggested that diabetes is present in epidemic proportions throughout the country with exceedingly high rates concentrated in urban areas<sup>2</sup>.

To fight against any disease in community it is very important to aware the population. Awareness studies were done in Oman<sup>3</sup>, Australia<sup>4</sup>, India<sup>5</sup> and Italy<sup>6</sup> among general population. In one of study done in Saudi Arabia awareness among general practitioners and medical students was assessed<sup>7,8</sup>. In another study awareness regarding retinopathy in

diabetic patients was done<sup>9</sup>. Our study was conducted on patients with established diabetes. And we assess the awareness for various complications of diabetes among diabetic patients.

#### Patients and Methods

This hospital based cross sectional study was carried out between October 2016 and March 2017 on those patients who attended the outpatient diabetic clinic of King Khalid Hospital K.S.A (KKH). Patients were randomly selected. Study was done to find out awareness of diabetic patients about complications of diabetes including eye problems. Written and informed consent was taken from all subjects. An open-ended questionnaire based on demographic details, literacy levels, general different options available for treatment and awareness of cardiac, ocular, renal complications was designed. The questionnaire

was in English and then translated to Arabic. The questionnaire was briefed by authors. Patients were requested to fill the questionnaires or for those who were unable to fill the questionnaire, researcher fills it on their behalf after explaining about the study.

## Results

Ninety one diabetic patients were enrolled in our study. The age distribution was ranged from 0 to 70 years. Thirty nine (39%) patients were above 40 years. There were 44 (48.4%) males and 47(51.6%) females from different areas of the Hail region. Type 2 Diabetes was in majority of our patients 64(70.3%). Family history of diabetes was positive in 66 (72.3%) patients and family history of obesity in 26 (28.6%) patients. Education level of our patients was good and 50 (55%) of them had high school and higher education. Sixty two (68.1%) of our patients were not doing any exercise or do not had walking in their practice.

Control of blood sugar was poor in 26 (28.5%) patients which were from 301 to 400 mg%. Only 29 (31.8%) patient's blood sugar levels upto 200 dl/l which was also evident by HbA1c which was between 8.1 to 10 in 49 (53.8%) patients and from 9 to 10 in 49 (53.8%) patients. It was below 8 in only 23 (25.27%) patients.

**Table-1: Awareness about complications of diabetes**

Response	Coronary arteries	Stroke	Kidney	Neurological
Yes	76(83.5%)	14(15.4%)	68(74.7%)	59(64.8%)
No	13(14.3%)	12(13.2%)	4(4.4%)	7(7.7%)
Not known	00	61(67.0%)	18(19.8%)	23(25.3%)
No reply	2(2.2%)	4(4.4%)	1(1.1%)	2(2.2%)
Total	91(100%)	91(100%)	91(100.0%)	91(100.0%)

**Table-2: How frequently should one visit ophthalmologist**

Response	Frequency	Percent
Six monthly	25	27.5
Yearly	31	34.1
Two yearly	11	12.1
Only when vision is affected	23	25.3
No reply	1	1.1

**Table- 3: Available treatment options for diabetic retinopathy**

Response	Frequency	Percent
Good control is adequate	35	38.5
Laser	7	7.7
Surgery	4	4.4
Do not know	44	48.4
No reply	1	1.1

Table- 1 gives an idea about patient's awareness for major complications of diabetes. In response to question whether diabetes can effect eyes 60 (65.9%) of our patients reply yes while 28 (30.8%) told no and 3 (3.3%) did not replied. 50 (54.9%) of our patients tick yes to our question regarding visit to ophthalmologist even if blood sugar is good. 76 (83.5%) of patients would visit an ophthalmologist only if the blood sugar is not controlled. Table-2 shows the awareness about how frequently patients should visit ophthalmologist. (25.3 %) patients think that they should visit only when there is problem in vision. Forty-four (48.4%) our patients do not know what options are available for diabetic retinopathy and 38(38.5%) of patients think that good control of diabetes is enough (Table- 3). The source of information about complications of diabetes was general physicians and ophthalmologist and paramedics in 66 (72.6%) patients. Other important source was family members in 12 (13.2%) of patients. For ophthalmologist visit 68 (74.7%) were referred by doctors and only 20 (22%) visited as they had the awareness about the problem. Long appointments and lack of access to ophthalmologist was the biggest reasons that patients were not visiting the ophthalmologist regularly.

