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COVER STORY

Diabetic Retinopathy

Dr. Madhavi Reddy and Dr. Muninarayana

Diabetes is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. The chronic hyperglycemia of diabetes is associated with long-term damage, dysfunction, and failure of different organs, especially the eyes, kidneys, nerves, heart and blood vessels.

Type 2 diabetes mellitus (T2DM) is an alarming health care concern the world over. According to the world health organization (WHO), T2DM affects more than 220 million people worldwide and is projected to reach 370 million by 2030. India has the largest number of diabetic patients in the world, estimated to be about 40.9 million in the year 2007 and expected to increase to about 69.9 million by the year 2025. About a third of these patients are likely to develop diabetic retinopathy.

Diabetic retinopathy

Diabetic retinopathy is a highly specific vascular complication of both type 1 and type 2 diabetes, with prevalence strongly related to the duration of diabetes. Diabetic retinopathy is the most frequent cause of blindness among adults aged 20–74 years. Glaucoma, cataracts, and other disorders of the eye occur earlier and more frequently in people with diabetes. In addition to duration of diabetes, other factors that increase the risk of, or are associated with, retinopathy include chronic hyperglycemia , the presence of nephropathy and hypertension.

Intensive diabetes management with the goal of achieving near-normoglycemia has been shown in large prospective randomized studies to prevent and/or delay the onset and progression of diabetic retinopathy . Lowering blood pressure has been shown to decrease the progression of retinopathy .

Several case-series and a controlled prospective study suggest that pregnancy in type 1 diabetic patients may aggravate retinopathy, laser photocoagulation surgery can minimize this risk. One of the main motivations for screening for diabetic retinopathy is the established efficacy of laser photocoagulation surgery in preventing vision loss.

Diabetic Retinopathy Study and the Early Treatment Diabetic Retinopathy Study, provide the strongest support for the therapeutic benefits of photocoagulation surgery. Laser photocoagulation surgery in both trials was beneficial in reducing the risk of further vision loss, but generally not beneficial in reversing already diminished acuity. This preventive effect and the fact that patients with PDR or macular oedema may be asymptomatic provide strong support for a screening program to detect diabetic retinopathy. As retinopathy is estimated to take at least 5 years to develop after the onset of hyperglycemia, patients with type 1 diabetes should have an initial dilated and comprehensive eye examination within 5years after the onset of diabetes. Patients with type 2 diabetes, who generally have had years of undiagnosed diabetes and who have a significant risk of prevalent DR at time of diabetes diagnosis, should have an initial dilated and comprehensive eye examination soon after diagnosis. Examinations should be performed by an ophthalmologist or optometrist who is knowledgeable

and experienced in diagnosing the presence of diabetic retinopathy and is aware of its management.

Subsequent examinations for type 1 and type 2 diabetic patients are generally repeated annually. Less-frequent exams (every 2–3 years) may be cost-effective after one or more normal eye exams, while examinations will be required more frequently if retinopathy is progressing.

General recommendations

- To reduce the risk or slow the progression of retinopathy, optimize glycemic control.
- To reduce the risk or slow the progression of retinopathy, optimize blood pressure control.

Screening

- Adults and children aged 10 years or older with type 1 diabetes should have an initial dilated and comprehensive eye examination by an ophthalmologist or optometrist within 5 years after the onset of diabetes.
- Patients with type 2 diabetes should have an initial dilated and comprehensive eye examination by an ophthalmologist or optometrist shortly after the diagnosis of diabetes.
- Subsequent examinations for type 1and type 2 diabetic patients should be repeated annually by an ophthalmologist or optometrist. Less frequent exams (every 2–3 years) may be considered following one or more normal eye exams. Examinations will be required more frequently if retinopathy is progressing.
- High-quality fundus photographs can detect most clinically significant diabetic retinopathy. Interpretation of the images should be performed by a trained eye care provider. While retinal photography may serve as a screening tool for retinopathy, it is not a substitute for a comprehensive eye exam, which should be performed at least initially and at intervals thereafter as recommended by an eye care professional.
- Women with pre-existing diabetes who are planning a pregnancy or who have become pregnant should have a comprehensive eye examination and should be counselled on the risk of development and/or progression of diabetic retinopathy. Eye examination should occur in the first trimester with close follow-up throughout pregnancy and for 1 year postpartum.

Treatment

- Promptly refer patients with any level of macular edema, severe NPDR, or any PDR to an ophthalmologist who is knowledgeable and experienced in the management and treatment of diabetic retinopathy.
- Laser photocoagulation therapy is indicated to reduce the risk of vision loss in patients with high-risk PDR, clinically significant macular edema, and in some cases of severe NPDR.
- The presence of retinopathy is not a contraindication to aspirin therapy for cardioprotection, as this therapy does not increase the risk of retinal hemorrhage.

Goals for blood glucose levels

Critically ill patients: Insulin therapy should be initiated for treatment of persistent hyperglycemia starting at a threshold of no greater than 180mg/dl . Once insulin therapy is started, a glucose range of 140–180 mg/dl is recommended for the majority of critically ill patients.

