

Diabetic retinopathy in native and non-native Sarawakians - Findings from the Diabetic Eye Registry

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SUMMARY

This study aims to determine the risk factors associated with diabetic retinopathy (DR) among natives and non-natives Sarawakians who were seen at 3 public hospitals and one health clinic in Sarawak. It is a cross sectional study where data on patients with DM were collected by staff at these healthcare facilities and entered into the web-based Diabetic Eye Registry. Univariate and multivariate analysis was used to determine the association factors for DR. DR was significantly less associated with natives (24.4%) compared to non-native Sarawakians (34.1%) ($p < 0.001$). The odds of getting DR was higher in patients whose duration of DM was more than 20 years (OR=2.6), who have renal impairment (OR= 1.7) and non-natives (OR =1.4).

KEY WORDS:

Diabetic retinopathy; prevalence; Diabetic registry; Sarawak natives

INTRODUCTION

Diabetes mellitus (DM) is a global health problem. The population of diabetic individuals is increasing rapidly, from 30 million in 1985, 135 million in 1995, 171 million in 2000 and is estimated to increase to 366 million in 2030¹. According to World Health Organization (WHO), there will be a projected rise of people with DM by 42% in developed countries and 170% in developing countries². Prevalence of DM in Malaysia has shown an increase from 0.6% in 1960 to 14.9% in 2006³. Based on the National Health and Morbidity Survey in 2006, the prevalence of DM in Sarawak was 10%⁴. The World Health Organisation (WHO) has estimated that in the year 2030, Malaysia would have a total of 2.48 million people with DM compared to 0.94 million in 2000, a 164% increase⁵.

The major factors associated to the raise in DM are increase in population older than 65 years, rapid urbanization and increasing prevalence of obesity¹. Annually, about 4 million deaths are attributable to complications of DM⁶. Diabetes mellitus causes an array of long-term complications which include among others ischemic heart disease, stroke, diabetic nephropathy and diabetic retinopathy (DR).

Diabetic retinopathy is the leading cause of blindness among working age group Americans of 20 to 74 years^{7,8}. DR is responsible for 1.8 million (4.8%) of the 37 million blind people⁹. DR evolves through several stages from non proliferative diabetic retinopathy (NPDR), namely mild, moderate, severe and very severe to proliferative diabetic retinopathy (PDR). Some patients also develop diabetic maculopathy beside DR. DR is a characteristic of an early onset disease whereas maculopathy occurs in late onset disease¹⁰. NPDR, PDR and maculopathy are categorized as vision threatening retinopathy (VTR).

There is little information on the average duration of each stage of DR, but studies have shown that after 20 years of DM, the cumulative incidence of any form of diabetic retinopathy is 34.5% and PDR is 5%¹¹. Multicentre studies like Diabetic Retinopathy Study (DRS) and Early Treatment Diabetic Retinopathy Study (ETDRS) show that laser photocoagulation reduces the risk of severe and moderate visual loss by more than 50%^{12,13}. The slow progression of DR and the effectiveness of early treatment suggest that blindness due to DR can be reduced by effective screening programs.

According to a study on diabetes control and complications in private primary health care in Malaysia, DR was the second commonest complication of DM, following neuropathy¹⁴. Based on findings from the Diabetic Eye Registry (DER) in 2007, the proportion of patients who had DR was 36.8%, of which 7.1 % had PDR and 14.7% had VTR¹⁵.

Sarawak, the largest state in Malaysia has a population of 2.07 million and comprises of nearly 29 different ethnic groups¹⁶. The natives of Sarawak consist of Ibans and Bidayus and they contribute to 50% of the total population in Sarawak. As there are no published report on DR among native and non natives Sarawakians, we present this paper on associated factors for the occurrence of DR among native and non-native Sarawakians.

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