NAPATA COLLEGE

Medicine & Surgery Program
Batch (2)

Awareness of Diabetic Retinopathy among Diabetic Patients attending Alfaisal Eye Center

A thesis submitted for Partial Fulfillment
For the Requirements for the Bachelor Degree of
Medicine & Surgery

Submitted by:
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Dedicate to my beloved father, mother,

My special sisters

My lovely friends

For support, encouragment and understanding.

ACKNOWLEDGEMENTS

I would like to show my appreciation for being assigned to carry out this project. it was real challenge for me but with the valuable guidance and support from my supervisor Dr.Marwan it was a success . with his prompt and detailed advice . last but not least , I would love to thank my parents for their financial and moral support throughout the completion of this successful project. Also special thanks to my sisters Ebtihal and Afrah also my cousin Omnia Afifi, without the postive vibes and support from all of them, it would not be success for me .

قال تعالى :

ۦ وَ إِذَا سَأَلَكَ عِبَادِي عَنّي فَإِنّيْ قَرِيبٌ
أُجِيبُ دَعْوةَ الّدَاعِ إِذْا دَعانِ فَلْيَستَجِيبُواْ لِيْ
وَلِيُؤمِنوا بِي لَعلَّهُم يَرْشِدُونْ ِ

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DM	Diabetis malutis
DR	Diabetic retinopathy

Abstract

Background : Diabetes mellitus (DM) can result in many complications such as nephropathy, cardiovascular, neurologic and ocular complications,1 with diabetic retinopathy (DR) being the most common microvascular ocular complication of DM. So to avoid worsening of DR we should be sure about awareness of patients of DR among diabetes .

Objectives:

The general objective of this study is to occurs due to poor control of DM and lack ofknowledge of the complications of DM.among many approaches, strong awareness of retinopathy by diabetic patients could help in the early detection, management and prevention of this complication.

Methodology:

This is a cross-sectional study will conducted by the questionnaire for collecting data in the survey research.

Results:

about 34% of patients controling diabetes by taking medication , and about 4% they don't know . 51% they say we do a blood test to find out if person diabetic or not and about 49% of patients say we do urine test .about 52% of patients say they should take treatment of diabetes till the sugar levels get under control , and about 48% they

say we should take it for life long .60% of patients say the eyes is the most affected by diabetes and about 4% they don't know .about 32% of patients say the problem of diabets in eyes is catract , and about 4% they don't know .46% of patients say that they find out diabetes can cause retinopathy informed by physician at local hospital . and about 4% got informed from media.books. 62% of patients say that diabetes can cause retinopathy at the time of diagnosis , and about 38 % say any other . about 69.4% of patients say that yes diabetic retinopathy can cause blindness , and about 14.3% say no. about 61.2% of patients say that factors can cause woresning of DR is poor control of diabetes . and about 8.2% they do not know .about 32% of patients say the treatment opthion available for DR is surgery . and about 4% say they do not know . about 60% of patient say the person with DR yes can have a normal vision and about 8 % they do not know .about 66% of patients say yes the patient with diabetes should have a periodic dilated eye check up to look for DR. and about 12% say they do not know.about 54% of patients say the patient with diabetes but not having DR yes he should have a dilated eye check up every 6 months and about 38% say once a year .about 86% of patients say yes they taking medicines for diabetes as advised by the physician and about 14 % of patients say no they didn't .about 64% of patients say yes their diabetes under control and about 12 % they don't know .

Conclusion: enough awaering of DR patients could really help in early stage since they getting diagnosed by DR and spaically when they diagnosed by diabetes then kept following up with physition , medicine spacialist and ophthalmologist .

الملخّص :

الخلفية : إن مرض السكري من اكثر الامراض المنتشره وايضا فهو يؤدي الى مضاعفات كثيرة منها أمراض الكلى والقلب والأعصاب وأيضا العيون . ومن المضاعفات التي تحدث بسببه في العيون هو الاعتلال الوظيفي لشبكية العين . لذلك من المهم جداً وعي مريض السكري بذلك وبهذا المرض .

الأهداف:

هو وعي مريض السكري بتأثيره على شبكية العين وتسببه بالاعتلال الوظيفي لشبكية العين فكل ذلك يساعد المريض في تجنب المضاعفات وتطور هذا المرض للأخطر.

عِلْم المنهج:

دراسة عرضية سَتَجري بالإستفتاءِ لجمع البياناتِ في المسح لهذا البحث .

النَتائِج:

حوالي 34% من مرضآ السكر يأخذون الدواء لعلاج السكر و حوالي 4 % لا يعرفون الاجابة لذلك . وأيضا حوالي 51% من المرضى يقومون بكشف السكر عن طريق الدم . وأيضا حوالي 52% من المرضى يقولون عليهم أخذ العلاج لسكر حتى يصل المعدل الطبيعي وحوالي 48% يقولون عليهم أخذ العلاج مدى الحياة . وحوالي 60% من المرضى لا يعرفون المدى الدقيق لتأثير السكر . وأيضا 32% منهم يقولون بأن تأثير السكر للعين يمكن أن يؤدي الى مياه بيضاء في العين

. و أيضا 46% من المرضى علموا بمرض اعتلال الشبكية الوظيفي من طبيب في أحد المستشفيات غير المتخصص في العيون . وأيضا 62% من المرضى يقولون بأن مرض السكر يسبب اعتلال الشبكية الوظيفي . وايضا 69.4% يقولون نعم بأن اعتلال الشبكية قد يؤدي الى العمى . وأيضا 61.2% يقولون بأن عدم ضبط السكر في الدم يؤدي الى الاعتلال الوظيفي لشبكية .و أيضا حوالي 32% من المرضى يقولون بأن الجراحة أحد طرق العلاج لمرض اعتلال الشبكية الوظيفي . وحوالي 60% من المرضى يقولون بأن مريض اعتلال الشبكية الوظيفي يمكن أن يكون لديه نظر طبيعي . وحوالي 66% من المرضى يقولون يجب على مرضى السكر الكشف الدوري لشبكية العين بقطرة العين لتوسعة حدقة العين .وحوالي 54% من المرضى يقولون أن من يعاني من مرض السكر دون تأثير في الشبكية عليهم الكشف كل 6 شهور للعين . وأيضا حوالي 86% من المرضى بأن يأخذون العلاج تحت اشراف الطبيب المختص بهم . و أيضا حوالي 64 % من المرضى بأن فحص السكر لديهم في المعدل الطبيعي لهم.

الخاتمة:

الوعي المبكر لمريض السكر بأن عليه المتابعة مع أخصائي العيون أيضا أخصائي الباطنية باستمرار يضمن له تجنب مضاعفات السكر تأثيره على شبكية العين .

Chapter one

1.1 Introduction :

Diabetes mellitus (DM) can result in many complications such as nephropathy, cardiovascular, neurologic and ocular complications,1 with diabetic retinopathy (DR) being the most common microvascular ocular complication of DM. DR is defined as a disorder of the retinal circulation that compromises the delivery of oxygen and nutrients to the retina, thus being unable to meet its high metabolic demands.3 Therefore, defects in retinal circulation may affect normal vision, which is considered a leading cause of vision impairment and blindness worldwide.4 Many risk factors for DR have been reported among patients with diabetes; these include uncontrolled DM, longer periods of DM and the presence of other systemic diseases such as hypertension.5 Increasing the level of awareness of DR as an ocular complication of DM

among patients with diabetes is considered an important factor for early diagnosis and management of DR, in addition to the prevention of possible visual impairment due to the disease.6 Variable levels of awareness of DR among patients with diabetes have been reported from different countries around the world For example, in Australia, it was found that only 37% of the patients with diabetes were aware of the ocular complications of DM,7 and 65% of patients with diabetes in the USA were aware of DR.[1]

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1.2 Statement of the problem

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Assessing the awareness of diabetic patients as regards diabetic retinopathy.

When aware to find out the common sources of information on diabetic retinopathy amongst the patients.

1.3 Objectives

1.3.1 General objectives

The general objective of this study is to occurs due to poor control of DM and lack of
Knowledge of the complications of DM.
Among many approaches, strong awareness of
Retinopathy by diabetic patients
Could help in the early detection, management and

Prevention of this complication.

1.3.2 Specific objectives

- To assets the awarness of pt by his case.
- To reduce the risk factor of late stage of the disease.

2.1 Over view of the study

This study is concerned with retinopathy with diabetic patient. It is falls in five chapters, chapter one is introduction, as well as the statement of the problem and study objective. Chapter two includes comprehensive scholarly literature review concerning the previous studies. Chapter three deals with methodology where it provides an out lines of materials and methods used for data collection and analysis, while chapter four results and analysis will presenting, chapter five include discussion, conclusion and recommendation following by reference and appendix.

Chapter Two

Literature Review

2.1.Diabetic Retinopathy:

Blindness is one of the most feared complications of diabetes but also one of the most preventable. Diabetes is the commonest cause of blindness in people aged 30 to 69 years. Twenty years after the onset of diabetes, almost all patients with type 1 diabetes and over 60% of patients with type 2 diabetes will have some degree of retinopathy. Even at the time of diagnosis of type 2 diabetes, about a quarter of patients have established background retinopathy. Treatment can now prevent blindness in the majority of

cases, so it is essential to identify patients with retinopathy before their vision is affected. .[2]

2.2.Classification of retinopathy:

Diabetic retinopathy is due to microangiopathy affecting the retinal precapillary arterioles, capillaries, and venules. Damage is caused by both microvascular leakages from breakdown of the inner blood-retinal barrier and microvascular occlusion. These two pathological mechanisms can be distinguished from each other by fluorescein angiography. .[3]

2.3.Background Retinopathy:

Microaneurysms are small saccular pouches, possibly caused by local distension of capillary walls. They are often the first clinically detectable sign of retinopathy and appear as small red dots, commonly temporal to the macula. .[4]

Haemorrhages may occur within the compact middle layers of the retina and appear as “dots” or “blots.” Rarely, haemorrhages occur in the superficial nerve fibre layer, where they appear flame shaped; these are better recognised as related to severe hypertension.

Hard exudates are yellow lipid deposits with relatively discrete margins. They commonly occur at the edges of microvascular leakage and may form a circinate pattern around a leaking microaneurysm. They may coalesce to form extensive sheets of exudate. Vision is affected when hard exudates encroach on the macula. .[4]

2.4.Retinal oedema is due to microvascular leakage and indicates breakdown of the inner blood-retinal barrier. It appears as greyish areas of retinal thickening. The thickening may look like a petal shaped cyst on the macula, and this can cause severe visual deterioration.

Clinically significant macular oedema requires treatment. It is defined as any one of the following:

Retinal oedema within 500 μm (one third of a disc diameter) of the fovea

Hard exudates within 500 μm of the fovea if associated with adjacent retinal thickening

Retinal oedema that is one disc diameter (1500 μm) or larger, any part of which is within one disc diameter of the fovea.

