# THE IMPORTANT ROLE OF THE FAMILY PHYSICIAN IN PREVENTING BLINDNESS IN DIABETIC PATIENTS

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Diabetic retinopathy is a major cause of new blindness in developed countries. It is estimated that diabetic retinopathy accounts for 12% of all new cases of blindness in the United States each year[1].

Proliferative retinopathy and diabetic macula oedema may initially have no ocular or visual symptoms when the retinal lesions are most amenable to treatment (Figures 1 and 2). The Diabetic Retinopathy Study[2](DRS) and the Early Treatment Diabetic Retinopathy Study[3](ETDRS) both showed the value of panretinal scatter photocoagulation for high risk proliferative diabetic retinopathy and severe/very severe non-proliferative diabetic retinopathy. Both the DRS and ETDRS studies also showed the value of focal laser treatment for diabetic macula oedema in reducing by 50% the risk of moderate visual loss. It is hence important that we identify the eyes that are most at risk of visual loss and ensure that patients receive laser treatment at the most appropriate time.

The family physician plays a very important role in preventing blindness in diabetic patients. The general practitioner is often their primary healthcare provider and is able to track their diabetic control closely. This also allows the GP to control the other diseases that adversely affect the vision, such as hypertension, renal impairment and hyperlipidaemia.

There are several ways in which the family physicians can help the ophthalmologists in our fight against diabetic eye disease:

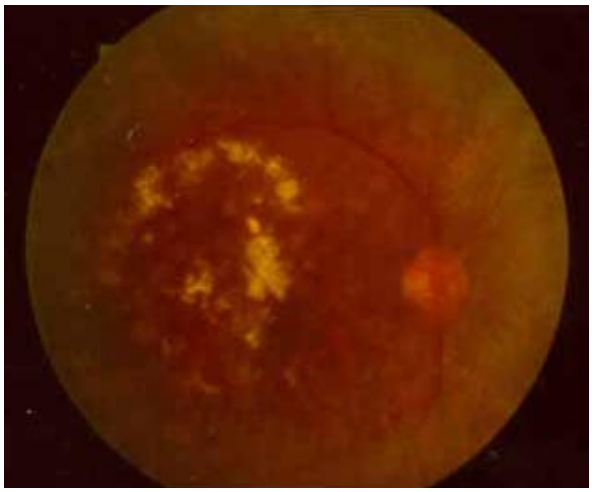

**Figure 1:** This slide shows severe diabetic maculopathy with clinically significant macula oedema. There is thickening at the macula and the exudates are almost reaching the fovea. Vision in this case is decreased to 6/24 and there is a danger of permanent visual loss if laser treatment is not started soon.

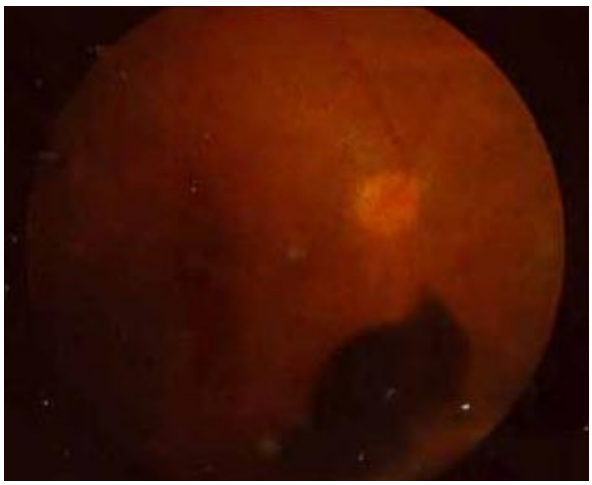

**Figure 2:** This slide shows proliferative diabetic retinopathy with vitreous haemorrhage. As you can see in this slide, there is blood in the vitreous and the view of the disc and the rest of the retina is obscured by this blood. The vision is decreased to 6/200 and there is a danger of sudden loss of vision if the vitreous haemorrhage increases. This is considered a semi emergency as there is still a chance to do panretinal laser photocoagulation when the blood does not obscure the view of the surgeon – this opportunity for laser may be lost if more bleeding occurs.

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### Diabetic control

Strict diabetic control is important in reducing the progression of diabetic retinopathy. The Diabetic Control and Complications Trial[4](DCCT) and the smaller Stockholm Diabetes Intervention Study[5] demonstrated that intensive diabetic control reduced clinically meaningful diabetic retinopathy by 35-74%; reduced the risk of severe nonproliferative diabetic retinopathy, proliferative diabetic retinopathy and laser treatment by 45% and reduced the development of any diabetic retinopathy by 27%. Additionally, intensive therapy reduced the development of microalbuminuria by 35%, clinical proteinuria by 56% and clinical neuropathy by 60%. However, intensive therapy had several documented side effects such as a threefold risk of hypoglycaemia, weight gain and ketoacidosis.

### Blood Pressure control

Strict blood pressure control is important in reducing the progression of diabetic retinopathy. In the United Kingdom Prospective Diabetes study(UKPDS)[6], it found that in the group with tight control of their blood pressure (where it was reduced to a mean of 144/82mm Hg) had a significantly reduced incidence of visual loss, strokes, diabetes-related deaths, heart failure and microvascular complications.

### Dyslipedaemia

Strict Lipid Control. It was found in the Early Treatment Diabetic Retinopathy Study[3](ETDRS) that patients had faster development of hard exudates if they had increased total cholesterol, increased LDL cholesterol and increased triglycerides. Hence, diet modification and medication to reduce the lipid/cholesterol/ triglyceride levels will improve the diabetic macula oedema, especially if it is associated with significant exudation.

### Renal Impairment

Renal impairment and renal failure was found in a study by Chase et al[7] in 1989 to be significantly associated with a worsening of the retinal disease in insulin dependent diabetic patients. When the family physician detects a worsening of the renal status of a diabetic patient, an early referral to a renal physician is justified especially if the patient is known to also have diabetic retinopathy.

### Pregnancy

Pregnancy has been found to have an adverse effect on female diabetic patients with significant diabetic retinopathy. Several investigators such as Klein BE at al[8], Phelps RL at al[9], found that pregnancy accelerated the rate of progression of the diabetic retinopathy. Such patients should be referred to the ophthalmologist in the first trimester for regular monitoring.

### Diabetic Retinal Photography

Previously, family physicians had great difficulty viewing the diabetic patient's fundus with the direct ophthalmoscope. This is due to the difficulty of usage of the direct ophthalmoscope, combined with the fact that diabetic pupils do not dilate well. With the easy accessibility of diabetic fundal photography at the National Healthcare Group and Singhealth polyclinics, family physicians now have a convenient and cheap way of viewing the patient's retinal status. Yearly diabetic fundal photographs should be done for patients diagnosed

with Type 1 and Type 2 Diabetes mellitus. If mild non-proliferative or moderate non-proliferative diabetic retinopathy is found, an appropriate referral to the ophthalmologist can be made in a few months. If severe non-proliferative/ proliferative diabetic retinopathy or macula oedema is found, an urgent referral to the ophthalmologist within a week should be made.

The family physician is truly our frontline ally in our fight against blindness in diabetic patients as Griffith et al[10] showed that with the appropriate training, family physicians can screen for retinopathy in a clinically acceptable and cost-effective fashion.

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