

KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING DIABETIC RETINOPATHY AMONG GENERAL POPULATION OF SOUTHERN ODISHA: A CROSS SECTIONAL STUDY

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ABSTRACT

BACKGROUND

Diabetes Mellitus is a global public health problem as its incidence is increasing worldwide due to changing life styles. Global prevalence of diabetes is 8.5% in adult population. 422 million people are living with diabetes worldwide, out of which 69.2 million diabetics live in India.

The aim of the study was to assess the knowledge, attitude and practice regarding diabetic retinopathy among general population of southern Odisha.

MATERIALS AND METHODS

This cross-sectional study was conducted among general population of southern Odisha (n=254), attending the Ophthalmology OPD of MKCG Medical College and Hospital fulfilling the inclusion and exclusion criteria. Data was collected by means of filling up of pre-tested semi-structured questionnaire focusing on knowledge, attitude and practice towards diabetic retinopathy.

RESULTS

In our study population, males outnumbered females. (M-190 vs F-64) 57.08% were of middle-class SES and 53.54% belonged to rural community. The most important views regarding knowledge, attitude and practice were analysed. Data from 5-point Likert scale was pooled to dichotomous opinion. It showed that there is a strong association between gender and knowledge and attitude. (p<0.001) But no significant association between gender with practice was observed. Also, with respect to attitude and practice, there was a highly significant association with habitat (p<0.001) but no significant difference in the knowledge regarding diabetic retinopathy among rural and urban population was observed.

CONCLUSION

There is a need for more awareness programs to be conducted among general population which would reduce ocular complications in diabetics leading to a better health.

KEYWORDS

Attitude, Diabetic Retinopathy, Knowledge, Practice, General Population.

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BACKGROUND

Diabetes mellitus is a metabolic disorder which is characterised by elevated blood glucose level. Apart from carbohydrate metabolism, diabetes mellitus is also related with disorders of protein and lipid metabolism which later results in chronic intricacies involving cardiovascular, neural, renal and other body systems.¹ Diabetes Mellitus is a global public health problem as its incidence is increasing worldwide due to changing life style modification. Global prevalence of diabetes is 8.5% in adult population.² 422 million people are living with diabetes worldwide, out of that

69.2 million diabetics live only in India.³ The prevalence of diabetic retinopathy is increasing day by day, the number of persons with diabetes will double by 2030.⁴ The morbidity caused by its ocular complications has placed this disease as the fourth leading cause of blindness in the world.⁵ A pooled analysis from population based studies has found global prevalence of diabetic retinopathy is 34.6% (95% CI 34.5-34.8).⁶ In a study conducted by All India Ophthalmological Society of India in 2014 the prevalence of diabetic retinopathy was found as 21.7%,⁷ with reported prevalence of diabetic retinopathy in India ranging from 7.03% to 25%.^{8,9,10,11,12} Fortunately vision loss and blindness due to diabetic retinopathy can be prevented or delayed with early detection and treatment. To defer the advancement of ocular complications moreover to intermittent eye examination, it is mandatory that the diabetic patients must regulate their hypertension, blood glucose and lipid level.¹³ Effective management of diabetic retinopathy needs multi-disciplinary approach that is participation of the community and health personals.

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This study was conducted to assess the knowledge, attitude and practice regarding diabetic retinopathy in general population. Their knowledge- referred as their understanding of the most important ocular complication of diabetes, the diabetic retinopathy, their attitude- referred as their feelings and preconceived ideas towards diabetic retinopathy, and their practice- referred as the ways in which they demonstrate their knowledge and attitude through their actions.¹⁴ The general public's perceived knowledge, practice and attitude about diabetic retinopathy is essential for effective management of diabetic retinopathy, leading to improved quality of vision.¹⁵

MATERIALS AND METHODS

Type of Study

We carried out this cross-sectional descriptive survey in the month of May 2017 among patients attending the Ophthalmology outpatient department (OPD) in a tertiary health care centre of Odisha.

Inclusion Criteria

- We included all individuals more than 18 years of age of both genders
- Those who were willing to participate.
- Patients having ocular complains not related to diabetes.

Exclusion Criteria

- Age below 18 years.
- People with cognitive impairment
- People with diabetes mellitus
- Who had the education level below high school certificate as per Kuppuswami classification¹⁶
- People not willing to participate

As per inclusion and exclusion criteria, 285 patients were enrolled in the present study but 31 declined due to lack of time and interest. Hence, our final sample had 254 participants. Informed consent was obtained from the participants. The questionnaire was distributed to the participants and the responses were collected.

