Perspectives on Screening for Diabetic Retinopathy

Dr. Dan Samaha, Optometrist, MSc
Clinical Lecturer
School of Optometry, Université de Montréal
Current standards

According to the Canadian Diabetes Association’s guidelines:

• TYPE 1:
  • Patients > 15 years old: initial screening 5 years after diagnosis of diabetes

• TYPE 2:
  • Initial screening must be done at the time of medical diagnosis

• Gestational diabetes
  • Screening at the time of conception for patients known to have diabetes
  • NOTE: Examination is done without pupil dilatation
Current standards

- **Recommended screening methods include:**

  - Seven-standard field, stereoscopic-colour fundus photography with interpretation by a trained reader
  - Direct ophthalmoscopy or indirect slit-lamp funduscopy through dilated pupil, by a vision professional (OD-MD)
  - Digital fundus photography
Issues

• Fewer than 50% of patients are seen within the time required, in compliance with Canadian standards
  • Information to patients vs. understanding
    • Managing the disease – acceptance
  • Adherence
  • Lack of coordination between primary and secondary care providers
    • Accessibility

• In some regions, physicians request an optometry consultation
  • Not uniform
  • New framework from the Collège des médecins?
Optometry guidelines

• All patients diagnosed with diabetes must undergo a specific clinical examination.

• All patients suspected of having diabetes must be referred to a family doctor for diagnosis and management.
Optometrist’s clinical examination

- Oriented case history
- Testing of visual acuity with the best correction
- Preliminary tests:
  - Binocular vision (paresis, diplopia)
  - Pupillary reflexes
- Examination of anterior segment of the eye using a slit lamp
  - Gonioscopy (neovascularization of the angle)
- Measurement of intraocular pressure
- Detailed examination of the vitreous humour, retina and posterior chamber, under pupillary dilatation
Additional tests

- Photodocumentation
- OCT of the back of the eye (macular edema)
- Automated visual field test
Follow-up schedule

- If there is retinopathy
  - Depending on the severity of the damage
  - Compliance with reference criteria

- In the absence of retinopathy
  - Annual follow-up for type 1s, and at least every 2 years for type 2s
  - Medical control of blood sugar, high blood pressure and lipid levels must be optimal
Exchanges between professionals / adoption of standard forms

Facilitates the exchange of information between care providers
Advantages

• Access to a network of 1,600 available primary care professionals

• Increased exchange of information between professionals

• Regular follow-up on their condition

• Referral corridor for required treatments (OD-MD)
Reading centre for diabetic retinopathy

- Non-profit organization
- Optometry/ophthalmology partnership
- Project launched in 2014
- Readers
  - Optometrists
  - Ophthalmologists
- To date, more than [FIGURE TO BE CONFIRMED] patients have been assessed
Target populations and objectives

- Offer First Nations communities an effective diagnostic tool to screen for diabetic retinopathy
- Optimize oculo-visual care in remote regions
- Approximately 15% of the Aboriginal population is living with diabetes
  - Earlier manifestations than in the Caucasian population
Methodology

- Consent form
- Nurse sheet
- Physician sheet
  - Other conditions
  - Photo quality
  - Dilatation
- Recommendation
Ocular photographs

4 photos/eye
Classification of diabetic retinopathy

- Non-proliferative
  - Mild
  - Moderate
    - Approximately 15–30% progress to the proliferative form (1 year)
- Severe
  - 50% progress to the proliferative form in 1 year
  - Quick retina consultation
  - Clinically significant macular edema

- Proliferative
  - Simple and proliferative
  - High-risk
  - With tractional retinal detachment
  - With rubeosis iridis
Diabetic retinopathy
Visible changes in the photographs

- Micro/macro aneurysm
- “Dot-and-blot” hemorrhage
- Flame-shaped hemorrhage
- Hard (lipid) exudates
- Soft exudates
- Neovascularization
Diabetic retinopathy
Photo quality: Central opacity
Photo quality: Central opacity
Photo quality: Young patient cases
Photo quality: Central opacity (dryness)
Photo quality: Alignment (strabismus-amblyopia)
Photo quality: Pupil opening
Conclusion

• Diabetic retinopathy is still too often a source of blindness around the world and more specifically in the Aboriginal population.

• Optometrists can effectively assess diabetic patients as a result of their widespread availability and geographical distribution.

• Beyond diabetic retinopathy, optometrists can screen for a wide range of eye conditions.

• Finally, a partnership that integrates multiple disciplines is the key to encouraging effective screening.