E d i t o r i a l

SMJ

SINGAPORE MEDICAL JOURNAL
JOURNAL OF THE SINGAPORE MEDICAL ASSOCIATION

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Permit No MITA (P) 096/09/2003
ISSN 0037 - 5675

Cover Picture:
Enhanced axial CT image taken through the level of the orbits.
(Refer to pages 188-192)

Diabetes mellitus in primary care: does ethnicity matter?

C F Sum, S C Lim, S Tavintharan

In the 1998 National Health Survey, the crude prevalence of diabetes mellitus in adult Singaporeans was 9.0%[1]. The crude prevalence of diabetes mellitus was highest among Indians at 15.8% and lowest among the Chinese at 8%. Among people known to have diabetes mellitus, the mean glycated haemoglobin (HbA1c) was 8.5%. Of people with diabetes mellitus of Malay extraction, 64.5% had HbA1c >8.0%, while 52.4% of Chinese and 45.8% of Indians had similarly high levels of HbA1c.

In this issue of the Singapore Medical Journal, Hong CY et al[2] report on the inter-ethnic differences in a multi-ethnic group of patients with (presumptive) type 2 diabetes mellitus being managed at a local primary care polyclinic. In this cross- sectional study of 967 patients with type 2 diabetes mellitus in which the median age was 62 years, the adjusted mean HbA1c was 8.3% for Indians, 8.0% for Malays and 7.7 % for Chinese, somewhat lower than that reported from the people known to have diabetes mellitus in the 1998 National Health Survey. While HbA1c assays are known to vary between laboratories, both the study by Hong et al as well as the 1998 National Health Survey reported using high-performance liquid chromatography methodology. However, while the people known to have diabetes mellitus from the 1998 National Health Survey were presumably being managed at a variety of healthcare facilities, both private as well as public, the subjects in the present report were all being managed at a single primary care polyclinic.

The different ethnic groups in the two studies also appeared to fare differently in terms of HbA1c levels, with the Indians in the present report faring worse than the other two ethnic groups. The report by Hong et al further indicates that Indian patients with type 2 diabetes mellitus that were managed at the polyclinic were less likely to have hypertension and microalbuminuria/proteinuria. There were also interesting inter-ethnic differences in body mass index.

In a report from the Singapore Cardiovascular Cohort Study on a group of multi-ethnic male subjects (including male subjects from the 1992 Singapore National Health Survey), Lee et al confirmed that Indian males are more susceptible to coronary heart disease. compared to Chinese males and Malay males[3]. A separate nine-year mortality follow-up study of subjects from the 1992 Singapore National Health Survey found that diabetes mellitus was associated with increased mortality after adjustment for age, gender, ethnic group and educational level[4]. Interestingly, the authors also reported that Indians with diabetes mellitus experienced significantly greater mortality compared to Chinese with diabetes mellitus, after adjustment for age, gender, educational level, smoking, hypertension, alcohol intake and obesity[4].

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The present report by Hong et al presents a useful snapshot of patients with type 2 diabetes mellitus cared for at a primary care polyclinic and hints that control of diabetes mellitus is suboptimal in Indian subjects. This may be of some significance in the light of the finding that Indians with diabetes mellitus experienced significantly more mortality when compared to Chinese with diabetes mellitus[4]. However, we should be mindful that in the United Kingdom Prospective Diabetes Study, although hyperglycaemia, together with elevated low-density lipoprotein cholesterol, low high-density lipoprotein cholesterol, elevated blood pressure and smoking were significant modifiable risk factors for coronary artery disease[5], intensive glycaemic control did not reduce macrovascular risk enough to achieve statistical significance[6]. Although the report by Hong et al increases our understanding of the inter-ethnic differences in diabetes mellitus, it would not be realistic to expect such a cross-sectional study to provide definite answers to the intriguing questions of increased cardiovascular disease burden among Indians, particularly Indian patients with diabetes mellitus.

While we continue to search for answers to help us become more incisive in our chronic disease screening and management strategies for the different ethnic groups, we should take heed of studies performed in other populations. The Steno-2 study showed that intensive intervention aimed at multiple cardiovascular risk factors, and not just glycaemia, in high-risk patients with type 2 diabetes mellitus could reduce both cardiovascular and microvascular risks substantially[7]. The relationship between intensive multiple cardiovascular risk factor intervention and better outcome is not unexpected. However, widespread intervention of such intensity may not be easy to achieve.

A recent report from the cross-sectional US National Health and Nutrition Examination Survey (NHANES 1999-2000) provides sobering food for thought[8]. Among people known to have diabetes mellitus, only 37.0% managed to achieve a HbA1c target of 7.0%. Furthermore, only a meagre 7.3% of adults with diabetes mellitus in NHANES 1999-2000 attained recommended goals of HbA1c, blood pressure and cholesterol. The next National Health Survey will be performed sometime this year. This and other on-going studies will help us better understand where we stand in terms of attaining the targets set out by clinical practice guidelines. In the longer term, they may also help provide some answers to the inter-ethnic differences in disease burden.

In this issue of the journal, besides the report by Hong et al, we have other examples of the diverse presentations of diabetes mellitus. Lee and Yap report on a case series of optociliary shunt vessels in patients with diabetes mellitus[9] Saw et al describe a diabetic patient who developed necrotising fasciitis after acupuncture[10]. Low et al report on the challenges posed by diabetes mellitus in the use of dobutamine stress echocardiography for the prediction of adverse clinical outcomes[11]. Hence, diabetes mellitus is a multifaceted disease that makes its presence felt not only to the primary care physician, but also to specialists in many different specialties.

As we ponder over the question of inter-ethnic differences in diabetes mellitus, besides managing the diverse presentations and difficult challenges of this disease, we need to redouble our efforts to attain targets in glycaemia as well as other cardiovascular risk factors in all our patients from across the ethnic groups. SMJ

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Printed by Entraco Printing Pte Ltd

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