Data collection instrument, the pretested semi structured questionnaire was prepared based on KAP study guidelines. The questionnaire contained four parts. The first part consisted of items about socio demographic details of the participants such as age, gender, education, religion, economic status, and place of residence. The questionnaire comprised of 20 questions to assess the current knowledge, attitude and practice of people regarding diabetic retinopathy, which included 10 knowledge-based questions, 5 attitude-based questions and 5 practice-based questions. The 10 knowledge-based questions test the knowledge of the people about ocular complication of diabetes, the diabetic retinopathy. The 5 attitude section questions assess

their view on primary prevention of diabetic retinopathy, the practice section questions included 5 questions regarding the practice such as screening, intervention, management and counselling towards diabetic retinopathy.¹⁷

Statistical Analysis

Descriptive statistics like number and percentages were computed using Graph pad prism 7.0. The responses of most important and basic KAP questions were pooled to dichotomous opinion and the Chi-square test was used to determine statistical significance. A 'p' value of <0.05 was considered as minimum level of significance.

RESULTS

| Total No. of Participants (n=254) | Number (n) | Percentage (%) |
|-----------------------------------|------------|----------------|
| Gender | | |
| Male | 190 | 74.80 |
| Female | 64 | 25.19 |
| Socioeconomic Status | | |
| Rich | 31 | 12.20 |
| Middle | 145 | 57.08 |
| Poor | 78 | 30.70 |
| Education Status | | |
| High school certificate | 127 | 50.00 |
| Intermediate | 76 | 29.92 |
| Graduation or Post-graduation | 39 | 15.35 |
| Profession | 22 | 8.66 |
| Geographical Location | | |
| Rural | 136 | 53.54 |
| Urban | 118 | 46.45 |

Table 1. Socio Demographic Characteristics of the Study Population (n=254)

Among our study population, 190 (74.80%) were males and 64 (25.19%) were females. 31 (12.2%) population were from rich economic back ground, 145 (57.08%) population were from middle class back ground, 78 (30.70%) study population were from poor back ground. 22 (8.66%) study population were from professional background like doctors and engineers, 39 (15.35%) had educational qualification graduation and post-graduation, 76 (29.92%) had educational qualification intermediate and 127 (50.00%) had high school qualification, who were able to understand English. 136 (53.54%) were from rural back ground and 118 (46.45%) population belonged to urban background. (Table 1).

Knowledge

| Questions | Responses by Participants (n=272) | | | | |
|--|--|--------------|--------------|------------|-------------------|
| | Strongly Agree | Agree | Undecided | Disagree | Strongly Disagree |
| Do you know diabetes affects eyes? | Yes 198 (77.95%) No 56 (22.04%) | | | | |
| Which part of the eye is mainly affected by diabetes? | Cornea 7 (2.75%) Lens 130 (51.18%) Retina 117 (46.06%) | | | | |
| Uncontrolled blood sugar will develop Diabetic retinopathy | 122 (48.03%) | 106 (41.73%) | 26 (10.23%) | 0 | 0 |
| Strict control of blood sugar means control of fasting, post prandial blood sugar and Glycosylated haemoglobin | 42 (16.53%) | 102 (40.15%) | 103 (40.55%) | 7 (2.75%) | 0 |
| Along with strict control of blood sugar, control of blood cholesterol, blood urea and serum creatinine prevent diabetic retinopathy | 32 (12.59%) | 73 (28.74%) | 149 (58.66%) | 0 | 0 |
| Duration of diabetes is directly related to the progression of diabetic retinopathy. | 54 (21.25%) | 104 (40.94%) | 73 (28.74%) | 14 (5.51%) | 9 (3.54%) |
| Hypertension is directly related to the progression of diabetic retinopathy | 54 (25.25%) | 67 (26.37%) | 98 (38.58%) | 21 (8.26%) | 14 (5.51%) |
| Dilated fundus examination by an ophthalmologist has to be done to diagnose diabetic retinopathy | 25 (9.84%) | 38 (14.96%) | 191 (75.19%) | 0 | 0 |
| progression of diabetic retinopathy has to be observed to prevent vision loss | 21 (8.26%) | 41 (16.14%) | 192 (75.59%) | 0 | 0 |
| Diabetic retinopathy will cause blindness | 39 (15.35%) | 87 (34.25%) | 125 (40.21%) | 3 (1.18%) | 0 |

