SQU Med J, August 2011, Vol. 11, Iss. 3, pp. 318–321, Epub. 15th Aug 11
Submitted 27th Jun 11
Accepted 3rd Jul 11

EDITORIAL

Acute Coronary Syndrome, Diabetes and Hypertension

Oman must pay more attention to chronic non-communicable diseases

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متلازمة الشريان التاجي الحادة ومرض السّكري وارتفاع ضغط الدم

على عُمان أن تولي اهتماما أكبر للأمراض المزمنة غير المعدية

لمك اللمكي

In this issue of the Journal, there are three public health articles that are closely related in their clinical relevance and pertinence to the situation in Oman.[1,2,3] First, in our Sounding Board section, Dr. Prashanth Panduranga *et al.*[1] writes a provocative article regarding the statistics and management of acute coronary syndrome (ACS) in Oman using the data from the Gulf Registry of Acute Coronary Events (RACE) database. Second, in another Sounding Board article, Dr. Alyaarubi stimulates us to rethink our strategies for the care of the diabetic patient in Oman.[2] Third, Dr. Rashid Al-Saadi *et al.* present their original research on the prevalence of uncontrolled hypertension (HTN) amongst outpatients attending the health clinics in one region of Oman.[3] The combination of poor diabetes control and uncontrolled HTN is responsible for a great percentage of the incidence of ACS and the accompanying complications, as discussed by Dr. Panduranga and his team. These two conditions are commonly accompanied by other risk factors for ACS, including overweight, obesity, metabolic syndrome and hyperlipidaemia. These chronic non-communicable diseases, which form the bulk of risk factors for coronary heart disease, need our attention as physicians and medical educators as the public has entrusted us with the care of their health.

ACS is basically the clinical syndrome of an acute occlusion within what is commonly an already diseased coronary artery. This often presents as unstable angina and can lead to myocardial infarction with or without ST segment elevation. Aetiologically, coronary artery disease is closely tied to HTN, diabetes mellitus (DM), dyslipidaemia, metabolic syndrome and obesity among other factors. The two major factors, diabetes and HTN, are clearly described in this issue as being sub-optimally managed in Oman. In addition, obesity and metabolic syndrome are described as significant hazards to the health of Omanis. Thus, we as physicians have to rethink our strategies for the management of coronary artery disease. The Ministry of Health (MOH) is the guardian of the health of Omanis and hence has to take the initiative in novel ways to reduce the prevalence of poorly controlled diabetes and uncontrolled HTN among its citizens so that we can adequately reduce the incidence of ACS and other complications of these chronic diseases.

Clearly, we must start by improving management of the root causes, especially diabetes and HTN. Both are major contributors to the burden of chronic non-communicable diseases in Oman and throughout the world. Dr. Jawad Al-Lawati *et al.* pointed out that cardiovascular disease is "currently the leading cause of death" in Oman.[4] They go on to explain, "Unless reforms are introduced to the current health care system, chronic diseases will constitute a major drain on Oman's human and

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financial resources" as these diseases form 75% of the disease burden in Oman.[4] The list includes diabetes, HTN, obesity, metabolic syndrome and hyperlipidaemia, which are specifically discussed in articles in this issue. The implication of such dire a situation is that Oman needs to rethink its strategies for dealing with this emerging epidemiology. The MOH needs to reposition its priorities and give increased attention to the management of these chronic non-communicable diseases in Oman.

Management of DM needs special attention from the MOH and from physicians in Oman. We cannot afford to take this responsibility lightly and invest our energy in controlling diabetes and these other chronic non-communicable diseases. Dr. Alyaarubi points out that the incidence of DM is increasing in children who now have an earlier and higher incidence of Type 2—a condition which is traditionally looked upon as a disease of adults. He also alerts us to the fact that in the last few years there have been several innovations in the management of diabetes including new oral hypoglycaemic medication and bioengineered (analogue) insulin; newer delivery tools, such as insulin pumps, and follow-up tools such as HbA1c, as well as internationally recommended guidelines. Unfortunately we, in Oman, have not capitalised on these innovations.[2] There is however, a great need for us to keep up with these developments. DM cannot be adequately managed either by a typical family practitioner who is overworked and inadequately equipped for proper diabetes care, or by a typical general internist for that matter.

