



### **GLYCEMIC HEXAD:**

- Traditionally, diabetes control strategies mainly targeted to reduce the triad of fasting and postprandial blood sugars and HbA1c. The advances in research has paved the way to include more variables, like Glycemic Variability and Quality of life.
- The Six elements are collectively referred as "Glycemic Hexad". Different components of Glycemic Hexad are shown in below Figure.



• Oscillating blood glucose levels has been shown to have harmful effects on parameters of cardiovascular (CV) risk such as endothelial dysfunction. This led to the emergence of new aspect in glycemic control, i.e., Glycemic Variability and was included in the concept of the 'Glycemic Hexad.'

## **GLYCEMIC VARIABILITY (GV):**

It is defined as the degree of daily blood glucose fluctuations (peaks and nadirs) in an individual. It comprises of both postprandial glucose spikes as well as the hypoglycemic episodes.

#### Significance of Glycemic Variability:

- Some evidences have suggested that GV is associated with an increased risk of microvascular and macrovascular complications linked to glucose peaks, fluctuations in oxidative stress and endothelial dysfunction. Specifically, some evidence also points to a potential link between GV and the development of complications such as diabetic peripheral neuropathy, cardiovascular autonomic neuropathy and stroke.
- Increased GV has also been associated with poor control and increased risk of hypoglycemia in patients with types 2 diabetes. Minimizing GV, especially PPG excursions, is an important aspect of overall glycemic management.

"A successful strategy to minimize glycemic variability in type 2 diabetes may involve the use of agents such as DPP- 4 inhibitors that secrete insulin and suppress glucagon in a glucose-dependent manner, controlling post-prandial glucose excursions as well as lowering overall glycemia without the increased risk for hypoglycemia."

# Effects of Vildagliptin twice daily vs. sitagliptin once daily on 24-hour acute glucose fluctuations

# Clinical characteristics and metabolic profile before and 3 months after vildagliptin 50 mg twice daily or sitagliptin 100 mg once daily.

Variables	Sitagliptin Group (N=20)		Vildagliptin Group (N=18)		р
	Baseline	After 3 Months	Baseline	After 3 Months	P
Fasting glycemia (mg/dl)	169 ± 24	$145 \pm 13$	$171 \pm 31$	$146 \pm 14$	0.01
2-h postprandial glycemia (mg/dl)	196 ± 22	166 ± 17	197 ± 19	165 ± 15	0.01
MAGE (mg/dl of glucose)	69 ± 18	59 ± 16	70 ± 22	34 ± 7	0.01
HbA1c (%)	8.3±0.6	$7.5 \pm 0.4$	$8.4 \pm 0.5$	$7.4 \pm 0.5$	0.01
24-h mean glycemia (mg/dl)	159 ± 31	131 ± 27	157 ± 39	128 ± 36	0.01



Fig. 1. Box plot (a plot type that displays the central line representing the median, the boxes span from the 25th to 75th percentiles, and the error bars extend from the 10th to 90th percentiles) showing the reductions of fasting glycemia (FPG), PPG levels, 24-hour mean plasma glucose (MPG) levels and MAGE in sitagliptin and vildagliptin groups.

• Continuous Subcutaneous Glucose Monitoring (CSGM) measurements provided evidence for large Mean Amplitude of Glycemic Excursions (MAGE) decrements in vildagliptin group compared with sitagliptin group. As shown in Fig., decrements in mean 24-h glucose levels, and fasting and postmeal plasma glucose levels were superimposable in the two study groups.



#### **BACKGROUND:**

Glycemic variability (GV) has been an emerging target for preventing complications related to type 2 diabetes. For reducing GV, DPP-IV inhibitors have shown effectiveness compared to other oral anti-hyperglycemic drugs (OADs). Vildagliptin is a potent, highly selective, and reversible DPP-4 inhibitor used to treat type 2 diabetes mellitus which also address the Glycemic Variability.

#### **DESCRIPTION:**

VICEMIC-50: Each Uncoated Tablet contains Vildagliptin 50 mg VICEMIC-M-500: Each Film Coated Tablet contains Vildagliptin 50 mg and Metformin 500 mg VICEMIC-M-1000: Each Film Coated Tablet contains Vildagliptin 50 mg and Metformin 1000 mg

#### **HOW VILDAGLIPTIN WORKS?**



#### **INDICATION:**

Vicemic and Vicemic-M is indicated in the treatment of type 2 diabetes mellitus patients.

#### **DOSAGE:**

The Recommended daily dose of Vicemic and Vicemic-M is twice a day or as directed by physician .

#### **PRESENTATION:**

VICEMIC and VICEMIC-M is available as a strip of 15 Tablets.

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