CLINICAL BRIEF

PEER-REVIEWED

Diabetic retinopathy: Seeing a difference

Maryann Hopkins, BSP

Case

LB is a 69-year-old gentleman with type 2 diabetes who visits your pharmacy complaining that he can't see the blood glucose readings on his meter. In 2001 his vision was blurry, so he visited his optometrist to get new glasses. His optometrist referred him directly to the emergency department because he had severe bilateral diabetic retinopathy. Since that visit he has had several laser treatments and surgeries on both eyes. He is now essentially blind in one eye and almost blind in the other. How could a pharmacist have made a difference to LB? How can you help patients like him in the future?

Diabetic retinopathy

Diabetic retinopathy (DR) is one of the most feared complications of diabetes mellitus (DM). It occurs when high blood glucose, blood pressure, and/or cholesterol levels damage the small blood vessels in the retina over time.

What are the symptoms of DR?

There may be no symptoms at all or one or more of the following may occur:[1]

- Blurry or double vision
- Dark floating spots or spider webs
- Pain or pressure in the eye
- Flashing lights
- Blank spots in vision

Who is at highest risk for progression of DR?[2]

People:

- With a longer duration of diabetes
- With higher glycosylated hemoglobin levels (HbA1c)
- With higher blood pressure
- With higher lipid levels
- With more severe retinopathy
- With lower hematocrit levels
- Who have type 1 diabetes and are pregnant

According to the Canadian Diabetes Association (CDA) 2003 Clinical Practice Guidelines, DR is the most common cause of new cases of blindness in the working population of North America.[2] Clinical trials have shown that tight blood glucose and blood pressure control and early laser treatment significantly reduce the risk of development and/or progression of DR.[3-5]

What do the CDA guidelines suggest?

For those with type 1 DM:

- Screen 5 years after diagnosis in those over age 15
- Re-screen annually if no DR present
- Assess eyes prior to becoming pregnant, during the first trimester, and as needed during pregnancy and within the first year postpartum

For those with type 2 DM:
• Screen at diagnosis of type 2 DM
• If no DR present re-screen every 1–2 years
• Assess eyes prior to becoming pregnant, during the first trimester, and as needed during pregnancy and within the first year postpartum

For those with type 1 and type 2 DM:
• Screening should be done by experienced professionals
• Appropriate monitoring intervals should be set according to the severity of the DR
• DR should be treated by experienced professionals
• Treatment for blood pressure, blood glucose, and blood lipids should be adjusted to attain targets set by the CDA

The Institute for Clinical Evaluative Sciences (ICES) and the CDA released a resource called *An ICES Practice Atlas* that analyzes diabetes and eye disease statistics in Ontario. It suggests that 70% of those with type 1 DM and 40% of those with type 2 DM will eventually develop diabetic retinopathy.[6] When provincial health records were analyzed it was discovered that only 51% of those diagnosed with type 2 diabetes had had an eye exam within one year of diagnosis and even 5 years later, 12% still had not had an eye examination. These statistics are probably similar across Canada.

What can pharmacists do to prevent severe vision loss in those with diabetes?

Pharmacists can:
• Encourage patients to adhere to therapies to optimize blood pressure, blood lipids, and blood glucose
• Refer patients to their physician/eye care specialist when they ask for remedies to treat eye problems (i.e., blurry vision)
• Feature "eye health days" with posters, pamphlets and information sessions
• Explain the benefits of early detection and treatment before vision loss is evident
• ROUTINELY ASK "WHEN WAS YOUR LAST EYE APPOINTMENT?"

The most successful strategy to prevent one of the most feared complications of diabetes is early detection and treatment of DR. LB's vision loss could potentially have been prevented if his eyes had been examined before he had severe symptoms. A pharmacist could have made a difference. ■

Maryann Hopkins is a clinical pharmacist at the Ottawa Hospital, Riverside Campus, Ottawa, ON.

References

1. Vision loss. Canadian Diabetes Association. Available: www.diabetes.ca/Section_About/eyes.asp (accessed May 5, 2006).

2. Canadian Diabetes Association Clinical Practice Guidelines Expert Committee. Canadian Diabetes Association 2003 clinical practice guidelines for the prevention and management of diabetes in Canada. *Can J Diabetes* 2003;27(suppl 2):S77.

3. The effect of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus. The Diabetes Control and Complications Trial Research Group. *N Engl J Med* 1993;329(14):977-86.

4. Intensive blood glucose control with sulfonylureas or insulin compared with conventional treatment and risk of complications in patients with type 2 diabetes (UKPDS 33). UK Prospective Diabetes Study (UKPDS) Group. *Lancet* 1998;352(9131):837-53.

5. Tight blood pressure control and risk of macrovascular and microvascular complications in type 2 diabetes: UKPDS 38. UK Prospective Diabetes Study Group. *BMJ* 1998;317(7160):703-13.

6. Buhrmann R, Assaad D, Hux J, et al. Diabetes and the Eye. In: Hux J, Booth G, Slaughter P, Laupacis A (eds). Diabetes in Ontario: an ICES practice atlas. Toronto: Institute for Clinical Evaluative Sciences; 2003:10.193-10.205.