Critically ill patients require an intravenous insulin protocol that has demonstrated efficacy and safety in achieving the desired glucose range without increasing risk for severe hypoglycemia.

Non-critically ill patients: There is no clear evidence for specific blood glucose goals. If treated with insulin, the pre-meal blood glucose target should generally be 140 mg/dl with random blood glucose 180 mg/dl provided these targets can be safely achieved. Scheduled subcutaneous insulin with basal, nutritional, and correction components is the preferred method for achieving and maintaining glucose control in non–critically ill patients.

Glucose monitoring should be initiated in any patient not known to be diabetic who receives therapy associated with high risk for hyperglycemia, including high-dose glucocorticoid therapy, initiation of enteral or parenteral nutrition, or other medications such as octreotide or immunosuppressive medications. If hyperglycemia is documented and persistent, treatment is necessary. Such patients should be treated to the same glycemic goals as patients with known diabetes.

5 tips to lower your BP

- Cut down on salt and sodium: Stop eating packaged tinned food which contains salt as preservative. Avoid table salt, stop adding salt to your salads.
- Learn your cholesterol number — once diagnosed as hypertensive be sure to get your lipid profile done every two to three months for your record.
- Protect your heart-lower your blood cholesterol — avoid fats-ghee butter and sugar in any forms
- Watch your weight, cut down on fat-not taste, stay active and feel better by regular exercise. Aim at least 30 minutes of exercise in any form.

- Kick smoking and alcohol habits.

Tips for reducing sodium in your diet

- Buy fresh, plain frozen or canned "with no salt added" vegetables
- Use fresh poultry, fish and lean meat, rather than canned or processed types.
- Use herbs, spices and salt-free seasoning blends in cooking and at the table
- Choose convenient foods that are lower in sodium. Cut back on frozen dinners, pizza, packed mixes, canned soups or broths and salad dressing Rinse canned foods to remove sodium.

Lifestyle changes

The following lifestyle changes are key to reducing your risk:

Don't smoke: If you smoke, your doctor can help make a plan to stop and give advice on how to avoid starting again. If you don't smoke, do not start.

Diabetes and smoking: is bad for everyone but its even worse for people with diabetes because it damages the blood vessels. If you have diabetes and you also smoke, you double your risk of getting peripheral arterial disease. Worse still, if you keep smoking while you try to reduce other risks, you won't be able to exercise as much and you probably won't lose the weight you need to.

Exercise: Before you start, talk to your doctor about the right kind of exercise for you. Try to work up to exercising 4 to 6 times a week for at least 30 minutes each time. Regular exercise will help to strengthen your cardiovascular system and keep your weight under control. It can also lower your blood pressure and reduce your level of LDL cholesterol.

Eat right: Follow a healthy diet that is low sodium and saturated fat. Don't cook with salt, avoid prepared foods that are high in sodium and do not add salt when you are eating. Keep fat calories to 30% or less of the total calories you take in during a day.

Blood sugar: Keeping your blood sugar level under control will lower your risk of eye. Many people with diabetes check their blood sugar level every day to make sure that medicines and diet and exercise are working to keep blood sugar in a normal range.■

*(*Assist. Professor, Dept. of Medicine , Sri R.L. Jalappa Hospital & Research Centre, Tamaka,Kolar, Karnataka.*
***Assot. Professor, Dept. of Community Medicine, Sri deveraj" Tamaka, Kolar, Karnataka)*

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levels of cholesterol and triglycerides in the circulation and also suffers from increased blood pressure; it is very likely that he is going to develop a condition called as Metabolic syndrome. Diseases of the heart are more common and women with the same condition can also suffer from slowdown of the system and cause polycystic ovarian disease too.

Managing with homeo medicines

But the good news is that insulin resistance is reversible and a moderate amount of physical activity of about thirty minutes for about five days of the week and losing about five to seven percent of body weight would help in achieving it. But if one has already developed diabetes due to the resistance, in such individuals controlling diabetes or keeping it at bay as to not produce any side-effects would not be that much easier. Homeopathic medicine can play its part too as long as the individual can make his/her efforts in the form of exercise and prudent diet management. Remedies like Sulph, Calc carb, Viscum album, Natr mur, Insulin etc. have been known to see that the cells of the body are that much sensitized to the presence of Insulin and are more prompt in picking up glucose for their needs and metabolizing it efficiently. In a third world country like India which seems to be taking the first place as far as the number of diabetics is concerned, this issue needs to be addressed with urgent priority. Needless to say diabetes needs to be kept under check with complementary measures and homeopathic medicine would definitely help in the issue in more ways than one and the first step is to minimize insulin resistance.■

If an individual has increased levels of cholesterol and triglycerides in the circulation and also suffers from increased blood pressure; it is very likely that he is going to develop a condition called as Metabolic syndrome. Diseases of the heart are more common, and women with the same condition can also suffer from slowdown of the system and cause polycystic ovarian disease too.

(Consultant Homeopath, Gouri Homeo Healthway, Hyderabad, India. 91 92463 72625; drvenugopal@gmail.com)