

A multicentric, randomised, open-label study on the comparison of pancreatic beta cell recovery and preservation in type 2 diabetic patients treated with DPP-4 inhibitor (Vildagliptin) and Metformin

**THESIS SUBMITTED FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY**



தமிழ்நாடு டாக்டர் எம்.ஜி.ஆர். மருத்துவப் பல்கலைக்கழகம்
The Tamil Nadu Dr.M.G.R. Medical University

No.69, Anna Salai, Guindy, Tamil Nadu, INDIA

by

Dr.K.Satheesh

(Registration Number: 141410008)

India Diabetes Research Foundation

No 28 Marshalls Road, Egmore, Chennai 600008

Tamil Nadu, INDIA

Guide:

Prof.A.Ramachandran, MD., Ph.D., D.Sc., FRCP(Lond, Edin)

India Diabetes Research Foundation
No 28 Marshalls Road, Egmore, Chennai 600008
Tamil Nadu, INDIA

Jan 2014 – Dec 2018

SUMMARY / CONCLUSION

This randomised controlled study showed that both Metformin and Vildagliptin have protective effect on the beta-cell function in non-obese, newly diagnosed Asian Indian patients with T2D up to two years. The results showed that Metformin or Vildagliptin is equally effective as the first line of treatment in these patients. Improvement in insulin sensitivity and preservation of beta cell function occurred resulting in good glycemic control in many patients without the addition of a rescue drug. The reduction in the glycemic level without any change in AUC_{ins/glu} and PP C peptide indicated an increase in insulin sensitivity and also decreased strain on the beta cells.

In summary, Metformin and Vildagliptin showed beneficial effects on beta-cell function during a 2-year follow-up in non-obese patients with T2D. Metformin and Vildagliptin have protective effects on the beta cell function, reduce insulin resistance and glycemic levels. Metformin increased insulin sensitivity also. Better glycemic control with Vildagliptin was predicted by higher C peptide and lower HbA1c values at baseline. Lower baseline HbA1c predicted good glycemic control with Metformin.

IMPACT OF THE STUDY

Based on the study we would like to recommend the following points

- ✓ Metformin or Vildagliptin is the first line of therapy for T2D patients.
- ✓ Metformin is beneficial in beta cell preservation and also has insulin sensitising function
- ✓ Metformin or Vildagliptin is the drug of choice for the non-obese Asian Indian patients
- ✓ Vildagliptin has shown effects similar to that of Metformin
- ✓ Treatment with Vildagliptin in the early phase of the disease in the patient with good beta cell function (C peptide level), good glycemic level can be achieved for longer period. This will help in preventing future complications.