Twenty per cent of eyes with clinically significant macular oedema will have serious visual loss in two years without treatment compared with 8% of treated eyes. .[5]

2.5.Preproliferative retinopathy:

Retinal ischaemia due to microvascular occlusion may lead to neovascular proliferation. Signs of ischaemia include cotton wool spots, large dark blot haemorrhages, venous beading and looping, and intraretinal microvascular abnormalities. Cotton wool spots appear as white patches with rather feathery margins and represent microinfarcts in the nerve fibre layer; they become clinically important when there are more than five. .[6]

2.6.Proliferative retinopathy

New vessel formation may occur at the optic disc (NVD) or elsewhere on the retina (NVE). New vessels on the disc are particularly threatening to vision, and if allowed to progress they often lead to vitreous haemorrhage. If untreated, 26% of eyes with "high risk" and neovascular proliferation on the disc will progress to severe visual loss within two years. With laser treatment, this figure is reduced to 11%..[7]

2.7.Advanced eye disease:

In advanced proliferative diabetic retinopathy, progressive fibrovascular proliferation leads to blindness due to vitreous haemorrhage and traction retinal detachment. Rubeosis iridis and neovascular glaucoma occur when new vessels form on the iris and in the anterior chamber drainage angle, leading to a painful blind eye that occasionally requires enucleation. .[8]

2.8.Blindness in diabetic patients:

Vision threatening retinopathy is usually due mainly to neovascularisation in type 1 diabetes and maculopathy in type 2 diabetes. In North America, 3.6% of patients with type 1 diabetes and 1.6% of patients with type 2 diabetes are legally blind. In England and Wales, about 1000 diabetic patients are registered as blind or partially sighted each year, with diabetic retinopathy

being the commonest cause of blindness in the working population.

Vitreous haemorrhage occurs suddenly and painlessly. The blood usually clears over the following weeks, but the underlying proliferative retinopathy causes repeated haemorrhages and progressive visual loss in most cases if it is not treated. Retinal detachment resulting from contracting fibrous bonds sometimes causes blindness. .[9]

2.9.Maculopathy—Macular disease has three causes in diabetic patients: exudative maculopathy, retinal oedema, and ischaemia. Deterioration of vision in these situations is often insidious. Deterioration can be prevented to some extent by appropriate laser treatment, but once vision has been lost it cannot be restored. Ischaemic maculopathy due to loss of perifoveal capillaries may cause severe visual loss and is difficult to treat.

Cataract—Lens opacities or cataract develop earlier in diabetic patients and often progress more rapidly.

Primary open angle glaucoma has an increased prevalence in diabetic patients compared with the general population. .[10]

2.10.Prevention of blindness:

Physicians must actively seek retinopathy in diabetic patients as laser photocoagulation can often prevent blindness if the condition is detected early enough. The indications for laser treatment are:

New vessels on disc or elsewhere in retina; advanced pre-proliferative changes

Clinically significant macular oedema (see above)

Encroachment of hard exudates on the fovea.

Chronic vitreous haemorrhage that precludes a view of the retina can be treated by vitrectomy and endolaser. Tractional retinal detachment can be managed by vitrectomy. Restoration of visual acuity can be impressive, but it is dependent on the underlying condition of the retina. .[11]

2.11.Clinical examination of eyes and screening:

All diabetic patients older than 12 years should have their visual acuity tested and retina examined annually, or more often if advancing changes are observed. Vision threatening retinopathy rarely occurs in type 1 diabetes in the first five years after diagnosis or before puberty. However, more than a quarter of patients with type 2 diabetes have been found to have

retinopathy at diagnosis, and screening should start immediately.

Visual acuity should be checked annually or more often if appreciable retinopathy is present or if it has changed unexpectedly. This should be done with patients wearing their spectacles or through a "pinhole." .[12]

2.12.Retinal examination—all diabetic patients should have routine fundal examination by funduscopy or retinal photography, and preferably both. The pupils should be dilated and the fundus examined in a darkened room. Tropicamide 1% eye drops are recommended as they act for only two to three hours. There is no reason to avoid pupillary dilatation in patients being treated for chronic open angle glaucoma, although those being treated for closed angle glaucoma must not have pupillary dilatation.

Patients with background retinopathy should be examined every six to 12 months (or more often if there is any change of visual acuity) and referred to an ophthalmologist when indicated. Pregnant patients require more frequent follow up as retinopathy can progress rapidly during pregnancy. .[13]

2.13.Screening methods:

Conventional examination with an ophthalmoscope in a darkened room and the pupil dilated is a minimum requirement. Observers must be well trained, but even consultant ophthalmologists do not achieve the required 80% sensitivity.

Indications for referral to an ophthalmologist

Reduced visual acuity from any cause

Proliferative or preproliferative changes

Clinically significant macular oedema

Hard exudates near the macula

Any form of progressing or extensive diabetic retinopathy especially when the lesions are near the macula.[15]

2.14.Retinal photography:

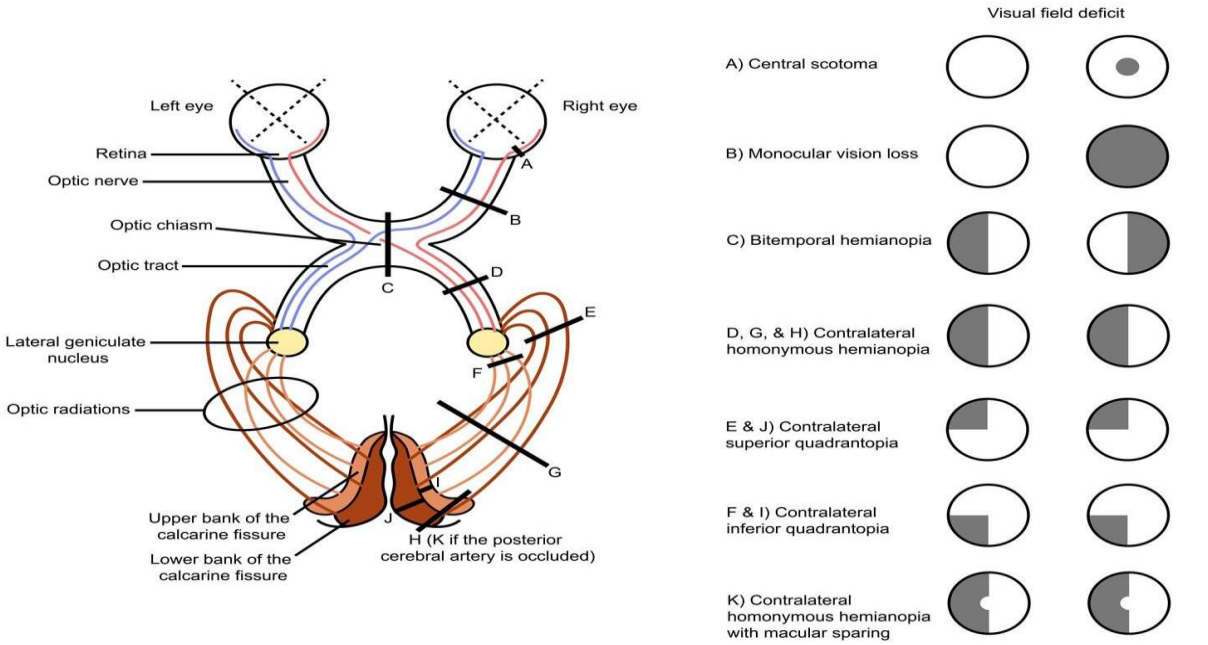
Is done through dilated pupils. Digital photography is now the preferred method as the images can be stored electronically, making them easily available for consultation, review, and teaching. Conventional colour photographs also provide good images, but the quality of Polaroid photographs is less than ideal.

It would be ideal to provide both conventional funduscopic and photographic screening, and there is some evidence that the combined screening procedure reduces the failure rate. .[15]

2.15.Blind diabetic patients:

Patients with visual acuity of less than 3/60 in their better eye or gross field defects can register as blind. This gives them some financial help and social service support. Patients with a visual acuity of less than 6/60 in their better eye are eligible for registration as partially sighted. They must be registered by an ophthalmologist using the BD8 form. Printing in braille is valuable, but many diabetic patients have impaired fine sensation in their fingertips, making it difficult for them to read it. Insulin pens, in which palpable clicks correspond to units of insulin, are valuable for blind patients. .[16]

Visual Field Defects



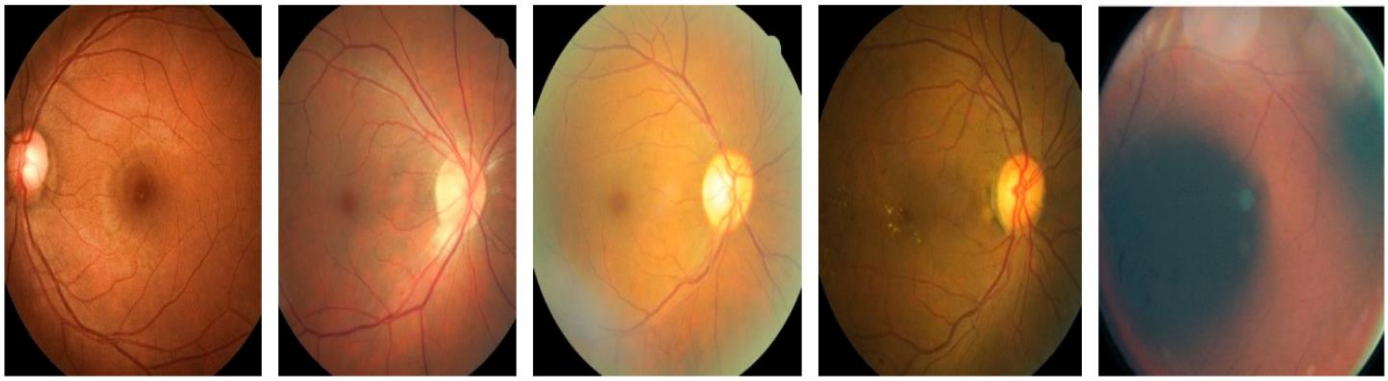
Moises Dominguez

(Fig. 2.1)

Frequency of retinopathy (any degree) and proliferative retinopathy by duration of diabetes in people with diabetes diagnosed at age 30 or under, according to insulin treatment

