

## The Jumbo issue

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Regular readers of the Journal may be surprised by this issue: if not for anything, at least for its size. In a way, it can be considered a metaphor for the burgeoning burden of diabetes in developing countries. Diabetes is rolling over as a juggernaut; research is keeping pace; and it is being documented in diabetes journals worldwide. IJDDC has been no exception in this journey. Over the past few years, the number of accepted articles has far outstripped its slim issues coming out regularly. The long wait appears to be a universal occurrence [1]. To deal with the long list of online first manuscripts, the editorial team and the Society decided to bring them out in print. Future readers may still go online to access them, but a print journal has an obligation to print the accepted articles. Hence this tome; expect a couple more shortly, the latter covering specific themes.

The prevalence of diabetes is high in developing countries and increasing; reports from nationwide studies, both urban and rural, from independent endocrine centers and among specific groups including police personnel have shown a uniform pattern [2–6]. Contributing factors particularly in the northern states include westernization of lifestyle and urban migration [7]. In this issue, a study from Kabul documents the prevalence of diabetes; hypertension was reported to be common as well [8]. Among other Asian countries, treatment patterns and outcomes from Korea are presented in this issue.

Being a silent disease, often undiagnosed, apparently benign until symptomatic, awareness about the condition is important for early identification and lifestyle changes needed

for management. Reports have suggested that knowledge improves compliance and reduces complications [9]. Currently, awareness and knowledge are both inadequate in rural as well as urban areas of India [10, 11]. The situation is particularly worrisome in the rural parts of the country. Screening methods such as validated diabetes scores are available, which can be cost-effectively employed along with point of testing methods [12, 13]. A risk score has been evaluated in the current issue of the Journal.

Rural to urban migration is an ongoing and major contributor to increasing prevalence of obesity and diabetes mellitus [14]. Gender differences in access to medical care exist both in India and other developing countries [15, 16]. While men had better dietary compliance [15], women were reported to have low self-efficacy and time to take care of their diabetes [16]. In addition, differences exist also among components of metabolic syndrome [17], concentrations of plasma total homocysteine [18], and in peripheral neuropathy [19].

In addition, aging populations face peculiar constraints in the management of non-communicable diseases, as reported in this issue. Diabetes was a substantial burden among the elderly in both urban [20] and rural communities [21]. In addition to psychosocial and economic aspects, the risk of hypoglycemia is an important concern: owing to co-existent renal compromise. One must choose and adjust the dose of antidiabetic medications carefully [22, 23].

Commonly encountered but uncommonly documented associations with diabetes include impaired hearing and periarthritis of the shoulder; these are also presented in the current issue. Diabetes can involve the musculoskeletal system in the form of adhesive capsulitis which causes pain and restricted movement, particularly for external rotation. Frozen shoulder is a more severe form of movement restriction, having a worse outcome [24]. In addition to the pain and discomfort, adhesive capsulitis, in association with limited joint

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mobility and Dupuytren's disease, could co-exist with retinopathy [25]. It may therefore be a marker of diabetic microvascular disease. Common pathogenetic features of angiopathy and minor trauma may contribute, along with biochemical abnormalities such as hypomagnesemia [26].

As reported in this issue, impaired hearing is an often unrecognized condition in diabetes. There have been studies on hearing loss in relation to risk factors such as smoking, central adiposity, and diabetes [27]. Hyperinsulinemia in the prediabetes phase could lead to hearing loss in primate models, with involvement of the cochlea where higher frequency identification is lost [28]. Hypertension, which is common in subjects with geriatric diabetes mellitus [29], can disturb inner ear potassium recycling via natriuretic hormone and a decreased cochlear oxygen partial pressure [30]. This evidence obtained primarily from animal studies must be confirmed in humans, where other confounding conditions exist such as coronary artery disease, dyslipidemia, smoking, and exposure to noise, the latter leading to loss of hearing in the higher frequency range [30, 31].

While sexual dysfunction in men with diabetes is recognized [32], it is less commonly identified in women. The current issue of the Journal carries a study from China. Women with diabetes have higher rates of sexual dysfunction compared to controls [33]. Depression affects all aspects of sexual function including lubrication, desire, arousal, and orgasm [34]. Women with type 1 diabetes had greater sexual dysfunction than those with type 2 diabetes [35]. However, other concomitant conditions such as neurovascular involvement, poor body image perception, and psychosocial factors could also contribute.

Emerging risk factors involving insulin resistance have also been covered: pregnancy-induced hypertension and intimal medial thickness (IMT) as a surrogate for future cardiovascular risk. While polycystic ovary syndrome has been identified as a cardiovascular risk factor [36], further down in the reproductive process, pregnancy-induced hypertension is also considered an insulin resistance state involving inflammatory factors and growth factors [37].

Intimal medial thickening as measured by ultrasound is a non-invasive method to predict coronary artery disease. Indian studies have shown that increased IMT occurred in type 2 diabetes mellitus, as well as in polycystic ovary syndrome, even accounting for age and body mass index [38, 39]. To obtain leads into these possible associations, registries for type 1 diabetes mellitus would be useful, such as the ADCM registry from a Malaysian adult type 2 diabetes in this issue. Regional, national, and global registries, similar to type 1 diabetes mellitus and growth hormone therapy, are possible with electronic medical record networking [40].

Plants have been a perennial favorite in pursuit of their antidiabetic activity. Two papers in the current issue explore these. What is likely to be of greater interest is to characterize

plant components using newer omics technology and apply bioinformatics methods to identify nucleotide and amino acid sequences relevant to putative antidiabetic actions, such as insulin-like molecules [41, 42]. Finally, surgical intervention such as sleeve gastrectomy which has been primarily employed in morbid obesity (reported in this issue of the Journal) are making inroads into treatment of type 2 diabetes mellitus. Ongoing studies should throw light on their place in mainstream treatment of diabetes [43].

In dealing with the diabetes juggernaut, it is wistful to think, if only the burgeoning diabetes epidemic worldwide could be contained like the backlog of articles within the pages of journals.

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