

EP400 Efficacy of sitagliptin added on to intensive insulin therapy in type 2 diabetic patients

Bengur Taskiran, Guven Baris Cansu

Eskisehir Yunus Emre State Hospital, Turkey

OBJECTIVES

- Multiple dose injections (MDI) of insulin provides the best rate of achievement of A1c less than 7% in comparison to other insulin regimens as shown in a meta analysis of 16 studies .
- However still 60% of patients on MDI therapy cannot reach A1c level less than 7% within 3-9 mos of initiating MDI in current clinical practice.
- MDI delays onset and progression of microvascular complications as shown in Kumomato study.
- DPP-4 inhibitors such as sitagliptin are weight neutral agents.
- We aimed to evaluate the effect of sitagliptin add-on therapy to MDI therapy.

METHODS

- Retrospective analysis
- Recorded data of 47 type 2 diabetic patients evaluated. One patient underwent sleeve gastrectomy and was excluded. Patients with missing weight data were excluded. 4 male, 29 female, 33 in total were eligible.
- 30 had hypertension, 3 had previous MI, 10 had CAD. History of CVA was absent.
- According to available data 16 out 23 had microalbuminuria, 13 out 26 had diabetic retinopathy.
- 29 on metformin, 23 on statin, 26 on ARB/ACE-I, 17 on diuretic therapy. None on pioglitazone therapy.
- 5 had LDDST and 6 had IGF-1 measurement. Diagnosis of Cushing disease and acromegaly was not established.
- Initial insulin treatment for at least 3 months before sitagliptin add on therapy.
 - premix lispro or aspart insulin (n=20)
 - glargine plus premeal aspart or lispro insulin (n=8)
 - glargine plus regular insulin (n=2)
 - detemir plus premeal aspart insulin (n=2)
 - glargine plus premix lispro insulin (n=1)
- Insulin scheme was intensified
 - glargine plus premeal aspart or lispro insulin (n=16)
 - glargine plus regular insulin (n=6)
 - detemir plus premeal aspart insulin (n=2)
 - NPH twice daily plus lispro insulin (n=2)
 - NPH twice daily plus regular insulin (n=7)

Table	Value
Age (years)	55.33±9.4 (38-71)
Duration of diabetes (years)	14.44±7.78 (5-36)
Duration of insulin therapy before sitagliptin (years)	7.33±3.13 (2-14)
Duration of sitagliptin therapy (months)	11.39±5.43 (2-25)
Number of office visits	7.33±3.13 (2-14)
Hospitalization (number of patients)	8
Duration of hospitalization (days)	6.75 ±2.43 (4-12)
Baseline BMI (kg/m ²)	38.57±6.16 (28.81-53.78)
Weight before sitagliptin (kg)	94.94±17.08 (67.40-139.40)
Final weight after sitagliptin (kg)	97.20±17.38 (69.90-145.40)
Weight change (kg)	2.26±3.25 (-6.70-8.60)
A1c within 6 months preceding sitagliptin (%)	9.49±1.72 (7.30-14.37)
Final A1c after sitagliptin (%)	8.01±1.32 (6.20-13.10)
A1c change (%)	-1.475±1.472 (-5.54±1.40)
TDD before sitagliptin (Units)	95.85±36.72 (32-204)
Final TDD before sitagliptin (Units)	114.42±43.93 (36-200)
TDD change after sitagliptin (Units)	-18.58±32.42 (-48-90)
Baseline creatinine (mg/dl)	0.79±0.17 (0.53-1.14)
Baseline LDL (mg/dl)	103.74±43.30
Baseline HDL (mg/dl)	42.07±8.77
Baseline TG (mg/dl)	196.3±90.67
Basal insulin (number of patients)	
Glargine	22
Detemir	2
NPH	9
Bolus insulin (number of patients)	
Rapid acting	20
Regular insulin	13

RESULTS

- The patients who used sitagliptin less than 6 months were the ones who were lost follow-up.
- Neither of them discontinued sitagliptin due to side effects.
- A1c change was correlated neither with change in TDD (total daily dose) of insulin nor weight.
- TDD of insulin change also did not correlate with weight change.
- Difference of mean change (95% CI) were as follows:
 - TDD (U): -18.57 (-30.07, -7.07); p=0.002
 - Weight (kg): -2.26 (-3.41, -1.10); p=0.0001
 - A1c (%): 1.47 (0.95, 1.99); p=0.0001
 - baseline vs final insulin/kg/day: 1.12±0.44(0.417±2.28) vs 1.21±0.50 (0.448-2.16); p=0.573

CONCLUSIONS

- Adding sitagliptin to intensive insulin therapy does not cause consistent significant decrease in A1c (1.47 (0.95, 1.99); p=0.0001).
- Although TDD decreased significantly (p=0.002), the decrease was nonsignificant if calculated according to units per kg/day (p=0.573)
- In a Japanese study (same group as Kumomato study) done on 40 subjects receiving MDI, sitagliptin 50 mg/d add-on therapy caused no change in BMI and weight; but A1c decreased significantly. The amended subjects had less BMI less than our patients (26.2±5.4 vs 38.57±6.16).
- Although adding sitagliptin to intensive insulin therapy caused significant weight change (-2.26 (-3.41, -1.10); p=0.0001), the clinical implementation is ambiguous because of no decrease in A1c and insulin dose in units per kg/day.