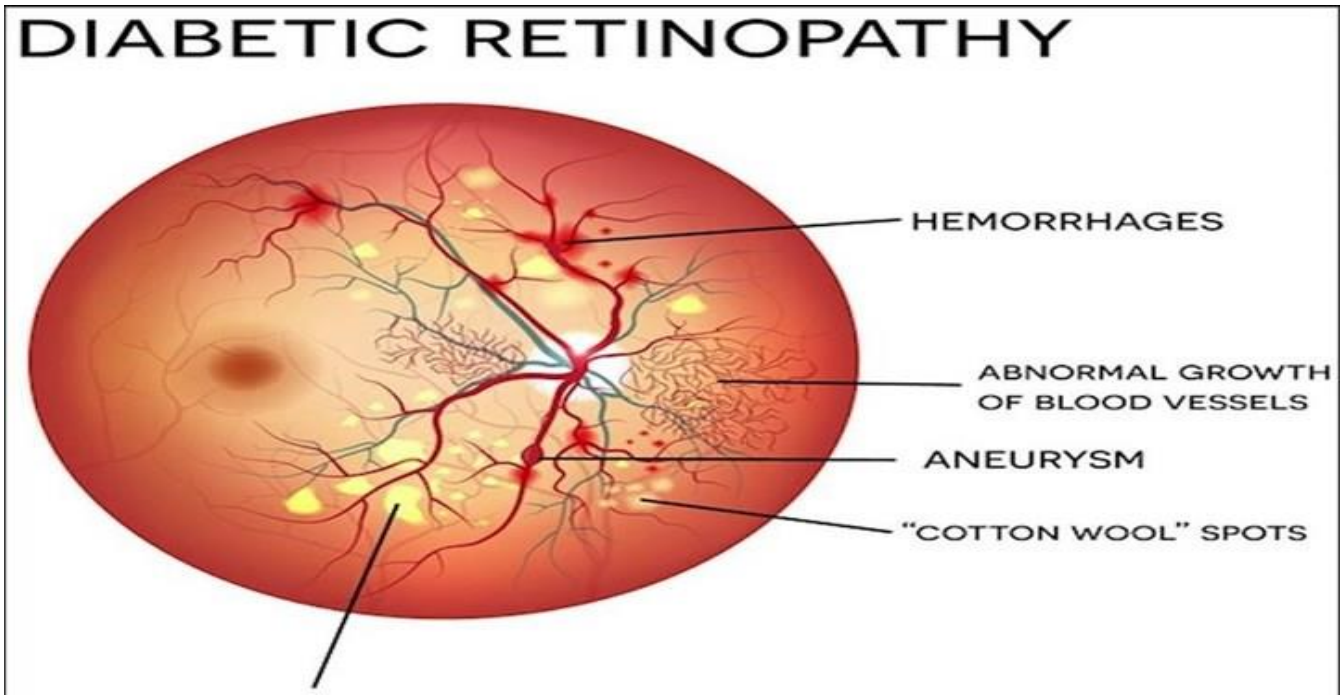
Exudative maculopathy

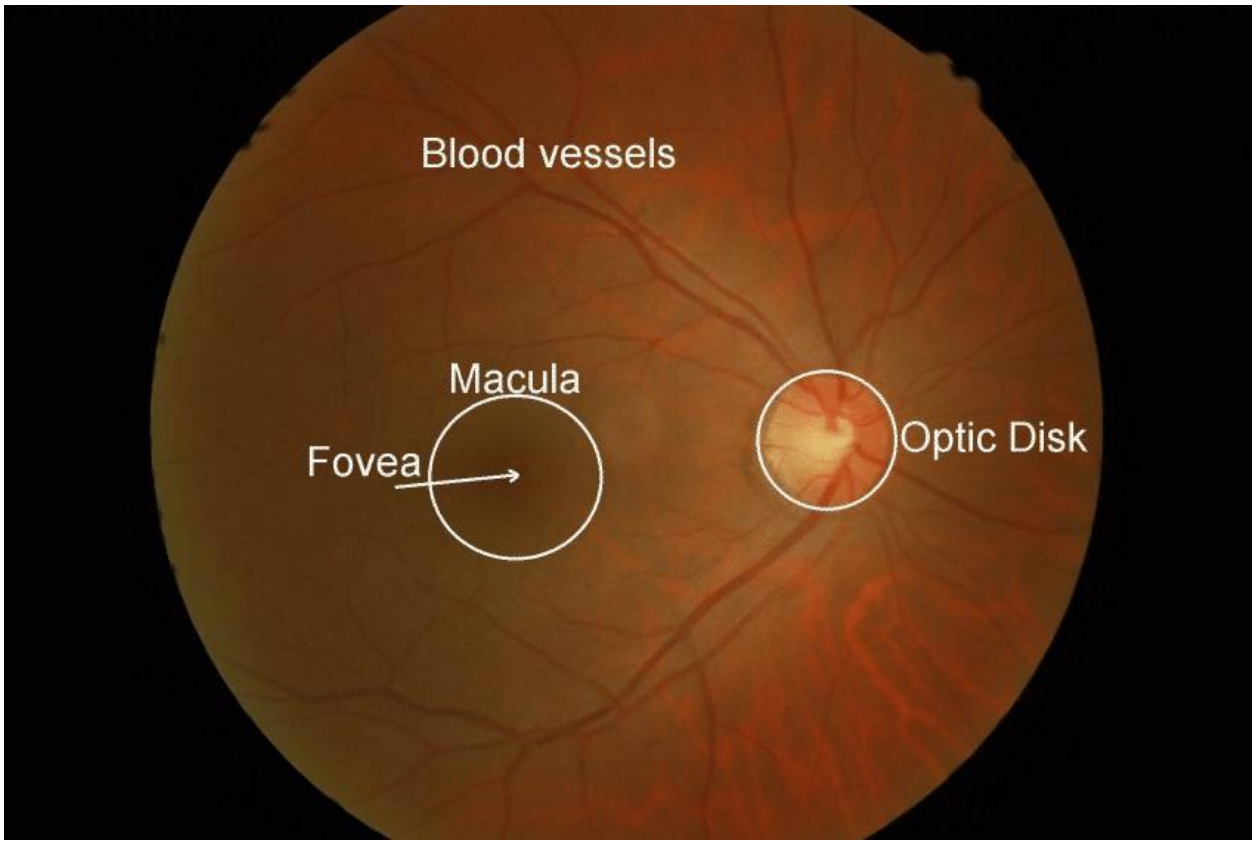
Preproliferative retinopathy with venous bleeding, cotton wool spots, and some hard exudates



(Fig. 2.2)

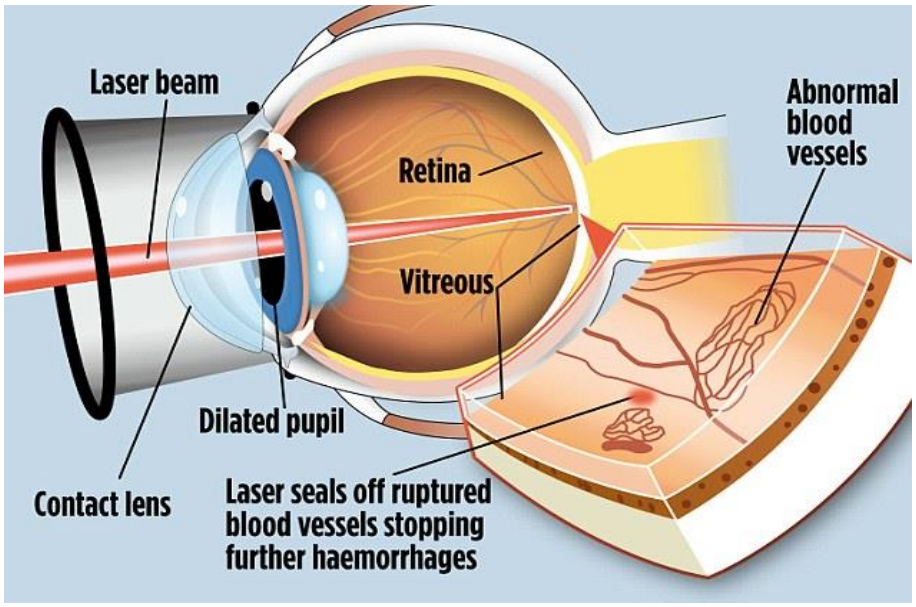
Disc new vessels





(Fig. 2.3)

Recent argon laser photocoagulation

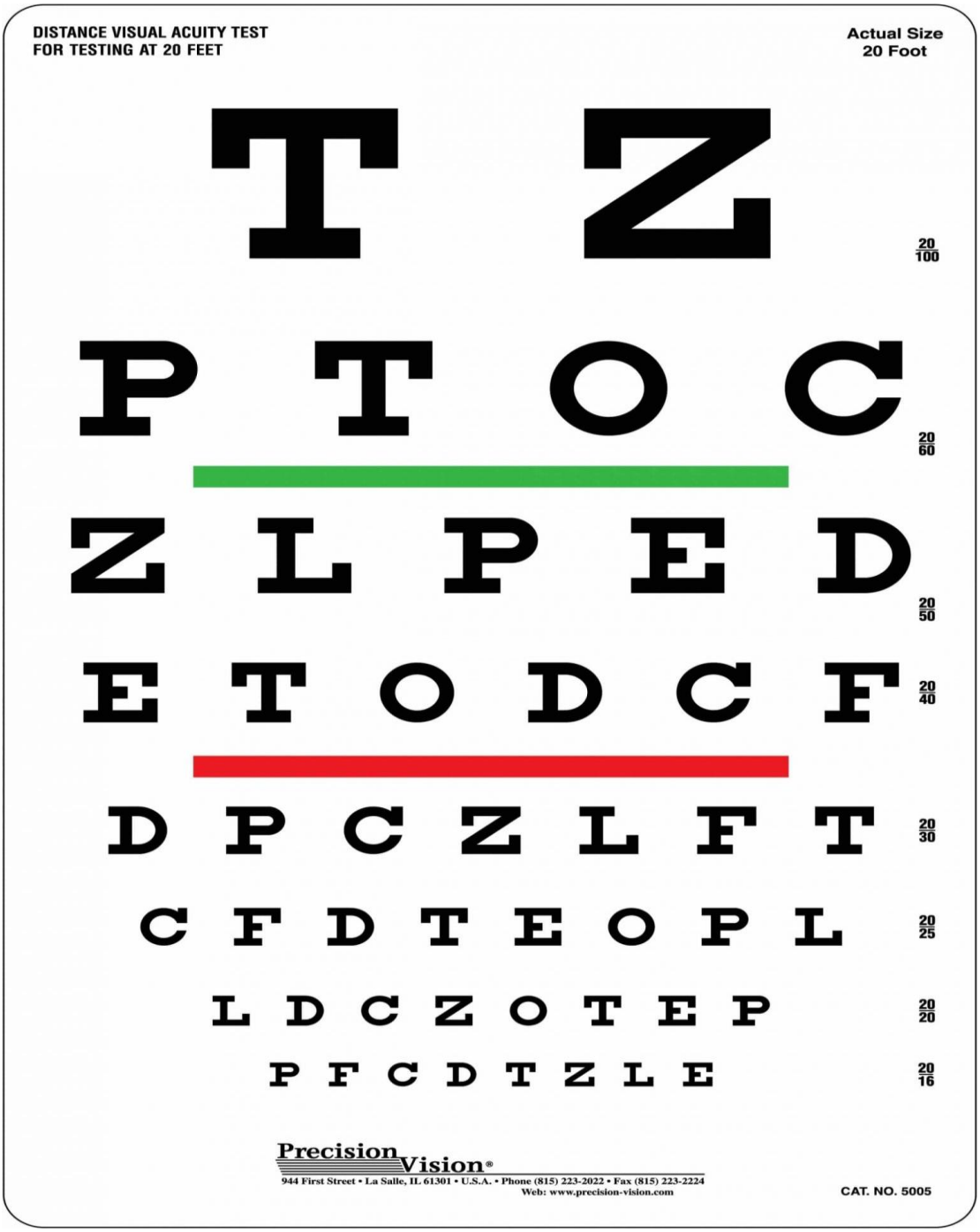


(Fig. 2.4)

Longstanding photocoagulation scars

(Fig. 2.5)