There need to be specialised Diabetes Care Clinics—at least two in the capital area and one in each region. More doctors need to be sent abroad to major diabetic centres in the world to specialise and become expert diabetologists. Oman needs to train nurses to become diabetes educators, social workers and therapists in the complications and care of DM, and train or hire podiatrists. Every diabetic clinic should have a resident nutritionist and for other primary care clinics there should be at least a visiting nutritionist, perhaps one day in each primary care clinic. Nutritionists are needed not only for counselling diabetics about their diet, but also to manage overweight, obesity and hyperlipidaemia, all of which are major problems in Oman as in most countries.[4]

We need formal and informal classes to educate patients about their disease, to train them to test their own urine and blood, and to understand the importance of good diabetes control, the meaning of the various laboratory results and the potential complications.[2]

Our government will have to invest more in the care of diabetes and other chronic non-communicable diseases. We need to take seriously into consideration what Dr. Alyaarubi has conveyed in this issue. We have to pay more attention to diabetes because it is a killer. It is a major cause of cardiovascular disease, known since the Framingham study,[5] and now shown to be the case in Oman.[1] Other workers have shown that DM not only leads to coronary heart disease, but also "Diabetic patients with acute coronary syndromes had worse 30-day and 6-month outcomes, particularly those without ST segment elevation".[6] Statistically, the incidence of myocardial infarction in diabetics is as high as in patients who have had a previous infarction.[7] There are several other publications pointing to diabetes and HTN as major factors leading to coronary heart disease.[8-11] The risk factors for coronary heart disease were well established by the turn of the century.[9-11] Thus, the importance of these three major chronic non-communicable diseases and their interrelationship has to be tackled with determination, dedication and passion. The MOH needs to invest a significant portion of its finance and manpower in these diseases as well as other chronic non-infectious diseases, including obesity, metabolic syndrome and hyperlipidaemia all of which contribute to the high mortality and morbidity accompanying ACS. Oman can succeed in this effort as it has a history of previous public health successes such as the vaccination of the paediatric population and the eradication of polio and other serious childhood maladies for which it has been commended by the World Health Organization.

Dr. Al-Saadi *et al.'s* article reveals that not only is diabetes poorly controlled among patients at Oman primary care health centres (PHC), but that we also have a major problem with HTN control. Only 39% of patients attending the PHC in Seeb (a district in the Muscat capital area) have their blood pressure (BP) under control as per the criteria described in the 7th Report of the Joint National Committee on Prevention Detection Evaluation & Treatment of High Blood Pressure (JNC-7).[2,12] This is a situation

that can be significantly improved by modifying health care delivery in Oman—through action by both doctors and the government. In fact, the situation is worse than the overall 61% uncontrolled BP—"74% of the total subjects were overweight (27%) or obese (47%). Of those who were obese, 69% failed to achieve their BP targets".[3] If Barbados can achieve 58% control of HTN and some Veterans Administration Hospitals in USA can achieve nearly 70%, then why not Oman? We have managed to surpass many Western countries in our vaccination rate[13] so likewise we should be able to do the same with the BP control rate. An inadequate control rate of 61%, will almost certainly contribute to the incidence of ACS and its complications. When inadequate BP control is combined with diabetes, then we are treading on dangerous territory.

The management of HTN must be carried out by well-trained physicians and specially trained staff. This should be carried out at specialised clinics, or at least where there is adequate support from other health care workers. We need to send doctors to train specifically in the management of HTN and its complications. Each newly diagnosed case of HTN needs to be thoroughly investigated by specially trained personnel to rule out secondary causes. These are well outlined in the JNC-7 report.[12] The management of HTN has to follow either these guidelines or other internationally recognised evidence-based guidelines. Physicians need to change their attitude and behaviour. For example JNC-7 recommends thiazides for stage I HTN (140–159 systole or 90–99 diastole), and to use a two drug combination for Stage 2 HTN (>160 or >100), as well as to use educators to help patients lose weight since BP can fall 5–20 mmHg per 10 kg of weight loss.[12] They also recommend adopting the DASH (Dietary Approaches to Stop Hypertension) eating plan (fruit vegetables, low fat, low salt and exercise to achieve a 2–14 mmHg BP drop) while intensive lifestyle modification should be pursued in all individuals with metabolic syndrome. This is just an example from the simplified guidelines for family practioners.[12] More complex guidelines are available for specialty centres from the same reference. However, it is clear that we need specialised personnel in order to improve our statistics for controlled HTN in Oman. Co-morbidities are common in HTN, including overweight and obesity, metabolic syndrome, hyperlipidaemia and diabetes; these, singly or collectively, lead to ACS. Oman needs to invest in training health care providers, not only by sending more physicians abroad (to become cardiologists, endocrinologists, lipid specialists), but also by training patient educators, dieticians/nutritionists, therapists, social workers, and establishing patient-centred behavioural interventions such as counselling. Patients have to understand BP goals, weight targets and the potential complications as well as the importance of compliance.[12]