Table 2. Responses to Knowledge Questions

In our study 196 (77.95%) population responded that diabetes affects eyes and 117 (51.18%) people knew that retina of the eye was mainly affected by diabetes. 228 (89.7%) people were well aware that Uncontrolled blood sugar will develop diabetic retinopathy. Only 144 (56.69%) study population knew that strict control of blood sugar means, control of fasting, post prandial blood sugar and control of glycosylated haemoglobin and quite a few number 105 (41.33%) people knew along with strict control of blood sugar, control of blood cholesterol, blood urea, serum creatinine was required to prevent diabetic retinopathy in diabetic patients. Duration of diabetes is directly related to

the progression of diabetic retinopathy. When asked about whether duration of diabetes is related to progression of diabetic retinopathy, 158 (62.20%) people responded correctly. Only 121 (47.63%) people knew that hypertension will cause progression of diabetic retinopathy. Less number 63 (24.80%) study population agreed that dilated fundus examination by an ophthalmologist has to be done to diagnose diabetic retinopathy. When asked, progression of diabetic retinopathy had to be observed to prevent vision loss, only (24.40%) people responded positively. 126 (49.60%) study population knew that diabetic retinopathy will lead to blindness. (Table 2)

Attitude

| Questions | Responses | | | | |
|---|----------------|--------------|--------------|------------|-------------------|
| | Strongly Agree | Agree | Not Decided | Disagree | Strongly Disagree |
| Diabetic patients need eye examination even if there is no vision loss | 25 (9.84%) | 83 (32.67%) | 124 (48.81%) | 16 (4.33%) | 9 (3.54%) |
| Diabetic patients need to check their eyes, even if they have strict blood sugar control | 27 (10.62%) | 54 (21.25%) | 151 (59.44%) | 10 (3.93%) | 12 (4.72%) |
| Detail information regarding diabetic retinopathy should be provided to diabetic patients by their treating physician | 81 (31.88%) | 142 (55.90%) | 31 (12.20%) | 0 | 0 |
| Blindness due to diabetes is preventable by early diagnosis and treatment | 42 (16.53%) | 58 (22.83%) | 133 (52.36) | 21 (8.26%) | 0 |
| Life style change is very important to prevent and stop progression of diabetic retinopathy | 44 (17.32%) | 83 (32.67%) | 103 (40.55%) | 11 (4.33%) | 13 (5.11%) |

Table 3. Responses to Attitude Questions

In our study only (42.51%) study populations agreed that diabetic retinopathy patients need eye examination even if they have no symptoms of vision loss, and very few people 81 (31.88%) knew that diabetic patients need to check their eyes even if they had strict control of blood sugar. 223 (87.79%) study population agreed that information on the blinding ocular complication of diabetic retinopathy should be provided to them by their treating

physician and diabetic patients should be referred to the ophthalmologists by their treating physician. Only 100 (39.37%) people answered correctly when asked blindness due to diabetes was preventable if diagnosed early. Only 117 (46.56%) study population responded correctly that life style modification plays an important role to prevent and stop progression of diabetic retinopathy. (Table -3)

Practice

| Questions | Responses | |
|--|-----------|------------|
| | Number | Percentage |
| How frequently a person with diabetes undergo eye check up | | |
| A. Every 3 month | 6 | 2.36% |
| B. Every 6 months | 32 | 12.59% |
| C. Yearly | 58 | 22.83% |
| D. Only when vision get affected | 158 | 62.20% |
| Do you know about the treatment available for diabetes? | | |
| A. Good control of diabetes alone is adequate | 164 | 64.56 |
| B. Life style modification | 20 | 7.87 |
| C. Laser treatment& Intra vitreal injections | 12 | 4.72 |
| D. Surgeries | 6 | 2.36 |
| E. All of the above | 52 | 20.47 |
| Laser and intra vitreal injections in diabetic retinopathy improve vision in most of the cases | | |
| Yes | 23 | 9.05% |
| No | 0 | 0% |
| Do not know | 231 | 90.94% |

| | | |
|--|-----|--------|
| Vitrectomy surgery is required in certain cases to regain vision. | | |
| Yes | 5 | 1.96% |
| No | 0 | 0% |
| don't know | 249 | 98.03% |
| Regular follow up is required to maintain vision even after treatment. | | |
| Yes | 47 | 18.50% |
| No | 34 | 13.38% |
| Do not know | 173 | 68.11% |
| Table 4. Responses to Practice Questions | | |