Snellen chart for testing visual acuity and funduscope for examining the retina



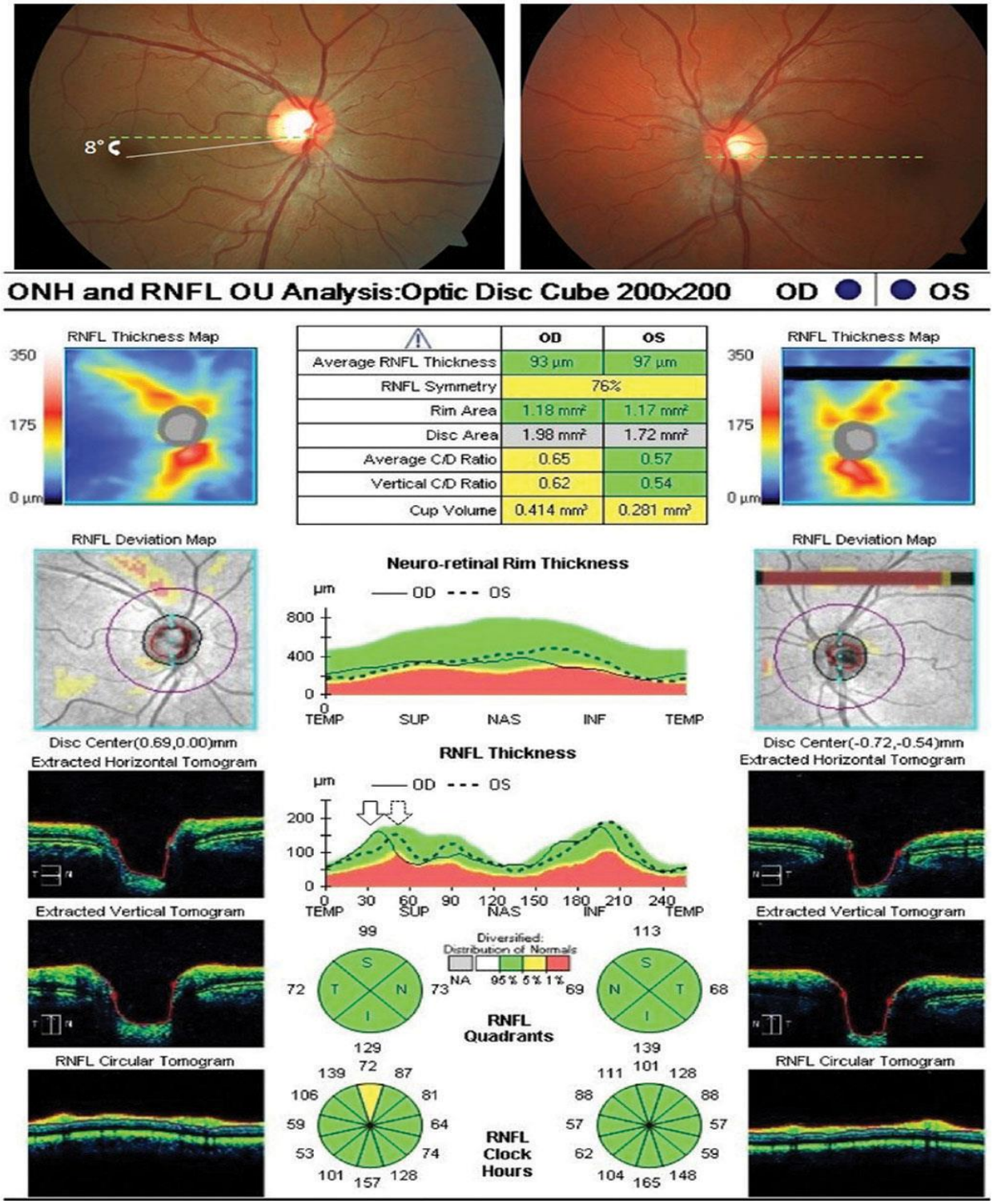
(Fig. 2.6)

Digital camera used for retinal photography

Acknowledgments

(Fig. 2.7)

(Bilatral) Optic disc cube taking by OCT:



(Fig.2.8)

Chapter three:

Material and methods

3.1 Study design

This is a cross-sectional study will conducted by the questionnaire for collecting data in the survey research.

3.2 Study area

The study will took place in the clinic of:

- ALFAISAL EYE CENTER, Khartoum state.

3.3 Study period

This study will be conducted in the period from 20th of NOV 2021 to 18th DEC 2021.

3.4 Sampling and population of the study

The sample of the study is 50 patients with DM who is visit Retina clinic.

3.4.1 Inclusion criteria: males and females, Patients who

are more than 40 and less than 70 years of age.

3.4.2 Exclusion criteria: Patients who are less than 40 years.

3.6 Materials

All I will need taking good history from the patients and there co-patients then I will compare between strating of the complain of the diabetic retinopathy and when they get diabetic.

3.7 Data collection technique:

Meet the patients and ask them in the clinic (retina clinic).

3.8 Data analysis and presentation

The data will be analyze by using statistical packaged for social studies (SPSS) Excel under windows.

The data will be present in tables and figures.

3.9 Ethical considerations:

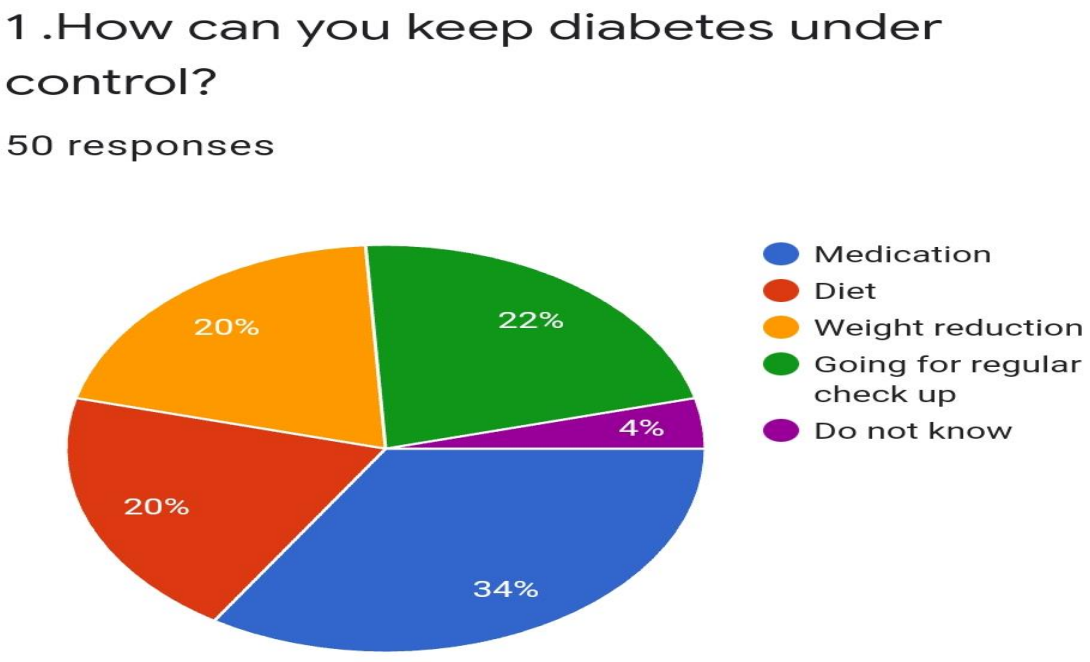
The administrative party of the centre under the study will informed about the purpose of the study and its duration and the expected benefits. Consent and approval of these administrations will take before conducting the study.

No patient identification or individual patient details will publish, and patients will consented before including them in the study.

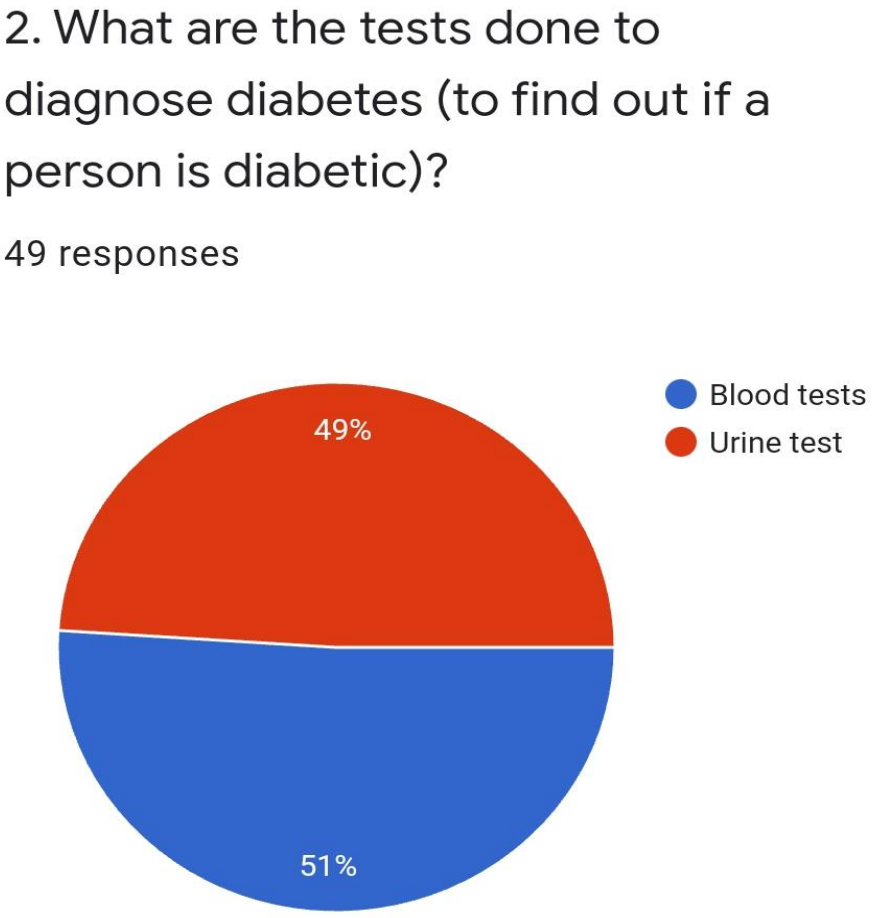
Chapter Four:

The Results

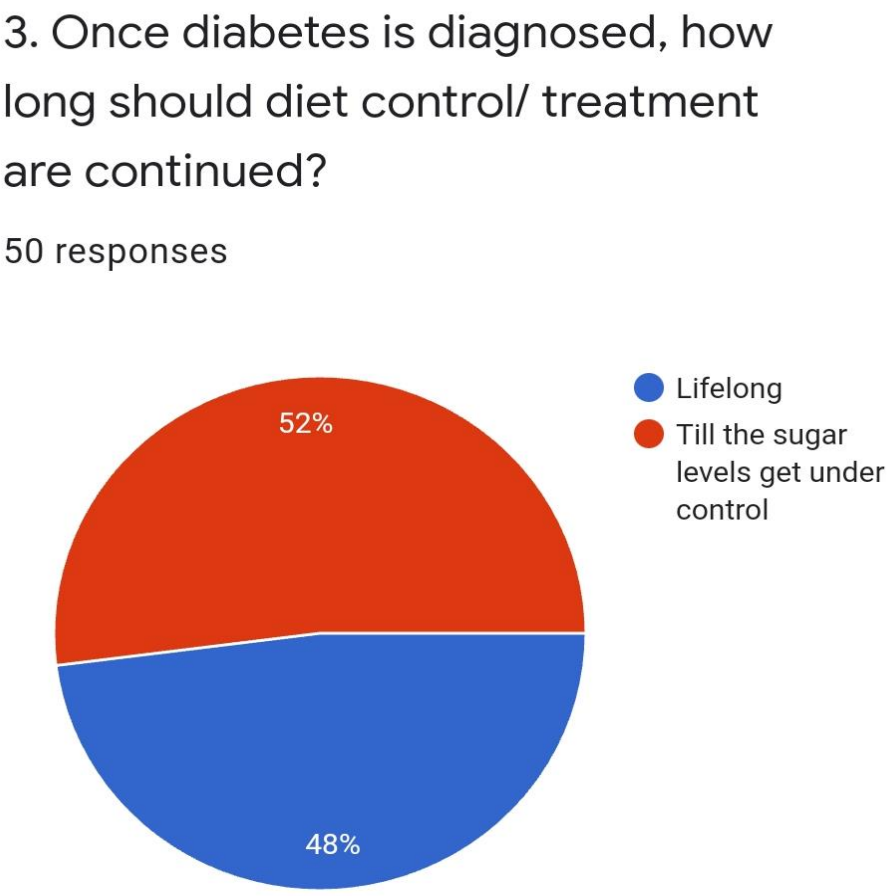
4.1 Result:



