

# Fenofibrate and Diabetic Retinopathy

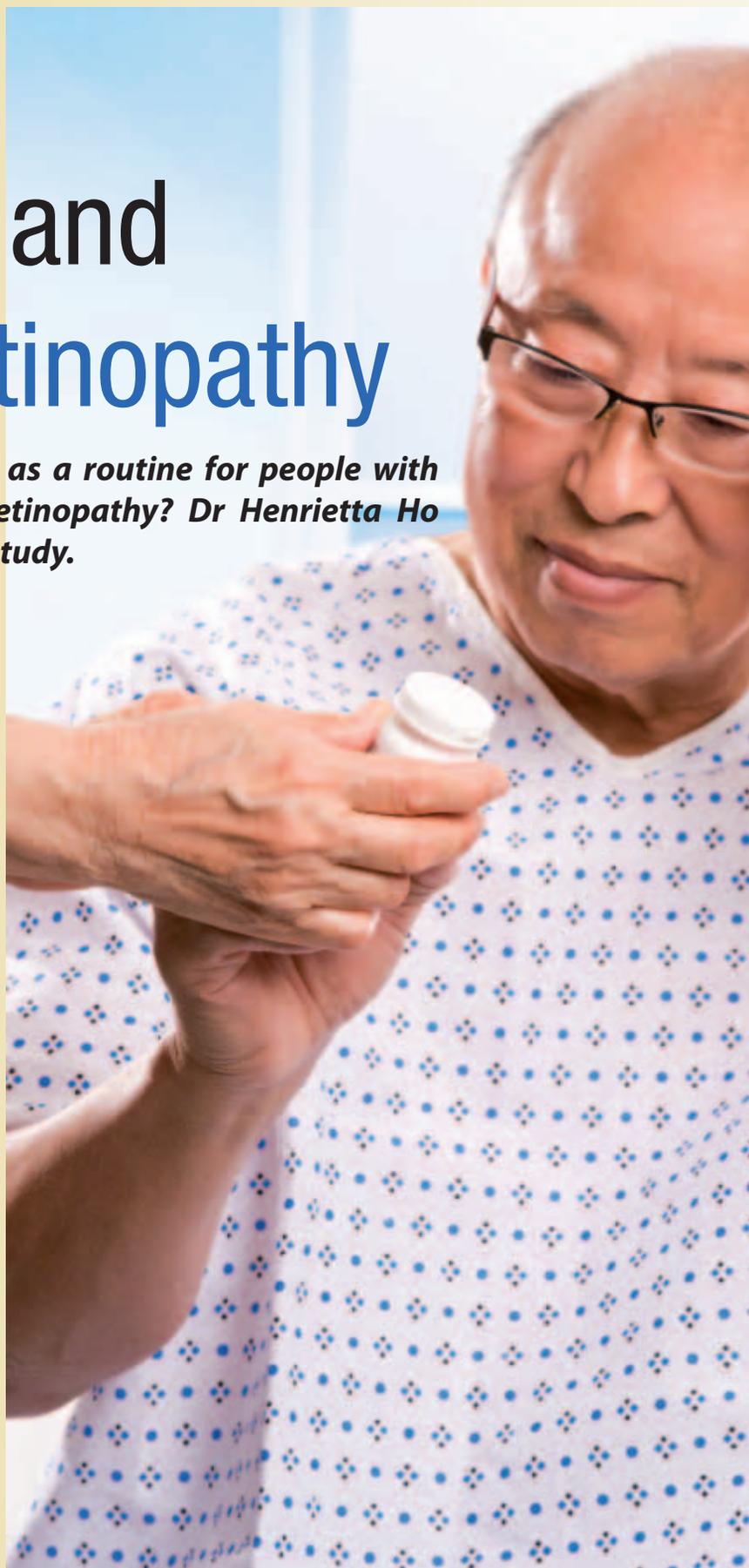
***Should fenofibrate be prescribed as a routine for people with diabetes prior to the onset of retinopathy? Dr Henrietta Ho discusses the findings of a recent study.***

Retinopathy is the most common complication of diabetes and may lead to worsening vision and ultimately blindness. Diabetic retinopathy is caused by the consequences of diabetes, including high blood sugar levels and increased blood pressure. Abnormal changes to the retinal blood vessels cause deteriorating vision by either fluid leakage from the vessels into the macula (macular edema) or growth of new vessels that bleed (proliferative retinopathy).

