

## **The retina in diabetes**

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**W**orldwide prevalence of Diabetes Mellitus has dramatically increased over the past two decades. Diabetes has reached epidemic proportions worldwide<sup>1</sup>. About 177 million people out of 6 billion in the world are estimated to have diabetes and this figure is increasing yearly. It is estimated that the number of people suffering from diabetes around the world would double to 366 million in the next 10 years<sup>2</sup>. The prevalence of diabetes in the general population is 6%, of which 50% are unaware of their diabetic condition.

Diabetes is a chronic yet treatable condition. Recent medical studies have shown the value of tight blood sugar control in delaying and slowing diabetic complications like 76% reduction in eye problem, 54% reduction in severe renal problem and up to 60% reduction in crippling nerve related disorders<sup>3</sup>.

World Diabetic Day is celebrated on the November 14, the birthday of Fredrick Banting, who with Charles Best invented insulin in 1921. World Diabetic Federation started celebrating the day from 1991 through its 199 association members in 155 countries with different slogans every year. The slogan for the year 2002 was "Diabetes and the Eye".

Diabetic eye disease refers to a group of eye conditions, a diabetic may develop as a complication of the disease. They all can cause profound loss of vision and blindness. The vision threatening complications include cataract, glaucoma, diabetic retinopathy, and optic neuropathy, of which diabetic retinopathy stands out as the most common blinding complication. Thus blindness is one of the most feared complications of diabetes yet it is also one of the most preventables. The prevalence of diabetic retinopathy is about 4-28% and about 2% of diabetic population is blind as a result of diabetic retinopathy. In the western world it is the leading cause of blindness. Statistics reveal that India will be the diabetic capital of the world. With a projected population of over 50 million diabetes, and 5 million already affected with diabetic retinopathy, 500,000 may be going blind<sup>3</sup>. In Nepal, we have no such figure, but diabetic numbers are increasing in a silent epidemic form in the urban population. In one study done in urban areas in Nepal almost one third of the people 40 years and above showed diabetic

tendency<sup>4</sup>. In Nepal with the increasing diabetic population diabetic retinopathy is going to account for a significant number of blindness in urban people.

Diabetic Retinopathy is due to microangiopathy affecting the retinal precapillary arterioles, capillaries and venules. Damage is caused by both microvascular leakage and microvascular occlusions. Vision threatening retinopathy is usually due mainly to maculopathy and neovascularization and its complications<sup>8</sup>.

The longer a patient has diabetes the greater the risk of developing some manifestations of diabetic retinopathy. After 10 to 15 years of diabetes over 75% of patients show some signs of retinopathy. Nearly half of all people with diabetes will develop diabetic retinopathy during their life time. Even at the time of diagnosis of diabetes, about a quarter of patients have established diabetic retinopathy. In a study conducted at Kalimati Diabetic Clinic in Nepal, diabetic retinopathy was noted in 10-20% of diabetic patients<sup>5</sup>. The Diabetic Control and Complications Trial (DCCT) clearly demonstrated a correlation between poor long-term glucose control and subsequent development of diabetic retinopathy as well as other complications of diabetes<sup>6</sup>.

Advancing medical management of diabetes in the past 50 years has led to a tremendous improvement in the quality of life while increasing the life span in patients with diabetes. However, these advancements have resulted in an increasing number of complications such as diabetic retinopathy. Some of the conditions and adverse risk factors affecting diabetic retinopathy, which need to be looked into, are systemic hypertension, high lipids (triglycerides), kidney disease, heart disease, and pregnancy. All of these conditions if not well and properly controlled will hasten the progression of diabetic retinopathy. Proper control of hypertension in patients with diabetes reduces the risk of clinical complications of diabetic eye disease<sup>7</sup>. It is estimated that some 40 to 60% of diabetics suffer from hypertension.

Unfortunately there is no treatment to cure diabetic retinopathy. However there are two treatments recommended for diabetic retinopathy. They are effective in reducing visual loss from this disease.

The two treatments are laser treatment and vitreous surgery. Treatment can prevent blindness in the majority of cases, so it is essential to identify patients with retinopathy before their vision is threatened. Physicians must actively seek retinopathy in diabetic patients as laser photocoagulation can often prevent blindness if the condition is detected early enough.

Vitreous Surgery also called Vitrectomy may be needed in some patients where laser treatment has not helped. Vitrectomy is usually performed to restore mobile vision.

It is unfortunate that in Nepal out of 100 or so ophthalmologists, barely ten of them are competent enough to treat diabetic retinopathy by laser or vitrectomy surgery. Surgical treatment of diabetic retinopathy and its complications are available at only three ophthalmic centres in Kathmandu, namely Nepal Eye Hospital, B.P. Koirala Lions Centre for Ophthalmic Studies and Til Ganga Eye Centre. Similarly the services are available at Shri Rana Ambika Shah Eye Hospital, Bhairahwa and Sagarmatha Choudhary Eye Hospital, Lahan outside the valley.

Anticipating diabetic retinopathy as an emerging cause of visual loss, it is time that we train more man power. It is heartening to learn that The National

Academy of Medical Sciences (NAMS) has developed in its postgraduation programme fellowship in medical and surgical retina. The Nepal Eye Hospital under the academic direction of NAMS has taken the responsibility of training such man power in collaboration with other eye institutions in the country. We wish NAMS and Nepal Eye Hospital success in their training programme and thereby in their fight against blindness in diabetics.

#### References

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