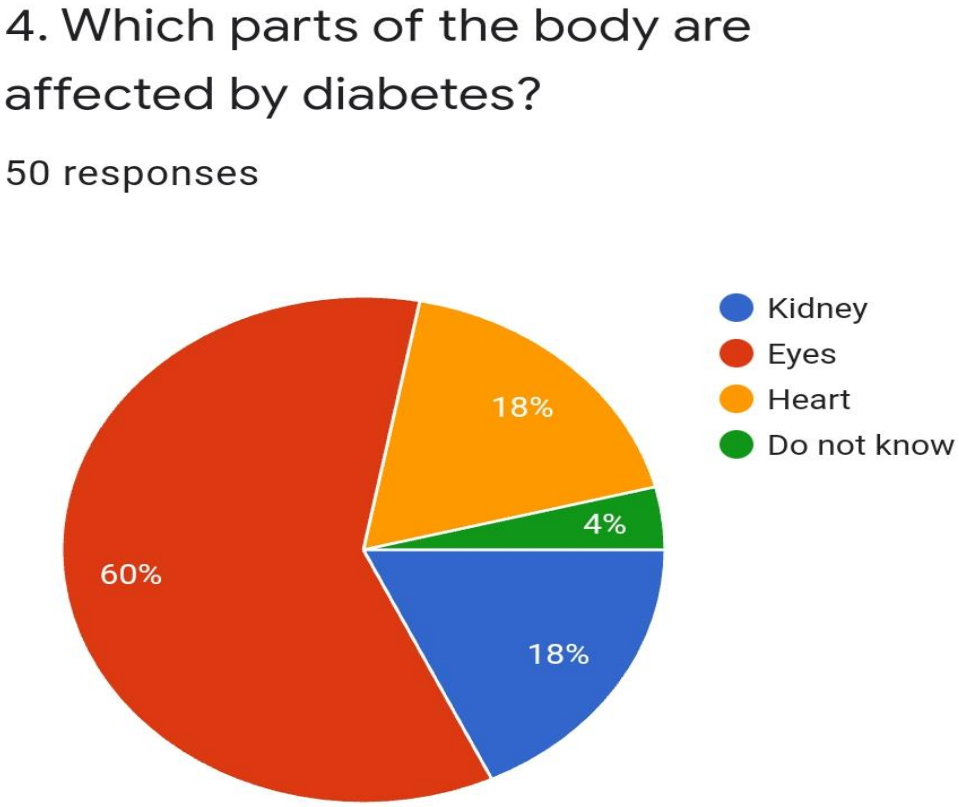
(Fig4.1)


2. What are the tests done to diagnose diabetes (to find out if a person is diabetic)?
49 responses
49%
51%
Blood tests
Urine test

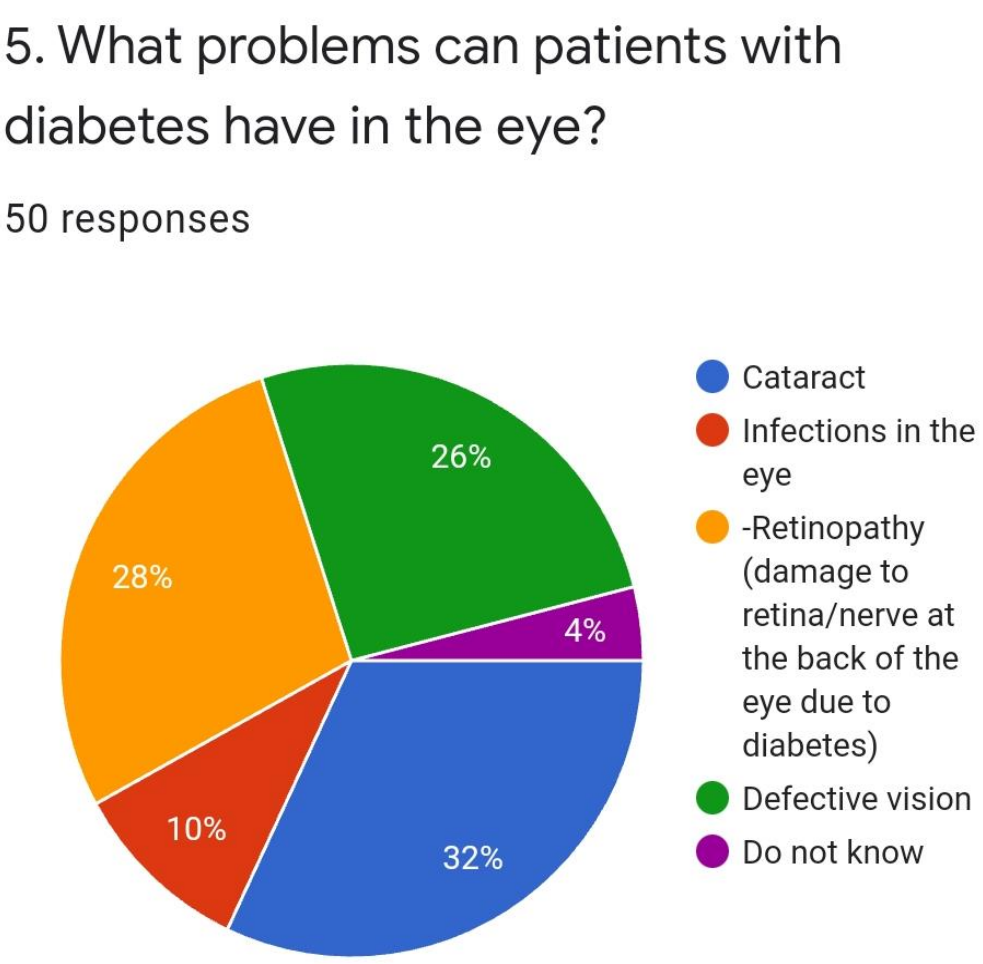
(Fig4.2)


3. Once diabetes is diagnosed, how long should diet control/ treatment are continued?
50 responses
52%
48%
Lifelong
Till the sugar levels get under control

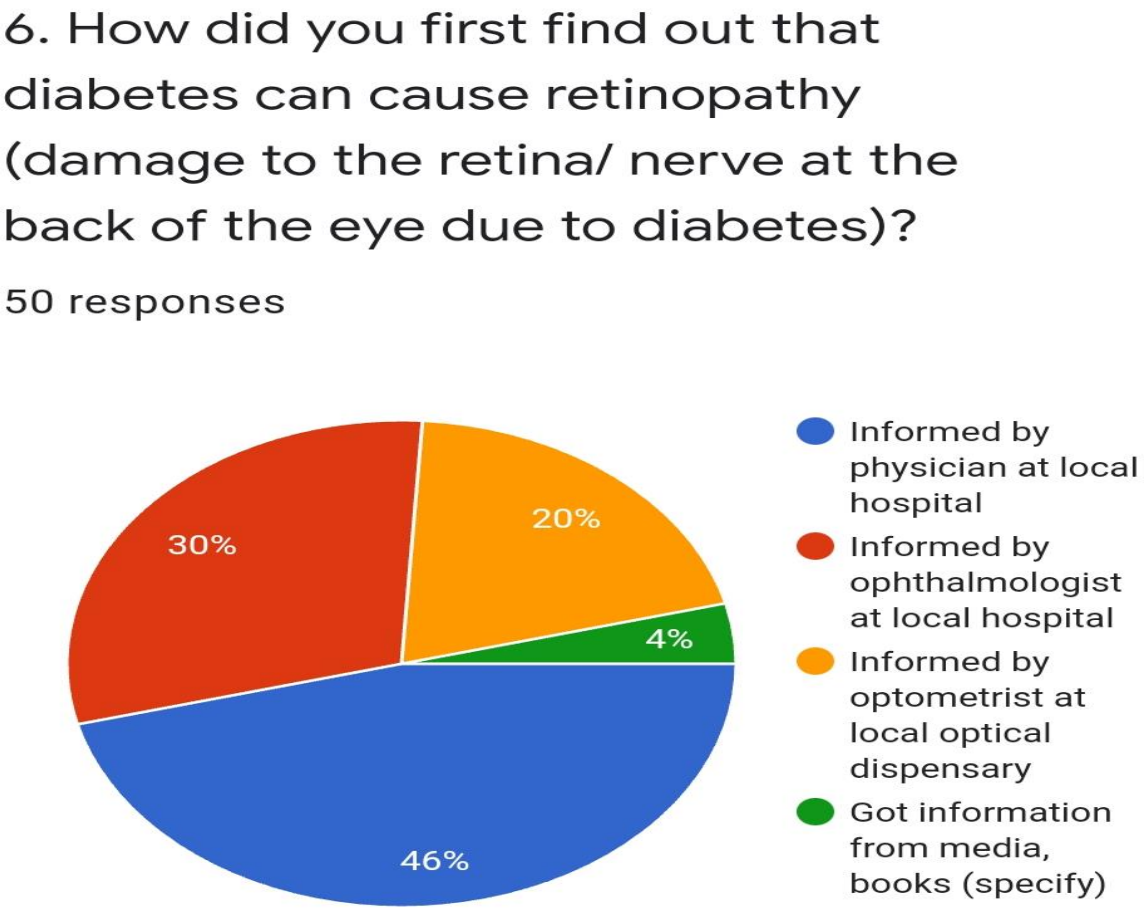
(Fig4.3)


4. Which parts of the body are affected by diabetes?
50 responses
Kidney
Eyes
Heart
Do not know
18%
4%
60%
18%

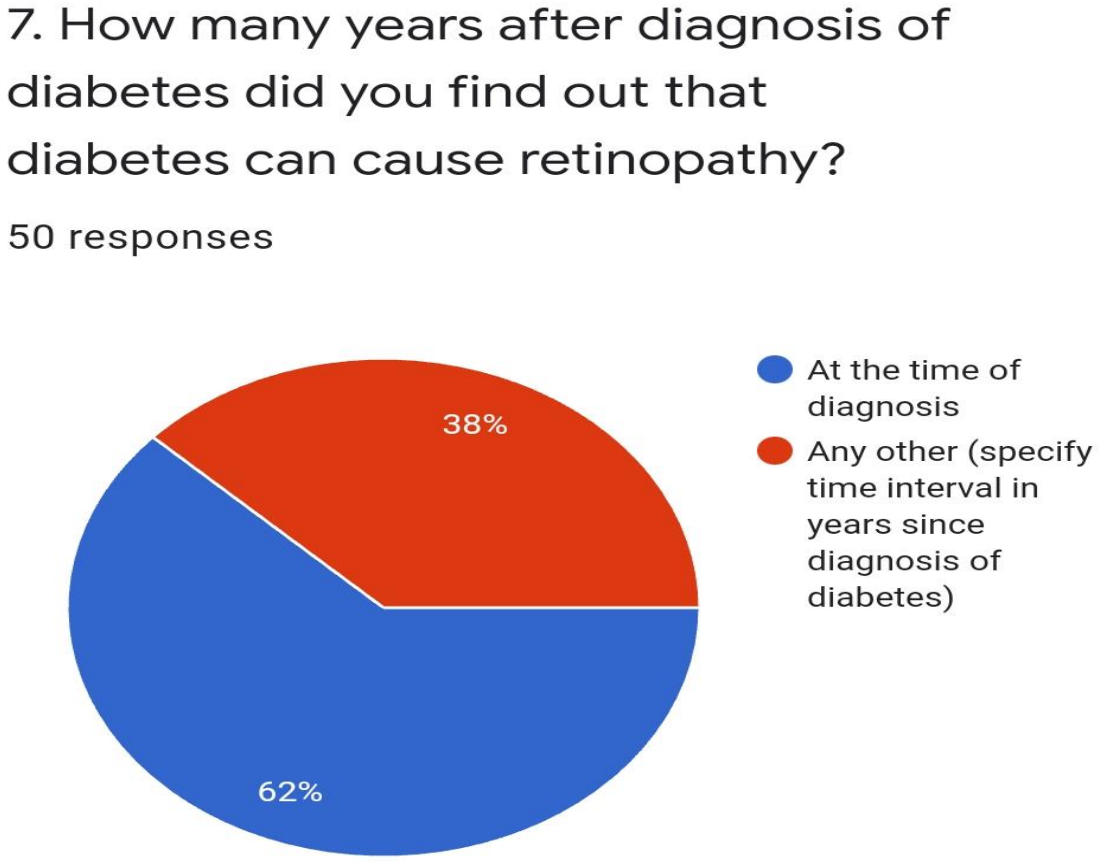
(Fig4.4)


