

Retinopathy in patients with hypertension and/or diabetes in a family health unit

Retinopatia em pacientes hipertensos e/ou diabéticos em uma unidade de saúde de família

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Dear editor,

We would like to stress the importance of adequate examination through direct ophthalmoscopy in the screening and management of patients with hypertension and diabetes; as mentioned in the article *Retinopathy in patients with hypertension and/or diabetes in a family health unit*, this test gives general practitioners more control over the clinical course of their patients and leads to more accurate referrals of patients to ophthalmologists⁽¹⁾.

Many general practitioners find it difficult to perform direct ophthalmoscopy, a test that is generally only taught to ophthalmology residents. To demonstrate this fact, we conducted a study with 133 non-ophthalmologist physicians in two Brazilian university hospitals. Participants were randomly selected to complete a questionnaire approved by the Research Ethics Committees of the Federal Universities of São Paulo and Rio de Janeiro. They were inquired about their level of confidence in diagnosing hypertensive retinopathy, diabetic retinopathy, optic disc cupping, and papilledema through direct ophthalmoscopy. The questions were based on the knowledge general practitioners are expected to have according to the International Council of Ophthalmology and the United States Association for Colleges⁽²⁾. We included highly prevalent diseases that can cause blindness or death. Participating physicians had graduated between 1967 and 2013. Their level of confidence was assessed based on a scale ranging from zero (low confidence) to four (maximum confidence). Sixty-five percent of respondents rated their level of confidence as zero or one, showing a low confidence in their ability to diagnose these conditions by direct ophthalmoscopy. Given the difficulty in teaching direct ophthalmoscopy during medical school, we decided to develop a low-cost training model based on physical calculations to simulate the human eye in a reliable manner, allowing students to participate in its entire construction process.

The model consists of a polymethylmethacrylate sphere

that simulates the dioptre of the human eye, a box with pupils of different sizes, and different types of fundi with words and images simulating numerous conditions. The images were obtained from a collection of retinography pictures reduced to the size of 1x1 cm, thus keeping the diameter of the optical disc close to its actual size (1.5 mm), and using a resolution of 900 dpi. Printed words can be placed inside the model, so that students can read them and provide immediate feedback to their professor.⁽³⁾ To attract the attention of students, masks representing personalities well-known to the students can be placed on the model.

A comparison of the results of students who received training using this model and those who received traditional training showed that 93% of the former were able to describe retinal changes while performing direct ophthalmoscopy in a patient under mydriasis, versus only 13% among the latter.

Using this teaching method we were able to improve the results of students and accelerate their learning curve. We also managed to raise awareness about the value of direct ophthalmoscopy and the importance of learning it during medical school. This will allow practitioners to provide better care to the population and improve their ability to rapidly diagnose conditions that may pose a risk to their patients' vision and life, so that they can be referred in a timely manner to specialist ophthalmology services, which are generally not found in primary care units in most Brazilian states.

REFERENCE

1. Alves AP, Santos RW, Almeida Sobrinho EF, Rocha SP, Loch AC. Retinopathy in patients with hypertension and/or diabetes in a family health unit. *Rev Bras Oftalmol.* 2014;73(2):108-11.
2. Bensassat J, Polak BC, Javitt JC. Objectives of teaching direct ophthalmoscopy to medical students. *Acta Ophthalmol.* 2012;90(6): 503-7.
3. Martins TG, Costa AL, Martins RV, Martins EN, Alves MR, Helene O, Schor P. Modelo para ensino de oftalmoscopia direta. *Rev Bras Ensino Física.* 2014; 36(2):1-8.

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