Practice Knowledge

Our study revealed 158 (62.20%) study population had wrong concept that diabetic patients should undergo ocular examination only when their vision got affected. Only 52 (20.47%) study population had proper practice knowledge that good control of blood sugar, life style modification, laser, intravitreal injections and vitrectomy surgery were the treatment modalities available to prevent blindness in diabetic retinopathy patients. Very few 23 (9.05%)

participants knew that laser and intravitreal injections could restore vision in most of the cases and a very small number 5 (1.96%) participants knew that few diabetic retinopathy patients may need vitrectomy to restore vision. When asked about, diabetic retinopathy patients need regular follow up even after treatment to maintain and prevent further deterioration of vision, only 47 (18.50%) responded correctly. (Table 4)

| Questions | Gender | | p | OR | 95% CI |
|---|--------|----|-------|-------|------------|
| | M | F | | | |
| Uncontrolled blood sugar will develop Diabetic retinopathy Agree (228) Not agreeing (26) | 172 | 48 | 0.016 | 3.185 | 1.51-6.71 |
| | 18 | 16 | | | |
| Diabetic patients need to check their eyes, even if he/she has strict blood sugar control Agree (81) Not agreeing (173) | 68 | 13 | 0.02 | 2.187 | 1.11-4.305 |
| | 122 | 51 | | | |
| How frequently a person with diabetes undergo eye check-up? At regular intervals (96) After vision loss (158) | 69 | 27 | 0.4 | 0.78 | 0.49-1.39 |
| | 121 | 37 | | | |
| Table 5. Association of Gender with Knowledge, Attitude and Practice Regarding Diabetic Retinopathy | | | | | |

Data of this table revealed that there is a strong association between gender and knowledge and attitude. But no significant association between genders with practice was observed.

| Questions | Locality | | p | OR | 95% CI |
|---|----------|-----|--------|-------|-------------|
| | R | U | | | |
| Uncontrolled blood sugar will develop Diabetic retinopathy Agree (228) Not agreeing (26) | 120 | 108 | 0.39 | 0.69 | 0.302-1.596 |
| | 16 | 10 | | | |
| Diabetic patients need to check their eyes, even if he/she has strict blood sugar control Agree (81) Not agreeing (173) | 5 | 76 | 0.0001 | 0.021 | 0.008-0.056 |
| | 131 | 42 | | | |
| How frequently a person with diabetes undergo eye check-up? At regular intervals (96) After vision loss (158) | 8 | 88 | 0.0001 | 0.021 | 0.009-0.049 |
| | 128 | 30 | | | |
| Table 6. Association between Habitat of Population with Knowledge, Attitude, and Practice about Diabetic Retinopathy | | | | | |

It shows that there was no significant difference in the knowledge regarding diabetic retinopathy among rural and urban population. But with respect to attitude and practice, there was a highly significant association with habitat.

DISCUSSION

In our study, 77.95% of study population had knowledge regarding diabetic retinopathy which was slightly higher than that of the other studies in India (50%),¹⁸ USA (52%),¹⁹ Oman (72%).²⁰ However it was less than the studies of Japan (98%)²¹ and Australia (96%).²²

In the present study only 42.51% of study population agreed that diabetic retinopathy patients need eye examination even if they have no vision loss, which was comparatively low to the Omani study 73% (20). In our study 31.88% knew that they have to undergo eye check-up even if they have strict control of blood sugar, it is similar to Omani study 38.49%²³ and in the study of Rani et al²⁴ 36.5%. In the present study 2% agreed for 3 monthly checkup, 12% agreed for 6 monthly check up and 22.5% agreed for yearly check-up, which is similar to the study of Mwangi et al where 27% agreed for yearly check-up, 10% for once in 6 months check-up, 17% monthly.²⁵

In our study, males have 3 times more knowledge than that of females regarding the diabetic retinopathy and attitude was 2 times more than females. Urban people have better attitude and practice towards eye check-up in diabetes as compared to rural population. (Table-5, 6)

CONCLUSION

Health education measures should be implemented at primary, secondary and tertiary levels of health care. It should be delivered through mass media, pamphlets and posters. Regular screening camps for diabetic retinopathy should be conducted in the community to create awareness. More impetus to diabetic retinopathy should be given on special days like World Diabetes Day and World Sight Day which would educate the general public and the diabetic patients at large and help them to prevent the blinding ocular complication of diabetes mellitus, the diabetic retinopathy.

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