5. What problems can patients with diabetes have in the eye?
50 responses
26%
28%
4%
10%
32%
Cataract
Infections in the eye
-Retinopathy (damage to retina/nerve at the back of the eye due to diabetes)
Defective vision
Do not know

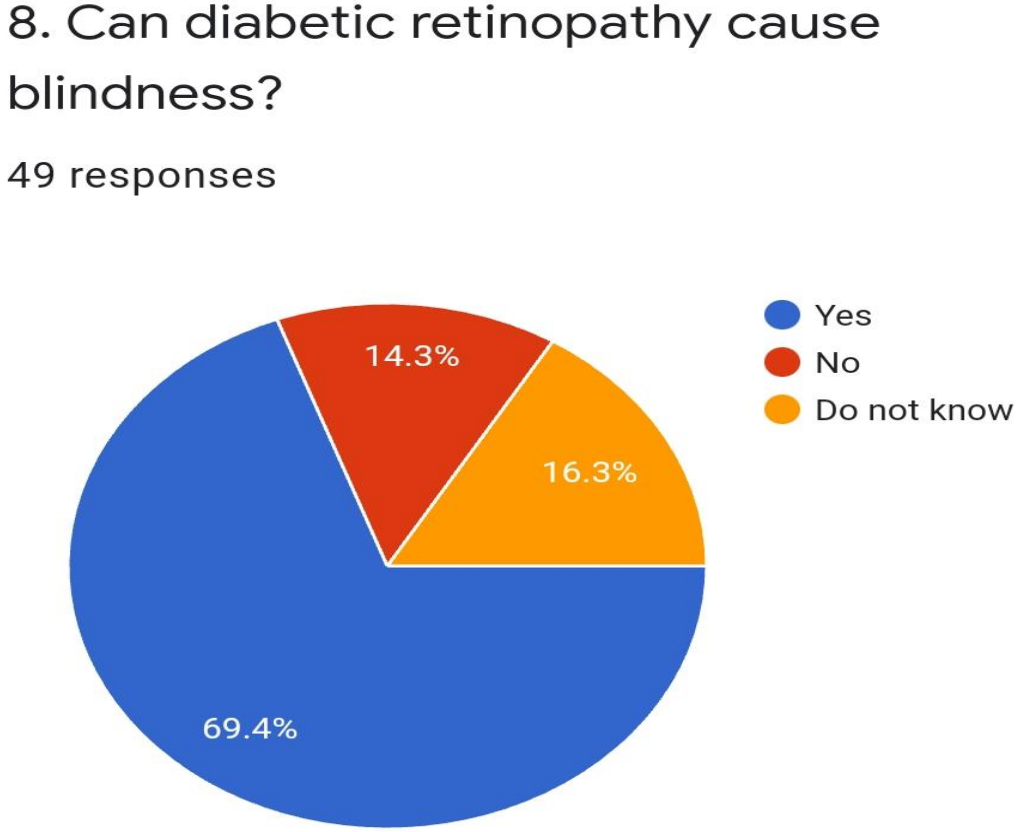
(Fig4.5)


6. How did you first find out that diabetes can cause retinopathy (damage to the retina/ nerve at the back of the eye due to diabetes)?
50 responses
30%
20%
4%
46%
Informed by physician at local hospital
Informed by ophthalmologist at local hospital
Informed by optometrist at local optical dispensary
Got information from media, books (specify)

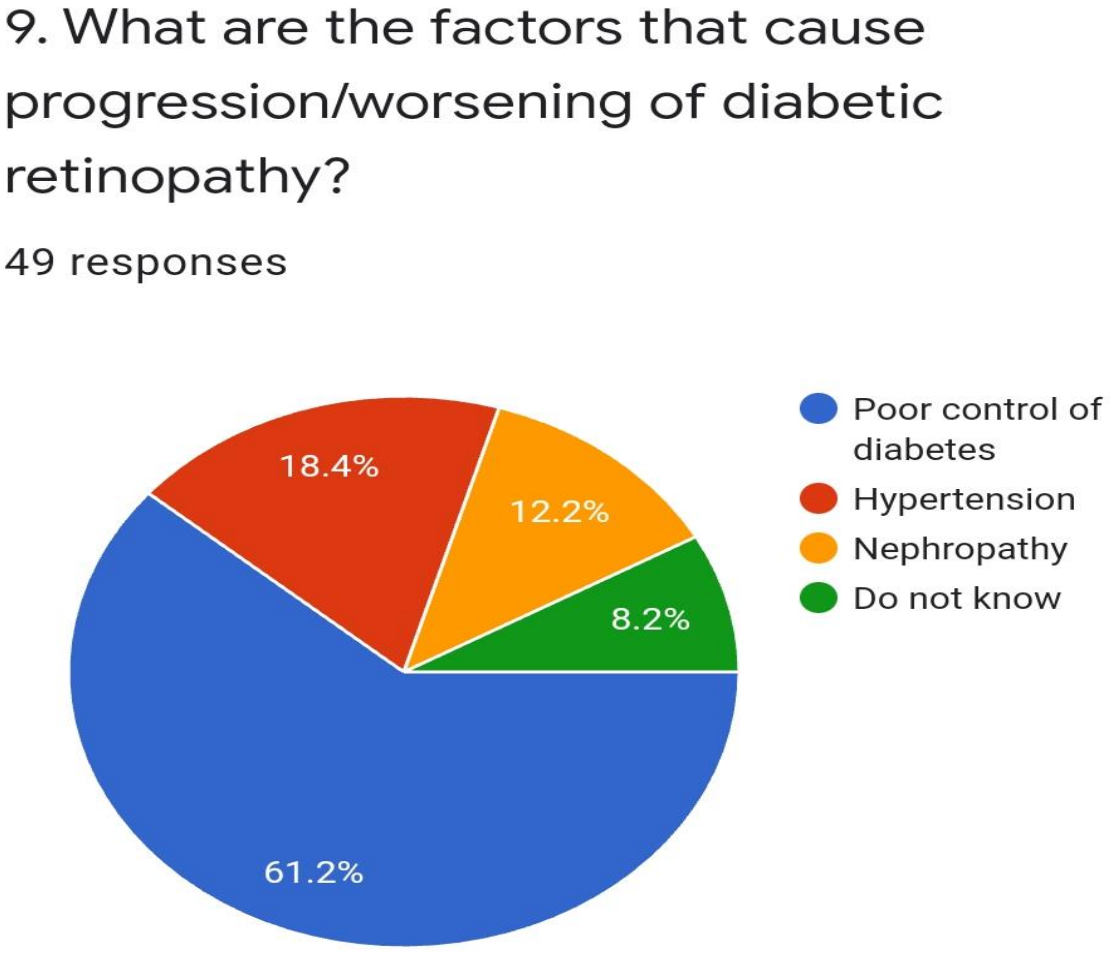
(Fig4.6)


7. How many years after diagnosis of diabetes did you find out that diabetes can cause retinopathy?
50 responses
38%
62%
At the time of diagnosis
Any other (specify time interval in years since diagnosis of diabetes)

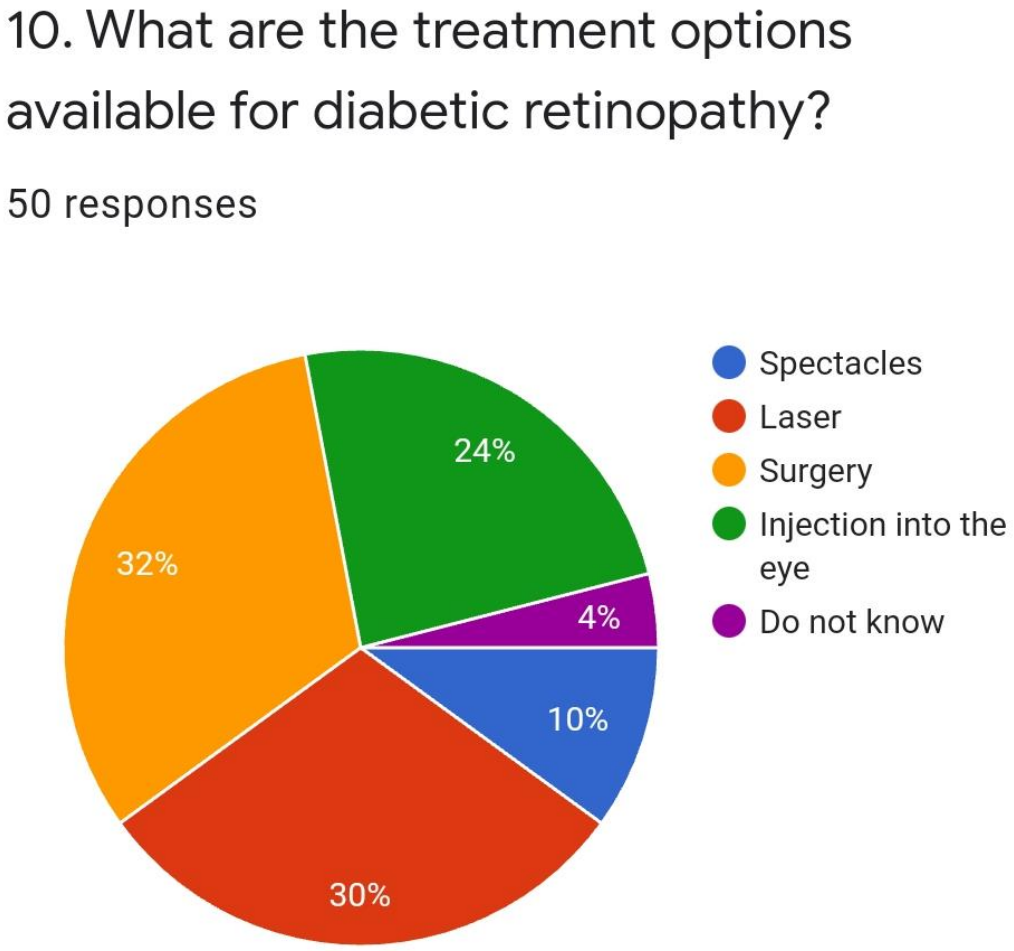
(Fig4.7)