The Wisconsin epidemiological study of diabetic retinopathy revealed that 86% of retinopathy progressed in 14 years. The risk of retinopathy progression is increased with the duration of diabetes and diabetic control, high diastolic blood pressure, the presence of protein in the urine (proteinuria) and being male. Although laser photocoagulation is the mainstay treatment for leaking blood vessels for slowing and preventing further visual loss, it is linked with reduced visual fields, poorer contrast sensitivity and decreased color vision.

Fenofibrate is a lipid-modifying agent taken in conjunction with appropriate dietary measures in patients to treat hypertriglyceridaemia and hyperlipidaemia.

Apart from this, fenofibrate appears to have the ability to regulate retinal endothelial cell survival, prevent apoptotic cell death and inhibit vascular endothelial growth factor (VEGF) which is integral to angiogenesis, inflammation and cellular migration, thus stabilising the endothelial vascular bed.





It has also been suggested that fenofibrate exhibits a protective effect against diabetic retinopathy through inhibition of oxidative stress. Thus fenofibrate appears to have a multi-tiered mechanism that reduces the risk of diabetic retinopathy.

### **The FIELD study**

The FIELD (Fenofibrate Intervention and Event Lowering in Diabetes) study aimed at determining the effects of long-term lipid-lowering therapy with fenofibrate 200mg/day on reducing small and large vessel complications among patients with type 2 diabetes over a period of five years.

### **Findings from the study:**

- Laser treatment was required more often in patients with poorer sugar (glycaemic) and blood pressure control.
- Laser treatment was also needed more frequently in patients with a greater degree of small vessel disease.
- The need for treatment was not dependent on plasma lipid concentrations.
- Fenofibrate's relative effects seem to be greater in patients without prior retinopathy. Over five years, the risk of requiring first laser treatment was 3% in patients without history of retinopathy and 27% in patients with retinopathy.
- Reduced need for laser treatment of 36% in patients given fenofibrate for any maculopathy and 38% for proliferative retinopathy. In patients assigned placebo, 535 to 238 courses were given compared with 337 to 164 courses in fenofibrate assigned patients.
- No significant difference between primary end-point of two-step progression of retinopathy grade (Early Treatment Diabetic Retinopathy Study criteria) between patients on fenofibrate and those treated with placebo.
- Among patients with pre-existing retinopathy, fewer patients on fenofibrate had a two-step progression compared with those on placebo. The end-point of two-step progression of retinopathy grade, macular edema and laser treatment was lower in the fenofibrate group compared with the placebo group.

### **Conclusion from study**

The study showed that fenofibrate treatment among type 2 diabetes patients reduces the need for laser treatment. There is also slower disease progression in patients on fenofibrate. The advantages of therapy appear evident about 8 months after commencement and continue throughout its use.

### **Side effects**

The use of fenofibrate can cause side effects ranging from stomach upset, headache, constipation and dizziness. More serious complications of muscle pain, yellowing of the skin (jaundice) and weakness can result and should be brought to medical attention promptly.

### **Use of fenofibrate to treat retinopathy**

Both patients with and without clinical retinopathy appear to gain from the therapy. Earlier use of fenofibrate is suggested to exhibit more significant benefits which is compelling for doctors to begin early treatment of fenofibrate.

Fenofibrate appears to have benefits beyond its effect on blood pressure and lipid concentration, which operates on top of effective control with statin therapy and antihypertensive treatment. The merits of fenofibrate use are likely to be cumulative to those obtained from tight glycaemic and blood pressure control in the management of type 2 diabetes. Therefore, regular funduscopy and monitoring of diabetes remains crucial for diabetic patients.