

Diabetes Mellitus: A Local and Global Public Health Emergency!

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Diabetes mellitus (DM) is a major public health problem worldwide. Current global estimates indicate that this condition affects 415 million people and is set to escalate to 642 million by the year 2040.¹ A further 193 million people with diabetes remain undiagnosed due to the often mild or asymptomatic nature of this condition especially in type 2 DM (T2DM).¹ The Middle East and North African (MENA) region, which includes all Arab states, is currently burdened with the second highest diabetes prevalence rate (10.7%, age-adjusted) after North America and Caribbean region (11.5%).¹ This scenario is likely to continue over the next two decades and possibly beyond.¹

Persistently high blood glucose levels can lead to serious life-changing and life-threatening complications. A study of diabetes complications among 2551 patients from Oman, with median diabetes duration of four years, has shown that 52.0% of subjects were treated for hypertension, 40.0% for dyslipidemia, 37.0% had microalbuminuria, and 5% had overt diabetic nephropathy.² Cardiovascular complications were also common in such subjects where 10.0%, 2.6%, 2.3%, and 2.1% reported history of coronary heart disease, cerebrovascular accident, heart failure, and coronary artery bypass graft, respectively. Through such complications, diabetes kills 5 million people annually worldwide and most of them prematurely.¹

On the economic side, healthcare expenditures for people with diabetes are on average two times higher than people without diabetes.¹ According to the International Diabetes Federation, healthcare spending on diabetes care in the MENA region was the highest compared to other regions, and mounted to 15% of the total health care expenditure

(a staggering cost by all standards).¹ In total, MENA countries spent over USD 17 billion in 2015 on diabetes treatment and care; this is set to reach USD 31 billion by the year 2040.¹

In 1991, an ad hoc consultation by the World Health Organization (WHO) in Oman, found that 9% of all adult hospital admissions, 12% of all hospital bed occupancy, and 20–30% of all outpatient attendance in regional hospitals were associated with DM.³ This prompted the Omani Ministry of Health to undertake its first community-based survey in the country to estimate the prevalence of DM using 2-hour oral glucose tolerance test and WHO recommended methodology and diagnostic cut-points.⁴ The results could not have been more surprising at the time. The survey revealed that 20% of Omanis aged ≥ 20 years both men and women had total glucose intolerance (rates are crude and unadjusted).⁴ Of the 20%, 10% were affected by DM and 10% were classified to have impaired glucose tolerance.⁴ Subsequent studies conducted using similar methodology, have shown a higher⁵ or similar prevalence,^{6,7} but could not confirm an increasing trend in Oman.⁸ Epidemiological studies conducted in other populations of the MENA region reported similar or higher prevalence rates of DM compared to Oman.⁹

The high prevalence rates of DM shown by many epidemiological studies were used as an advocacy tool to improve DM related health services especially in the primary health care sector. Consequently, many MENA states have witnessed improved clinical care of patients with DM.¹⁰ In Oman, patients with T2DM are now seen in “mini-diabetes clinics” located in primary health care centers (PHCCs), which are run by trained physicians and nurses rather than secondary or tertiary hospitals like in the 1980s and

early 1990s. Essential medications listed by WHO to treat diabetes (sulfonylureas and biguanides) as well as anti-hypertensive (angiotensin-converting enzyme inhibitors) and anti-dyslipidemic (statins) medications are also made available to primary care physicians to effectively control DM and its chronic complications. Diabetes registries have been established to follow-up patients for annual review. Through such registries, patients are monitored and referred to ophthalmologists, podiatrists, and other healthcare disciplines for annual reviews.

The above steps are to be reckoned given the fact that in the early 1990s, DM care in PHCCs in Oman (and possibly in many MENA countries) was very rudimentary. Nonetheless, a lot still remains to be achieved. Provision of latest medications for effective diabetes care and its chronic complications including glucagon-like peptide 1 (GLP-1 analogues), dipeptidyl peptidase 4 (DPP4) inhibitors, and insulin pens are yet to be made available in all PHCCs.¹¹ Continuing professional development of staff (many workforce elements are expatriate in many MENA countries and tend not to stay in one locality), sustainable health system financing, and updated guidelines for primary care workers are among the many challenges that are often well delineated but less addressed.

In 2011 and 2014, following the United Nations high level meeting to address chronic diseases, all governments committed themselves to address DM and other non-communicable diseases, as a priority in their national development action plans and pledged to consider setting national targets for the year 2025, and to reduce risk factors and underlying social determinants for those diseases by 2015 and 2016.¹² Until today, progress remains slow and is evident, for example, in high rates of tobacco use,¹³ escalating rates of obesity (two billion people in 2014)¹⁴ because of unabated marketing practices for unhealthy food, sugary beverages, poor or total lack of taxation policies on obesogenic foods, and high prevalence of physical inactivity.¹⁵

While DM continues to become a global public health emergency,¹ and in spite of several randomized clinical trials confirming the beneficial role of lifestyle-modification in the prevention of DM, currently there are hardly any national programs in the MENA region for the prevention of DM. Two well conducted randomized clinical trials have shown that millions of high-risk people

can reduce (by 58%) the risk of developing T2DM by losing weight through regular physical activity and low-calorie and -fat diet.^{16,17} Thus, governments/health ministries must set their fiscal policies/health plans that favor healthier behaviors by providing incentives to encourage low-calorie and -fat foods diet, and promotion of physical activity in all settings including schools and workplaces if any impact on lowering diabetes in their populations is desired. Failing to do so will invariably result in a pandemic of diabetes and its associated cardiovascular and renal complications, which in turn could lead to unprecedented increases in healthcare expenditure on a single condition like diabetes and eventually bankrupt governments.

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