

Our Incoming Nightmare: The “Tsunami” of Type-2 Diabetes Mellitus

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Our ideology of current day life's pathology is conceived as a linear process which is required to be improved with regards to understanding of differing and evolving dogma of newer approach towards hypothesized pathogenesis. The learning curve as we interpret today about the “dilemma of sweetness” *i.e.*, diabetes mellitus is no more the way as we learnt over the last few centuries [1]. Moving across the milestones of medical literacy supplanted by quality research and revolutionizing nano-technological advancements we are now able to dissect out the heterogeneity of the disease *i.e.* type-2 diabetes mellitus (T2DM). Though the scientific data seems preliminary in its path to comprehension, still it has managed to lay down pointers in the evolving landscape of T2DM [2].

As we write about T2DM we had in our hindsight the growing nature of this metabolic plague with current prevalence racing to 451 million sufferers worldwide with next milestone peaking around 693 million by the year 2045 [3]. There could be some discrepancies in exactness of the statistical calculations from Zhang *et al.*, still the suggested yearly spending of 376 billion USD in 2010 to 490 billion USD by 2030 among age 20-79 years group seem to an optimal depiction of this T2DM disease burden [4]. These statistical calculation will never be able to calculate time lost from non-productivity, indirect spending to modify lifestyles and long-term financial loss form its complications. The myriad of complications tailed to T2DM are not just micro vascular diseases like neuropathy, retinopathy, nephropathy, but the real breakpoint for mankind remains coronary artery disease and stroke now surfacing as the world wide champions on mortality charts [5]. Considering the T2DM direct and indirect impacts on health economy along with effects on quality of life with related effects in the shape of atherosclerotic cardiovascular disease (ASCVD), the pandemic now emerging as a Tsunami which can sweep the next generations from this modern-day metabolic disaster [6].

Situation in third world population is even worse resulting from the extremely rapid switch-over from

conventional “farmer's way of life” to urbanized, being worst hit by environmental pollution and smog [7]. Ma *et al.* has termed the sub-continental population to have “starvation genes” which cause their adipocytes to accumulate extra fat making a mildly obese person to be vulnerable to cardiovascular diseases (CVD) [8]. Similarly, studies comparing sub-continental population from India, Pakistan and Bangladesh housing more than 24% of people from the world indicate an extremely high population of diabetics with many yet to be diagnosed [9]. While a clear trend in this population is visible in terms of decreasing height and swollen tummies bringing with it all possible metabolic curses including diabetes mellitus, there remains no denial for this diabetic problem swiftly taking over the hospitals and sucking the poor country's economy in all possible ways [10]. Closing our eyes or living oblivious to this metabolic dilemma will only make the going gets tougher and may be disaster beyond human control.

The question arises what different we need to adopt to overcome this prevailing menace? With every challenge we face, there arises an area of opportunity. We not only need to understand the prevailing pathophysiology in terms of its epigenetic and genetic triggers inherent within our populace, but also define the preventive, therapeutic and rehabilitative measures to curb the surging Tsunami. Therefore any healthcare approach we select need not only to be wholesome but must remain compatible to the the health economy of our country of our country. While a complete panacea to this endemic may be utopian, the macro dimensions of the policy are suggested below:

a. Preventive medicine: The seed for this diseases roots within the life styles we adopt from our early life. “Health Education” is the key to parenting in terms of striking the much needed balance between starvation and overfeeding. While the mothers during pregnancy must adopt a regular healthy life inclusive of exercise with emphasis on prenatal screening of hyperglycemic tendencies, the newborn must not be overfed to suppress the growth hormone and other simulants to avoid early childhood obesity [11]. Education about metabolic disorders need to be started for early life as a taught subject with more opportunities for physical activities. Two key recommendations may be to include

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"Sports" in student's curriculum and the taxation may be enhanced on junk food. The later recommendation is essential as "Obesity is the new smoking" [12], where we already see tobacco products being injurious to health are heavily taxed [13]. T2DM screening strategies must be initiated at early childhood in terms of measuring fat mass, glucose screening and assessment of physical activity.

b. Therapeutic interventions: Multiple medicines are available to manage T2DM with race starting from sulphonylureas, metformin, PPAR-gamma agonists to the newly emerging competitors like DPP-IV inhibitors, GLP-1 agonists, amylin analogues and SGLT2 inhibitors [14]. However, these medications work primarily to reduce glucose and do not cure diabetes in anyway. Newer approaches mainly the bariatric surgery and sometimes pancreatic transplants are also now marketed in many parts of the world with much success [15]. Very recently, biotechnology is emerging with curative molecular genetic methods like CRISPR/Cas technologies, genome editing technologies, which though in research could still be one possibility to revolutionize conventional anti-diabetic medicine [16]. Research in this area is warranted to root out diabetes at genetic level.

c. Rehabilitative needs: There is mammoth diabetic population who are in need to be rehabilitated with updated and personalized evidence based rehabilitative medical specialist. Most patients getting the disease are not aware of the micro and macro vascular problems due to lack of focus on preventing T2DM complications and lifestyle advice. This aspect needs "centers for diabetes rehabilitation" along with enhancing qualified human resource with dialectology technicians, Nurses and medical dialectologists [17].

CONFLICT OF INTEREST

The author declares no conflict of interest.

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