

# Effect of gemigliptin switching from pioglitazone with metformin in Type 2 diabetes

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## Background

- The DPP-4 inhibitors that increase insulin secretion by glucose dependently can also relieve insulin resistance because they improve early phase insulin secretion and prevent late hyperinsulinemia.
- It also can be more effective in controlling the blood glucose because it acts synergistically with metformin by improving insulin secretory dysfunction compared TZD with metformin that has similar action mechanism.
- One of those is gemigliptin that was developed in this country recently and there are not many clinical studies.
- So, we observed the effect of gemigliptin with metformin compared to pioglitazone with metformin.

## Method

- We recruited 81 type 2 DM who failed in glucose control target below 7% of HgA1c or have side effect such as weight gain with metformin plus pioglitazone.
- The 15 mg of pioglitazone was used when it was switched because the usual dose permitted by national insurance was 15mg at that time.
- Pioglitazone was switched to gemigliptin without changing the dose of metformin.
- The mean HgA1c level of 3 months and just before switching was compared to the mean of 3 and 6 months after switching.
- The difference of weight and HOMA-IR just before and 6 months after switching was also compared.

## Result

- The age was  $56.4 \pm 10.0$  and mean BMI was  $26.3 \pm 5.4$ .
- The mean HgA1c level before switching was  $7.1 \pm 4.46$ .
- The HgA1c level was decreased in 72 patients (89%) and the mean decrement of HgA1c was  $0.58 \pm 0.39$  in above group.
- The body weight was increased ( $1.2\text{kg} \pm 0.39$ ) in 27(33%) and decreased ( $2.9\text{kg} \pm 2.58$ ) in 48 (59%).
- The mean BMI was lower in weight gain group ( $24.1 \pm 9.7$ ) than in weight loss group ( $29.0 \pm 5.5$ ).
- The mean HOMA-IR before switching was  $2.54 \pm 2.55$ .
- HOMA-IR was increased in 67% and mean was  $1.51 \pm 1.47$ . It was decreased in 33% and mean was  $0.43 \pm 0.16$ .

## Conclusion

- The gemigliptin can be a good substitute to improve glucose control by improving not only insulin resistance but also insulin secretory dysfunction when failed with 15 mg of pioglitazone with metformin that only improve insulin resistance in type 2 diabetes with remained insulin secretory capacity.
- It is more effective in weight control especially in high BMI group.
- We also try to study the effect of gemigliptin when it switched from 30mg of pioglitazone.

## Reference

- The Efficacy and safety of the dipeptidyl peptidase-4 inhibitor gemigliptin compared with sitagliptin added to ongoing metformin therapy in patients with type 2 diabetes inadequately controlled with metformin alone. *Diabetes Obes Metab* 2013;523
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