8. Can diabetic retinopathy cause blindness?
49 responses
14.3%
16.3%
69.4%
Yes
No
Do not know

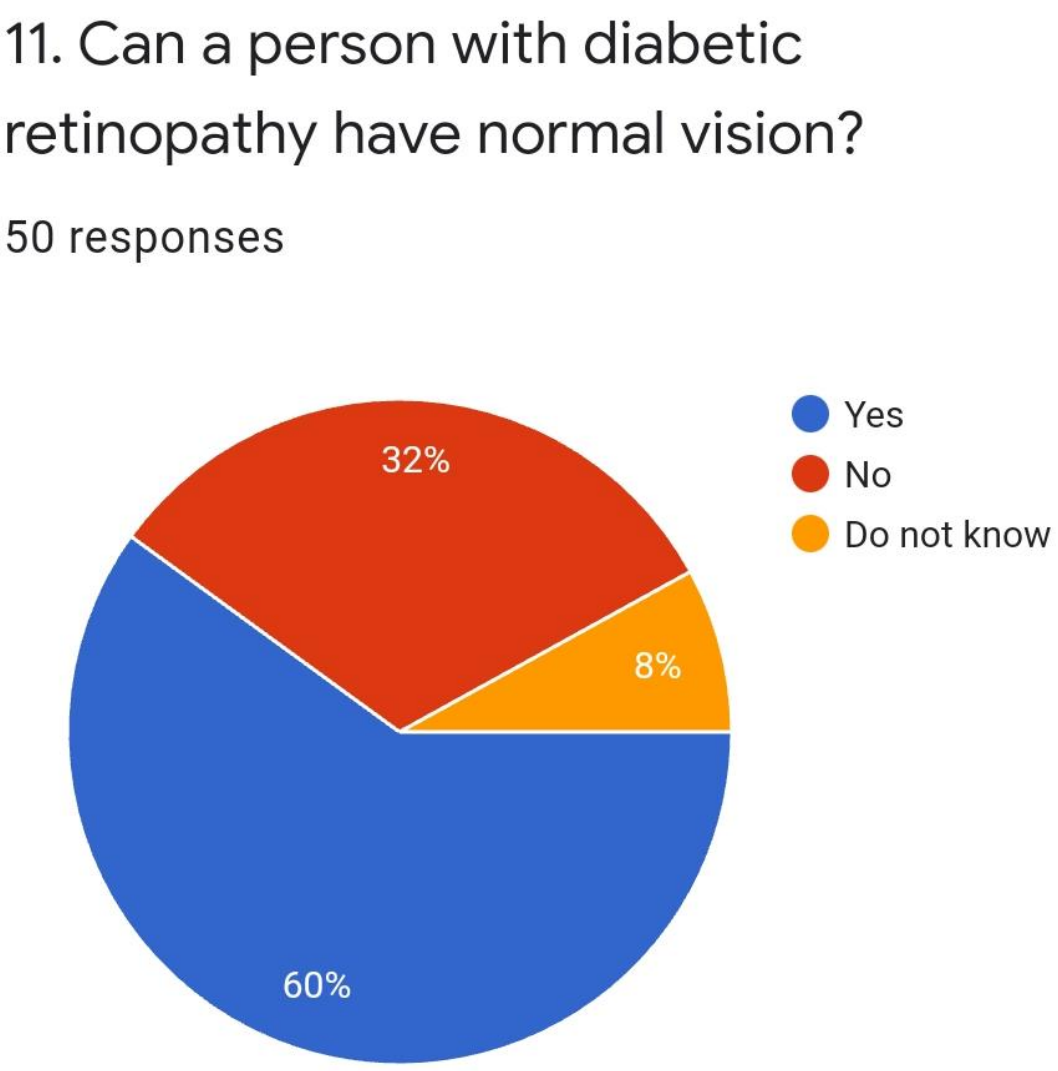
(Fig4.8)


9. What are the factors that cause progression/worsening of diabetic retinopathy?
49 responses
18.4%
12.2%
8.2%
61.2%
Poor control of diabetes
Hypertension
Nephropathy
Do not know

(Fig4.9)


10. What are the treatment options available for diabetic retinopathy?
50 responses
24%
32%
4%
10%
30%
Spectacles
Laser
Surgery
Injection into the eye
Do not know

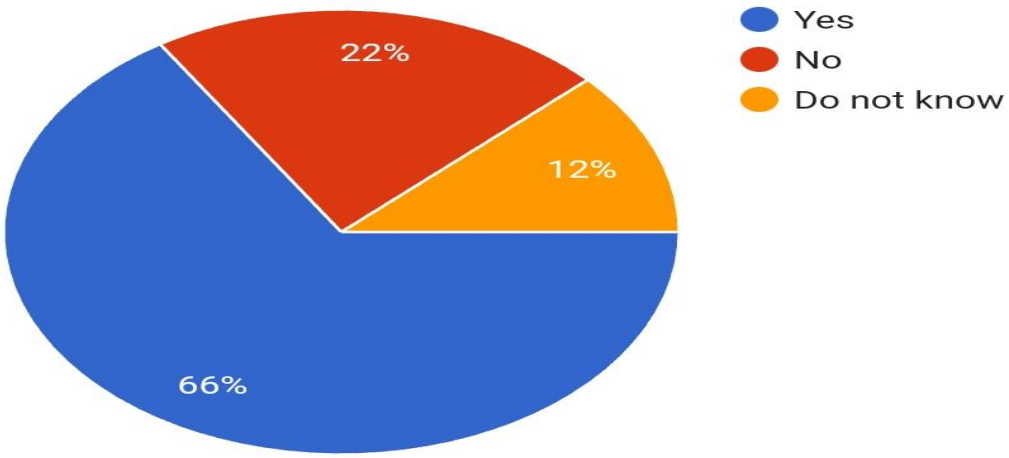
(Fig4.10)


11. Can a person with diabetic retinopathy have normal vision?
50 responses
32%
8%
60%
Yes
No
Do not know

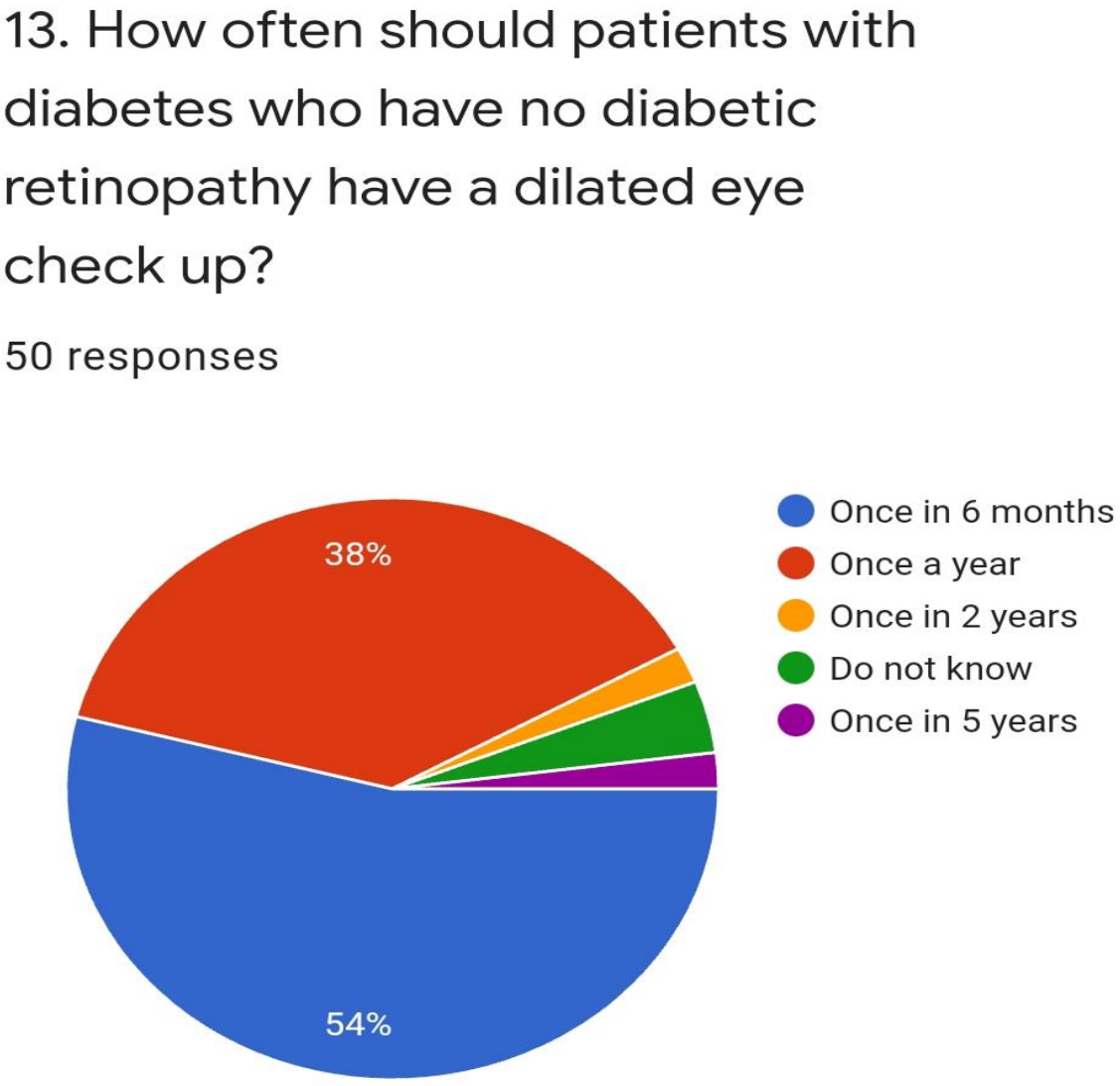
(Fig4.11)

12. Should patients with diabetes have a periodic/regular dilated eye check up to look for diabetic retinopathy (examination of the back of the eye after instilling dilating eye drops to look for changes in the retina due to diabetes)?

