BioMed Research International

Hindawi

Special Issue on

Type 2 Diabetes, Inflammation, and Beta Cell Death: From Clinical Phenotypes to Population Dynamics

CALL FOR PAPERS

Type 2 diabetes affects nearly 120 million persons worldwide and according to the World Health Organization, this number is expected to double by the year 2030. Given this rapid increase in disease prevalence, the medical, social, and economic burdens associated with the microvascular and macrovascular complications of type 2 diabetes are likely to increase dramatically in the coming decades. It is well known that type 2 diabetes disproportionately affects minority populations with increased complication risks among these groups. The rise of diabetes epidemic is clearly partially associated with the rapid rise of obesity, which not only affects adults but also affects children and adolescents. In this regard, complex factors in the physical and social environments interplay with genetic and metabolic factors in order to affect carbohydrates and lipid metabolism. These elements, collectively known as the social and biological determinants of health, can be viewed as the influencers of health outcomes at the molecular, individual, and population level.

As evidenced by a myriad of studies, social determinants are central to the development and progression of obesity and finally type 2 diabetes. Moreover, the incidence and prevalence of type 2 diabetes appear to be socially graded, as individuals with lower income and less education are 2-4 times more likely to develop diabetes than more advantaged individuals. Lifestyle interventions such as exercise and weight loss have been shown to reduce diabetes among various populations in the prediabetic stage. Despite the evidence of the effectiveness of these interventions, the application of lifestyle changes in the general population and particularly among minority groups remains a substantial challenge.

In this context, it is necessary to establish a bridge between the molecular world and the macroscopic world in order to win the fight against obesity and diabetes. The different presentations of these diseases are the result of complex interactions between socioenvironmental factors, lifestyles, and the always elusive genetic impact. The macroscopic world is what we encounter when patients are assessed and diagnosed, and it relates to several multigrouped risk factors, access to proper medication and medical surveillance, appropriate nutritional evaluation, and the necessary psychological changes in said patients to understand the medical situation, accept the required changes, and thrive in the process.

However, these elements develop at the mercy of several molecular determinants, which include major metabolic defects associated with type 2 diabetes, namely, the failure of proper glucose utilization by peripheral tissues such as skeletal muscle and adipose tissue, the primary targets of insulin-stimulated glucose uptake, beta cell death, skeletal muscle atrophy, adiposopathy and more recently, and central nervous system insulin resistance. In other words, several signalosomes act as the puppeteers in these diseases. Thus, an impending need for a more comprehensive understanding of these worlds is the current state of affairs, not only to broaden the information regarding the pathobiology of type 2 diabetes and obesity, but, equally important, to bridge the illusory gap of this microscopic-macroscopic continuum observed in almost all chronic diseases.

We are looking for a group of specialists in the fields of diabetology, molecular biology, endocrinology, human nutrition, and behavioral interventions to lead this special issue which will include diverse, yet closely related topics that will be an invaluable resource for clinician health care provider, researchers, med students, and scholars in this fascinating field.

Potential topics include but are not limited to the following:

- Type 2 diabetes in minority populations and border populations
- Sociodemographic factors influencing obesity and type 2 diabetes risk
- Diet patterns, diet genealogy, and sociologic determinants of obesity and type 2 diabetes
- Effectiveness of lifestyle intervention on low grade inflammation and insulin resistance in prediabetic and diabetic patients
- Implications of various weight loss interventions on the incidence of diabetes, CVD disease, or weight control
- Behavioral modifications as effective interventions for weight loss and diabetes prevention
- Assessment of the effects of psychological distress on obesity and diabetes
- Role of skeletal muscle and adipose tissue in glucose transport, glucose homeostasis, and insulin resistance
- Physical activity role in muscle sensitivity to insulin at molecular level
- Adipose tissue hypoxia, inflammation, and senescence in type 2 diabetes development
- Beta cell stunning and death: molecular mechanisms
- Ethnopharmacology for obesity and diabetes management
- New antidiabetic drugs
- Human migrations: admixture with other hominids and their impact on ethnic-specific risk to diabetes and obesity
- Targeting central nervous system for the treatment of insulin resistance: the pancreatic hub

Authors can submit their manuscripts through the Manuscript Tracking System at http://mts.hindawi.com/submit/journals/bmri/public.health/t2di/.

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