

## COMPARISON BETWEEN THE PANOPTIC OPHTHALMOSCOPE AND THE CONVENTIONAL DIRECT OPHTHALMOSCOPE IN THE DETECTION OF SIGHT THREATENING DIABETIC RETINOPATHY: THE KUCHING DIABETIC EYE STUDY

AK Tan<sup>1,2,3</sup> MD, PS Mallika<sup>3</sup> MS, S Aziz<sup>2</sup> MS, T Asokumaran<sup>2</sup> MMed, G Intan<sup>2</sup> MS, HA Faridah<sup>1</sup> MS

<sup>1</sup>Department of Ophthalmology, Pusat Perubatan Universiti Kebangsaan Malaysia (Tan Aik Kah, Faridah Hanom Annuar)

<sup>2</sup>Department of Ophthalmology, Hospital Umum Sarawak, Sarawak, Malaysia (Tan Aik Kah, Mohamad Aziz Salowi, Asokumaran Thanaraj, Intan Gudom)

<sup>3</sup>Department of Ophthalmology, Faculty of Medicine and Health Science, Universiti Malaysia Sarawak (UNIMAS), Sarawak, Malaysia (Tan Aik Kah, Mallika Premseenthil)

**Address for correspondence:** Dr Tan Aik Kah, Trainee Lecturer, Ophthalmology Unit, Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak, Lot 77, Sekysen 22 Kuching Town Land District, Jalan Tun Ahmad Zaidi Aduce, 93150 Kuching, Sarawak, Malaysia. Tel: +6082-416 550, Fax: + 6082-422 564, Email: portwinestain@hotmail.com, aktan@fmhs.unimas.my

**Conflict of interest and funding:** None

This study was conducted in the Department of Ophthalmology, Hospital Umum Sarawak.

### ABSTRACT

**Objective:** To determine the sensitivity and specificity of the conventional direct ophthalmoscope and the PanOptic ophthalmoscope in the detection of sight threatening retinopathy, as well as the "Ease of Use" of these equipments.

**Methods:** 200 diabetics, newly referred from primary health physicians were examined. Fundus examinations were performed with pupil dilatation in a dark room. The examinations were performed by a single investigator using the PanOptic ophthalmoscope, the conventional direct ophthalmoscope and slit lamp biomicroscopy.

**Results:** The overall sensitivity in detecting sight threatening retinopathy using the conventional direct ophthalmoscope was 73.2% (95% CI: 57.1-85.8%), specificity 93.7% (95% CI: 88.7-96.9%). For PanOptic ophthalmoscope, the overall sensitivity in detecting sight threatening retinopathy was 58.5% (95% CI: 42.1-73.7%), specificity 93.7% (95% CI: 88.7-96.9%). The conventional direct ophthalmoscope was 1.38 times (95% CI: 1.17-1.61 times) as easy to use compared to the PanOptic ophthalmoscope.

**Conclusion:** The PanOptic ophthalmoscope is not superior to the conventional direct ophthalmoscope for the screening of Sight Threatening Retinopathy.

**Keywords:** PanOptic ophthalmoscope, conventional direct ophthalmoscope, sight threatening retinopathy.

Tan AK, Mallika PS, Aziz S, Asokumaran T, Intan G, Faridah HA. Comparison between the panoptic ophthalmoscope and the conventional direct ophthalmoscope in the detection of sight threatening diabetic retinopathy: the Kuching diabetic eye study. *Malaysian Family Physician*. 2010;5(2):83-90

### INTRODUCTION

Diabetes is one of the most prevalent chronic conditions among Malaysians. The National Eye Survey 1996 results showed that the prevalence of diabetic retinopathy (DR) among Type 1 Diabetics (T1DM) aged 40 years and above with duration of more than five years was 14.6%.<sup>1</sup> Asia is expected to be home to 61% of the total global projected number of people with diabetes by 2010, as it is the most populous continent and due to increased urbanization and improved life expectancy.<sup>2</sup>

DR is a major public health problem.<sup>3</sup> Overall, between 25% and 44% of people with diabetes at any point in time, have some form of DR. The prevalence of sight threatening

retinopathy (STR), from either proliferative diabetic retinopathy (PDR) or clinically significant macular oedema (CSME) varies principally by the known duration of diabetes, with minor influences due to age and the type of diabetes.

Screening of diabetic eye disease has been proven to prevent loss of sight. In at least half of patients with PDR, severe visual loss can be prevented by Pan Retinal Photocoagulation (PRP).<sup>4</sup> 50-60% of patients with visual impairment due to diabetic maculopathy, will improve by laser therapy as well.<sup>5,6</sup> Therefore, early intervention during the course of the disease will decrease the risk of complications, thereby reducing health care cost.