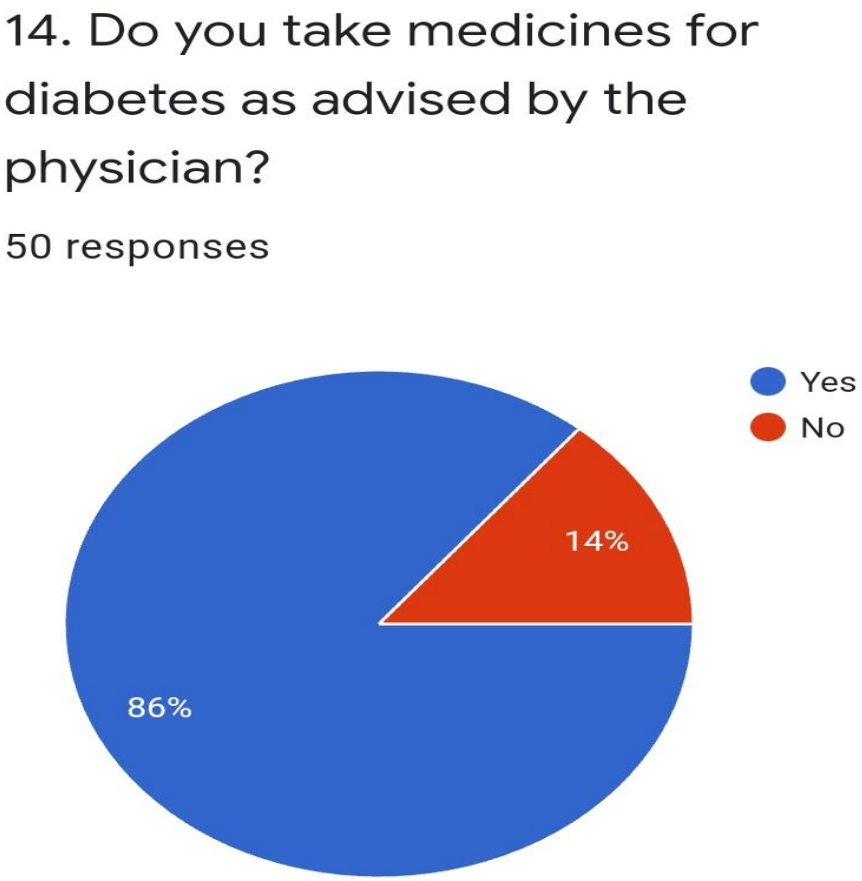
50 responses



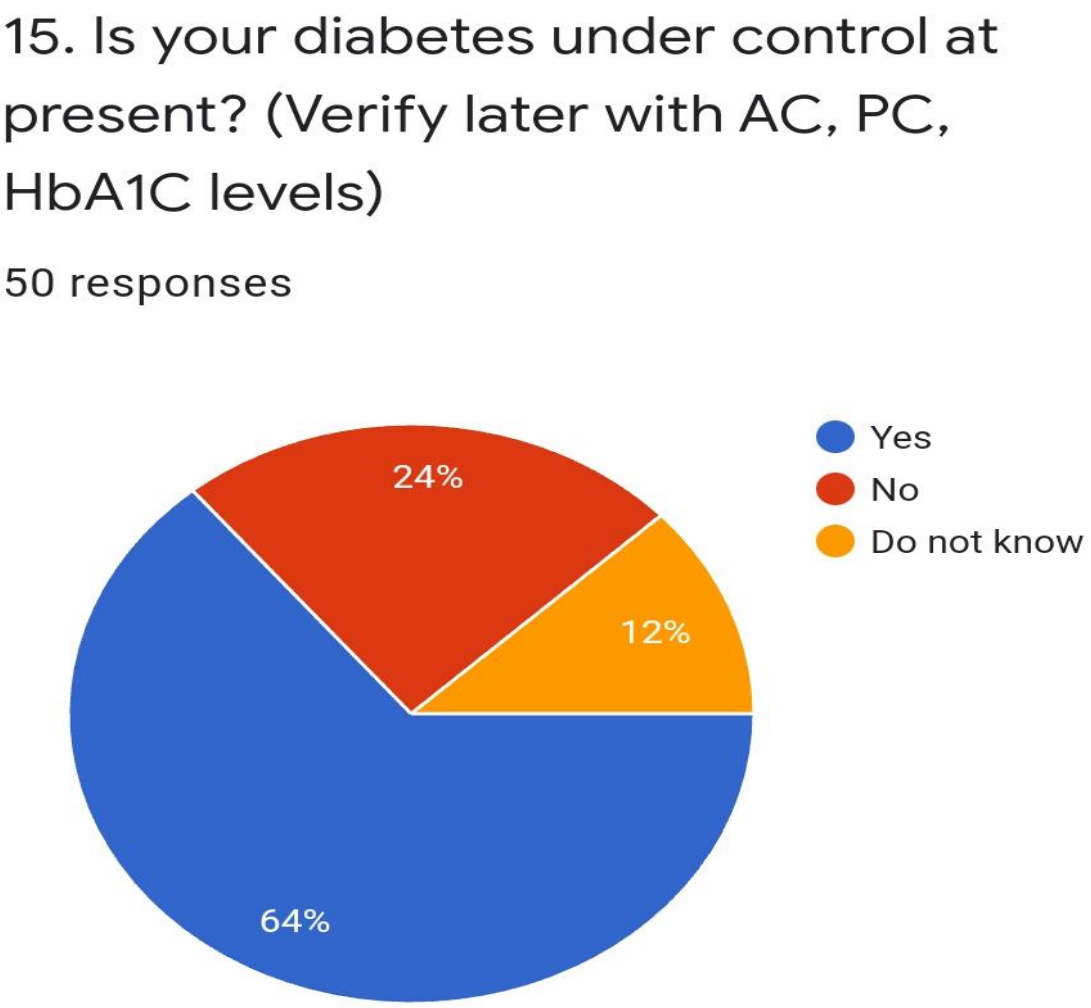
(Fig4.12)


13. How often should patients with diabetes who have no diabetic retinopathy have a dilated eye check up?
50 responses
38%
54%
Once in 6 months
Once a year
Once in 2 years
Do not know
Once in 5 years

(Fig4.13)


14. Do you take medicines for diabetes as advised by the physician?
50 responses
Yes
No
14%
86%

(Fig4.14)


15. Is your diabetes under control at present? (Verify later with AC, PC, HbA1C levels)
50 responses
24%
12%
64%
Yes
No
Do not know

(Fig4.15)

Chapter Five

Discussion, Conclusion and recommendation

5.1. Discussion:

- My study show that the awareness of diabetic retinopathy among diabetic patients attending Alfaisal eye center , for checking the knowladge of patients about diabetic retinopathy and how it would effect while they have diabets and the realationship between them and also when they control the diabets that's will makes a good effect in controling diabetic retinopathy from getting worse .beacause in every stage in diabetic retinopathy the plan of treating becomes more tuff and will need more time .

- The four stages of Diabetic Retinopathy :

Stage one : Mild nonproliferative diabetic retinopathy , it's the earliest stage of DR. small amount of fluid can leak into the retina triggering swelling of macula.

Stage two : Moderate nonproliferative DR . increased swelling of tiny blood vessels starts to interfere with blood flow to the retina, preventing proper nourishment. This causes an accumlation of blood and other fluids in the macula.

Stage three : sever nonproliferative diabetic retinopathy . A large section of blood vessels in the retina become blocked, causing a significant decrease in blood flow to this area . At this point , the body receives signals to start growing new blood vessels in the retina .

Stage four : proliferative diabetic retinopathy . This is an advanced stage of disease, in which new blood vessels from retina, Since these blood vessels are often fragile , there's higher risk of fluid leakage .

This triggers different vision problems such as blurriness , reduced field of vision and even blindness .

- Treatment of DR strarts with managing blood sugar and diabetes . This includes taking diabetes medication as directed controling of diet and increasing physical activity.
- Keepnig blood sugar with a healthy range can slow progression of vision loss .
- Laser surgery called photocoagulation reduces the drive for abnormal blood vessels and swelling in the retina .
- Eye medication like steroid injection in the eye can stop inflamation to prevent the formation of new blood vessels .
- Vitrectomy : this surgery treats problems with the retina and vitreous a jelly like substance in the middle of the eye . the surgery can remove scar tissue ,blood or fluid.

Regarding to that :

In figure (4.1) about 34% of patients controling diabetes by taking medication , and about 4% they don't know .

In figure (4.2) about 51% they say we do a blood test to find out if person diabetic or not and about 49% of patients say we do urine test .

In figure (4.3) about 52% of patients say they should take treatment of diabetes till the sugar levels get under control , and about 48% they say we should take it for life long .

In figure (4.4) about 60% of patients say the eyes is the most affected by diabetes and about 4% they don't know .

In figure (4.5) about 32% of patients say the problem of diabets in eyes is catract , and about 4% they don't know .

In figure (4.6) about 46% of patients say that they find out diabetes can cause retinopathy informed by physician at local hospital . and about 4% got informed from media.books.

In figure (4.7) about 62% of patients say that diabetes can cause retinopathy at the time of diagnosis , and about 38 % say any other .

In figure (4.8) about 69.4% of patients say that yes diabetic retinopathy can cause blindness , and about 14.3% say no.

In figure (4.9) about 61.2% of patients say that factors can cause woresning of DR is poor control of diabetes . and about 8.2% they do not know .

In figure (4.10) about 32% of patients say the treatment opthion available for DR is surgery . and about 4% say they do not know .

In figure (4.11) about 60% of patient say the person with DR yes can have a normal vision and about 8 % they do not know .

In figure (4.12) about 66% of patients say yes the patient with diabetes should have a periodic dilated eye check up to look for DR. and about 12% say they do not know.

In figure (4.13) about 54% of patients say the patient with diabetes but not having DR yes he should have a dilated eye check up every 6 months and about 38% say once a year .

In figure (4.14) about 86% of patients say yes they taking medicines for diabetes as advised by the physician and about 14 % of patients say no they didn't .

In figure (4.15) about 64% of patients say yes their diabetes under control and about 12 % they don't know .

5.2. Conclusion:

From this study we can conclude that;awerness of the patients of DR among diabetes in 50 patients I found in 17 from 50 they control diabetes by medicathion , also 25 of patients they know to find out if a person is a diabetic the test done by blood test . and 26 of patients know that treatment continued for life long . 30 of patients say the eyes are a part affected by diabetes . 16 of patients can cause catract in eyes . 23 of patients informed by physician at local hospital that diabetes can cause retinopathy . 31 of patients say diabetes can cause retinopathy at the time of diagnosis .34 of patients say yes DR can cause blindness . 30 of patients say the poor control of diabetes can cause worseninig of DR. 16 of patients choose the surgery is an option of treatment for DR . 30 of patients say yes the patients of DR can have a normal vision . 33 of patients say yes the patients with diabetes should have a dilated eye check up to look for DR. 27 of patients choose once in 6 months for check up of DR. 43 of patients take medicins for diabetes as advised by physician . 32 of patients say their diabetes is under control.

5.3. Limitations:

- The time provided for the research project was short.
- Some of the patients were not cooperative.

5.4. Recommendations:

Upon the findings in this study i recommend that:

1. To increase the awareness of diabetic retinopathy patients among diabetes .

2. To be sure the diabetic patients aware enough about the deep relation between controling the diabetes and how will effect in diabetic retinopathy.

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Appendices

(Questionair)

- About awerness of diabetic retinopathy among diabetic patients.

1. How can you keep diabetes under control?

-Medication

-Diet

-Exercise

-Weight reduction

-Going for regular check up

-Do not know

2. What are the tests done to diagnose diabetes (to find out if a person is diabetic)?

-Blood tests

-Urine tests

-Any other (specify)

3. Once diabetes is diagnosed, how long should diet control/ treatment are continued?

-Till the sugar levels get under control

-Lifelong

-Any other (specify)

4. Which parts of the body are affected by diabetes?

-Kidney

-Eyes

-Nerves

-Heart

-Do not know

5. What problems can patients with diabetes have in the eye?

-Cataract

-Retinopathy (damage to retina/nerve at the back of the eye due to diabetes)

-Infections in the eye

-Defective vision

-Do not know

6. How did you first find out that diabetes can cause retinopathy (damage to the retina/ nerve at the back of the eye due to diabetes)?

-Informed by physician at local hospital

-Informed by ophthalmologist at local hospital

-Informed by optometrist at local optical dispensary

-Got information from media, books (specify)

7. How many years after diagnosis of diabetes did you find out that diabetes can cause retinopathy?

-At the time of diagnosis

-Any other (specify time interval in years since diagnosis of diabetes)

8. Can diabetic retinopathy cause blindness?

-Yes

-No

-Do not know

9. What are the factors that cause progression/worsening of diabetic retinopathy?

-Poor control of diabetes

-Hypertension

-Nephropathy

-Do not know

10. What are the treatment options available for diabetic retinopathy?

-Spectacles

-Laser

-Surgery

-Injection into the eye

-Do not know

11. Can a person with diabetic retinopathy have normal vision?

-Yes

-No

-Do not know

12.Should patients with diabetes have a periodic/regular dilated eye check up to look for diabetic retinopathy (examination of the back of the eye after instilling dilating eye drops to look for changes in the retina due to diabetes)?

-Yes

-No

-Do not know

13. How often should patients with diabetes who have no diabetic retinopathy have a dilated eye check up?

-Once in 6 months

-Once a year

-Once in 2 years

-Once in 5 years

-Do not know

14. Do you take medicines for diabetes as advised by the physician?

-Yes

-No

15. Is your diabetes under control at present? (Verify later with AC, PC, HbA1C levels)

-Yes

-No

-Do not know