The two papers discussed above[2,3] are disturbing to many of us who were not aware that these two major health hazards, HTN and diabetes, are not adequately taken care of in the PHCs of our country. These two are major contributors to ACS, the subject of another paper in this issue by Dr. Panduranga and his colleagues.[1] In their analysis of the Gulf RACE database they have uncovered that among the Omani patients with ACS, we have a higher prevalence of diabetes mellitus, heart failure and unstable angina, and that there are also problems with management of ACS and its complications in Oman.[1] Thus we do indeed have a problem in Oman with respect to how we deal with not only the chronic non-communicable diseases such as HTN and diabetes, but also their consequence coronary heart disease. Among the steps that can be taken immediately to cope with the high incidence of ACS is, first, to send more doctors abroad to study different aspects of cardiology such as interventional cardiology, then to set up more emergency centres able to cope with cardiac emergencies and train doctors to be more aggressive in their treatment not only of young patients, or those in good condition who are low risk patients, but also of those patients who are considered intermediate or high risk and are being currently avoided by most cardiologists in Oman.[1] Dr. Panduranga *et al.* suggest that this contributes to the dismally low national percentage (11%) of the utilisation of cardiac catheterisation and angiography.[1] This is further complicated by the fact that the whole of Oman with its c. 3,000,000 citizens has only two cardiac catheterisation facilities. This is despite the fact, established in the literature, that primary catheterisation is of significant benefit in ACS: "primary percutaneous coronary intervention (PCI), compared with fibrinolysis, will save lives, enhance myocardial recovery, prevent intracranial

bleeding, stroke, reinfarction, and recurrent ischaemia, and otherwise enhance cardiovascular outcomes".[14] The tremendous progress in survival and reduced morbidity in the last several years has been attributed to the use of coronary care units and reperfusion efforts. Fibrinolysis saves lives, but early PCI in patients with ST elevation myocardial infarction (STEMI) can double the benefit.[14] This reperfusion effort needs a catheter laboratory and Oman needs more of these. This effort also needs well-trained doctors and these are also in short supply here. It also needs a good quality assurance programme with physicians who are willing to treat more aggressively as primary PCI saves lives and can reduce complications including with better myocardial recovery.[14,15] Urgent diagnostic catheterisation is now also recommended for non-STEMI. "Primary PCI" is also superior to "Rescue PCI" after failed thrombolysis.[16] Thus, with only two cardiac catheterisation centres in the country, the concern is genuine and needs to be taken seriously by the health authorities. Likewise the concern that physicians in Oman are not following international recommended guidelines for management of ACS also needs tackling.[1] These guidelines are evidence-based[17] and we should either adhere to them, or to other evidence-based guidelines that are accepted internationally. Another concern in the care of coronary heart disease in Oman is the lack of positron emission tomography (PET) scanners, an important tool not only in the early diagnosis of coronary heart disease, but also in the non-interventional diagnosis of myocardial viability.

SQUMJ hereby extends an open invitation to scholars and researchers in Oman to write about the other major chronic non-communicable diseases in Oman particularly those that contribute to, or directly lead to coronary heart disease and ACS. Are these diseases managed optimally or not? If not, how bad is the situation and how can it be improved? We doctors, and the other allied health care providers of Oman, need to help the MOH in improving the health of our citizens. The MOH cannot do it alone, but it does need to take the initiative and the bulk of the responsibility.

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