Efficacy of Sensor-Augmented Pump Therapy with Predictive Insulin Suspension in patients with Diabetes Mellitus Type 1

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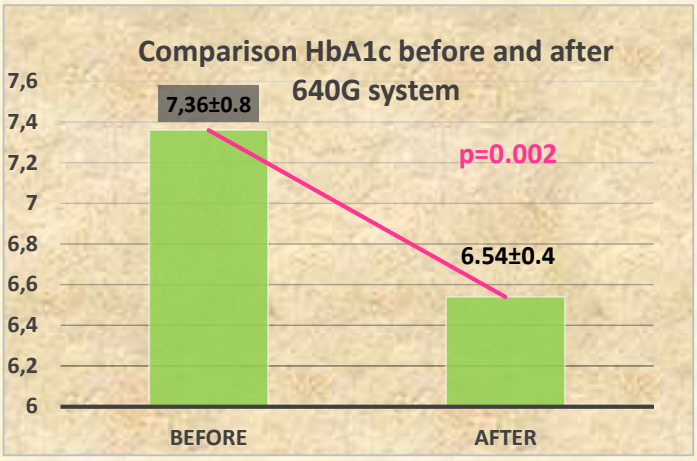
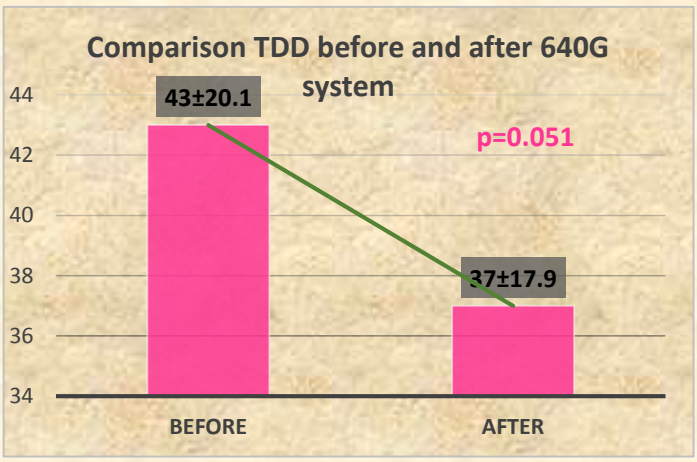
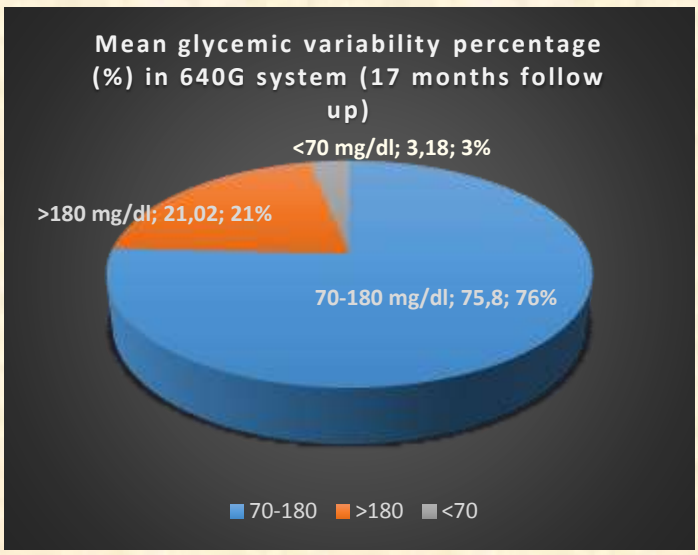
Baseline Characteristics	
N	**13**
Age (years)	**44.7±12.4**
Gender	**7 females/6 males**
BMI (Kg/m²)	**23.7±4.2**
Diabetes duration (years)	**27.7±7.8**
Duration in 640G and SmartGuard (months)	**17.6±6.9**







INTRODUCTION-PURPOSE

The purpose of this study is to investigate the effect on metabolic control before and after use of sensor-augmented pump therapy with predictive insulin suspension technology control in patients with diabetes type 1 (DM1) previously treated with other types of pumps or MDI. A sensor-augmented insulin pump (SAP) using the MiniMed 640G system with SmartGuard technology allows an automatic close-loop of insulin delivery based on prediction of low glucose levels.

METHODS-PATIENTS

Thirteen patients with DM1 who have been treated for at least three months with Minimed 640G system along with SmartGuard (Medtronic) were enrolled. (female/male=7/6, mean age=44.7±12.4 years, BMI=23.7±4.2 Kg/m², mean diabetes duration=27.7±7.8 years and mean duration of follow up=17.6±6.9 months). HbA1C, anthropometric measurements and medical history before and after use of the Minimed 640G system, were recorded. Moreover, insulin pump's data of the last month were downloaded using Carelink Pro and Personal-Medtronic software

RESULTS

HbA1c was significantly reduced after treatment with 640G system vs precedent therapy.(mean HbA1C=6.54±0.4 vs 7.36±0.8, p=0.002). The mean glycemic variability percentage between 70-180 mg/dl was 75.8%, while over 180mg/dl and below 70mg/dl was 21.09% and 3.18% respectively. There was a difference of the total daily dose (TDD) before and after using the system (mean TDD= 43.2±20.1 vs 37.1±17.9 respectively, p=0.051). Finally, there was no significant change on the body weight (72.9±19.6 vs 70.3±18, p=0.071).

CONCLUSIONS

In patients with DM1, the use of sensor-augmented pump therapy with predictive insulin suspension technology, optimizes glycemic control and achieves blood glucose target most of the day without weight gain.

REFERENCES

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