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The effect of gemigliptin treatment on immune parameters including regulatory T cells in patients with type 2 diabetes and moderate to very severe chronic renal impairment

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Objectives : It is crucial to understand the impact of DPP-4 inhibitors on the immune system, particularly T cell differentiation, maturation, and proliferation, in patients with type 2 diabetes and CKD. This prospective observational study aimed to investigate the distribution of immune cells (particularly regulatory T cells), following the administration of gemigliptin, a DPP-4 inhibitor, in patients with type 2 diabetes mellitus and chronic kidney disease.

Methods : We enrolled 28 patients with type 2 diabetes, aged 20 to 69, who had been taking a daily dose of 50mg gemigliptin for <3 months and had chronic kidney disease stages 3, 4, or 5, including that undergoing dialysis.

Results : T regulatory cells were defined as CD4 + CD25 high CD127 low/- FoxP3 + phenotype, and flow cytometry was used to examine the distribution of T regulatory cells. In the patient group, blood samples were collected at baseline, as well as at 3 and 6 months after initiating medication. Of the 28 patients, 17 (60.7%) were male and the mean age was 61.82 ± 8.03 years. Serum Cr ≥ 1.5 mg/dL was 16 (57%), and Cr < 1.5 mg/dL was 12 (43%). The number of CD4(+)/CD25(+) cells did not significantly increase or decrease in baseline, 3 months, and 6 months time changes, and the number of CD127(-)/FoxP3(+) cells did not change significantly.

Conclusions : Treatment with gemigliptin for 3 and 6 months did not significantly alter the number, percentage, or ratio of circulating Treg cells in patients with type 2 diabetes and CKD. Therefore, the administration of gemigliptin may help maintain regulatory T cells or have no significant impact.