

DRS-WCPD: 11th World Congress on Prevention of Diabetes and Its Complications

ASSOCIATION OF NUTRITIONAL FACTORS WITH TYPE 2 DIABETES IN INDIA

Dr V Mohan, Chennai

The debate over whether the diabetes epidemic is primarily driven by genetic or environmental factors continues. Three key contributors to diabetes have been identified: high carbohydrate intake leading to increased glycemic load, reduced physical activity, and urbanization-related factors such as air pollution. A multicountry study involving 21 nations revealed that higher white rice consumption is associated with an increased risk of diabetes, particularly in South Asia, while other regions exhibited only a modest, nonsignificant association. Conversely, another study found that increased dairy intake was linked to a modest reduction in the prevalence of metabolic syndrome (MS) and its components, including a lower incidence of hypertension and diabetes over time. In Asian Indians, higher dairy consumption has been shown to mitigate cardiometabolic risk factors such as elevated blood pressure, body mass index, fasting plasma glucose (FPG), and low high-density lipoprotein cholesterol, thereby reducing MS prevalence. At the population level, diabetes reversal may be achievable through diet modifications. Even a 10% reduction in carbohydrate intake, replaced with portion, particularly from plant sources, can prevent or remit type 2 diabetes. Recommendations for macronutrient intake in Indian South Asians emphasize the importance of both the quantity and quality of macronutrients, with strategies encompassing both population-wide and individualized approaches.

It can be concluded that healthier diets with lower carbohydrates along with increased protein and fiber, along with increased physical activity can help prevent and control type 2 diabetes in India.

AMPLIFY TIR – COMPARATIVE ANALYSIS OF SGLT2 + DPP-4 COMBINATION IN INDIAN PATIENTS

Dr Shashank Joshi, Mumbai

Time-in-range (TIR) refers to the duration an individual spends within the target glucose range, typically

70 to 180 mg/dL. Research indicates that a 1% decrease in TIR increases the risk of microalbuminuria, peripheral neuropathy, and cardiopathy by 40%, 25%, and 60%, respectively. Therefore, maintaining glucose levels within the recommended range is crucial to prevent diabetes-related complications.

The Amplify TIR study evaluated the efficacy of a fixed-dose combination (FDC) of dipeptidyl peptidase 4 (DPP-4) inhibitors and sodium-glucose cotransporter-2 (SGLT2) inhibitors in improving parameters derived from 24-hour glucose monitoring. The study compared the effects of FDC of teneligliptin 20 mg + dapagliflozin 10 mg (Arm A), sitagliptin 100 mg + dapagliflozin 10 mg (Arm B), and linagliptin 5 mg + empagliflozin 25 mg (Arm C) in Indian patients with type 2 diabetes mellitus using continuous glucose monitoring.

The results demonstrated a significant reduction in TAR (time above range) levels across all three groups from baseline to the end of the study. Comparable efficacy in improving TIR was observed among the study arms, except between Arm A and Arm B. There were no significant changes in TBR (time below range) levels across the groups from baseline to the end of the study.

Additionally, all groups had a significant reduction in HbA1c, FPG, and postprandial glucose (PPG) levels. Arm A showed significantly better FPG control than Arm B in phase II. Significant improvements in estimated glomerular filtration rate, serum creatinine, and blood urea nitrogen levels were observed across all three treatment arms by the end of phase II.

Based on these findings, the following conclusions can be drawn:

- ⇒ The glycemic variability parameter improved significantly for the teneligliptin + dapagliflozin combination from baseline to the end of treatment.
- ⇒ Glycemic and renal parameters improved with the teneligliptin + dapagliflozin combination, comparable to the other study arms.
- ⇒ The FDC of teneligliptin + dapagliflozin was comparable and noninferior to sitagliptin + dapagliflozin and linagliptin + empagliflozin in improving glycemic variability and renal parameters.

THE DIABETIC PANDEMIC: WHERE ARE WE, WHERE ARE WE HEADED AND WHAT CAN POPULATION-BASED INTERVENTIONS ADD IN TURNING THE TIDE

Dr Bruce Duncan, USA

- The type 2 diabetes pandemic continues out of control.
- The main problem is the increasing prevalence.
- To control prevalence, we must decrease incidence.
- To decrease incidence, we must: Not only continue to implement and improve high-risk clinical strategies; But with equal or greater emphasis – Stimulate our societies to implement population-based measures, evaluate the effectiveness of these measures.
- Interventions in nutrition include marketing bans, front-of-pack nutrition labels, taxes on sugar-sweetened beverages and subsidies on fruits and vegetables, and product reformulations.

ORIGIN OF DIABETES – THE GUT FEELING

Dr Alka Gandhi, Mumbai

The gut plays a critical role in regulating glucose and energy homeostasis. Emerging evidence suggests that the gut may also contribute to the pathogenesis of type 2 diabetes, influenced by both intestinal microbiota composition and gut hormone secretion patterns. The gut microbiota may produce molecules that impair insulin secretion and action.

Several studies have demonstrated the following:

- Microbiota dysbiosis is present in both type 1 and type 2 diabetes patients.
- This dysbiosis can contribute to insulin resistance, low-grade inflammation, and fat deposition through various molecular interactions with the host.
- Gut microbiota dysbiosis may lead to increased gut permeability (“leaky gut”).
- This, in turn, allows external antigens to enter the circulation unchecked.
- These antigens may trigger islet autoimmunity, directly damage pancreatic beta cells, and

cause hormonal imbalances leading to metabolic disorders.

Some antidiabetic interventions targeting gut microbiota include probiotics, prebiotics, traditional Chinese medicine, natural compounds, and non-drug therapies like bariatric surgery, fecal microbiota transplantation, diet, and exercise. Pharmacological treatments include incretin therapy, alpha-glucosidase inhibitors, SGLT2 inhibitors, and metabolic surgery. These strategies aim to improve gut health and mitigate the metabolic disturbances associated with diabetes.

UNIQUE WAYS IN PATIENT COMMUNICATION AND CONNECT: OVERCOMING LIMITATIONS

Dr Amit Rajput, Jalgaon

Effective communication is key to accurate diagnosis, treatment adherence, and patient satisfaction. However, hearing impairment is an often overlooked complication of diabetes. Diabetes-related hearing loss is associated with microangiopathy and damage to the stria vascularis, endolymph, hair cells, and cochlear nerve. Unfortunately, there is currently no cochlear equivalent of a fundus examination, making early detection and treatment of hearing loss vital for preventing cognitive decline, dementia, and depression.

One practical method for communicating with patients experiencing hearing loss is the “Stethospeak” technique. In this approach, the stethoscope is reversed so the patient wears the earpieces while the doctor speaks into the diaphragm, ensuring clear communication.

When patients can hear and understand their doctor’s words clearly:

- They no longer feel neglected.
- Complex instructions can be effectively conveyed.
- Regular follow-ups become more likely, resulting in better management of diabetes and related comorbidities.
- Family members can also use the stethoscope at home for communication.
- It encourages the use of hearing aids, breaking the stigma often associated with them.