## Discussion

Saudi Arab ranks seventh in the global burden of diabetes mellitus, at which it has reached an epidemic stage with an estimated prevalence of 23.7% for age groups 20-79 years<sup>10</sup>. Many complications of multisystem disease including diabetes mellitus can be prevented or decrease if we pickup and manage them in time<sup>11</sup>. Yet chronic diseases continue to be neglected by states, communities and individuals<sup>12</sup>. Lack of Awareness about disease is such that in one study out of 1076 peoples who were diabetic and requested to attend diabetic retina screening clinic, only 125(11.6%) attended the clinic<sup>13</sup>. Ovenseri-Ogbomo et al. reported that only 19.5% of subjects undergone eye check up within one year and 34.6% of their patients never had their eyes examined<sup>14</sup>. In a study it was observed that 48% of the diabetic individuals had undergone eye examination over one and half year ago<sup>15</sup>.

In response to question whether diabetes can affect eyes 60 (65.9%) of our patients reply yes, which was slight higher than that of the study by Kandeker (72%)<sup>16</sup> and by Monuaz et al (52%)<sup>17</sup>. However it was less than studies of Bander (75.62%)<sup>9</sup>, Funatsu (98%)<sup>18</sup>, and Schmid (96%)<sup>19</sup> Awareness about eye complications were ranged from 50% to as low as 3.8%<sup>11</sup> in India. This variation may be attributed to the difference in literacy rates and the health care measures among different areas of these countries.

As far as need for ophthalmologist consultation is concerned, 76 (83.5%) of patients would visit an ophthalmologist only if the blood sugar is not controlled which is similar to studies where 36.5% to 38.49% of patients think that if blood sugar is control then there is no need for ophthalmic consultation<sup>9,11</sup>. Twenty three (25.3%) of our patients think that they should visit only when there is problem in vision. We must stress that the visits has to be according to advice of ophthalmologist.

25(27.5%) of our patients would visit six monthly, and 31(34.1%) reply it should be yearly. Of the known diabetics, in reem study 38% were aware that annual retinal examinations are required<sup>19</sup>. In Bander survey, 73.80 % believe that they should go for regular eye examinations and 61.50% of their patients would visit even if the blood sugar is well control<sup>9</sup>. Who should decide about follow-up? We must stress on this point that they should

follow schedule design by the doctors for examination.

Control of blood sugar was poor in most of patients, it was from 301 to 400 mg% only 29 patients have sugar levels upto 200 dl/l. This higher proportion of poorly controlled diabetics may be due to lack of proper awareness. In this regard our patients were not properly educated.

Forty-four (48.4%) of our patients do not know what options are available and, 7.7% of patients think that laser is the available treatment and 4.4% replied yes for surgery in one study in saudia70% of the participants in contrast and in other by Bander 24.60% of patients were not aware about available treatment options<sup>9</sup>. We must think about this that there is big difference in these three studies from saudia.35(38.5%) of patients think that good control of diabetes is enough in comparision71.07% of Bander patients answered that control of diabetes is enough. In study by Rani PK et al<sup>10</sup> the knowledge of treatment option for diabetes such as laser or surgery and good control of blood sugar were 50.1%, 38.2% and 53.2% respectively which were higher as compared to our study. This low awareness regarding treatment options was due to poor means of information in this regards.

The source of information were general physicians, ophthalmologist and paramedics in 66(72.6%) of our patients. Health care personal are in best position to inform patient regarding various aspect of the disease especially in regards to preventive measures and screening for affect on eyes. They should actively provide information to patients, especially in regard to preventive measures and screening for retinopathy. Other important source was family members in 12(13.2%) of patients. Mass media or the Internet did not seem to play any significant roles. In study at Jeddah also most of patients get information from health caring personal where as only 7.3% of patients were informed by family members<sup>19</sup>. In this same study authors notice no significant difference in awareness between those patients receiving treatment in the private setup as compared to those receiving treatment in the public sector. We have not study this point as we think both sectors should take responsibilities for such task. In Australia<sup>19</sup> nurse educators during their home visit, educate patients which had positively predicted the possibility of having an eye screening examination of the patients.

Information given to diabetic patients should not just be on the nature of ocular complications of diabetes, but also on the risk factors for these complications and how to prevent them.

**Limitations:** This was a very small study in one hospital of region.

## Conclusion

To conclude our study highlights the significance of role played by physicians in early referral to an ophthalmologist. Our study showed that there is lack of awareness regarding knowledge of risk factors, available treatment options and control of blood sugar. We should have awareness programs in our country on a large scale.

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**Ethical Permission:** Obtained

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