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Intravenous Methylprednisolone Pulse Therapy Target CD8+ Regulatory T Cell in Lupus Nephritis with Refractory Proteinuria

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Abstract Text:

Rationale: Rationale: We evaluated whether Intravenous methyl-prednisolone (IVMP) administration in patients with active class III/IV lupus nephritis (LN) is related to changes in $CD8^+FoxP3^+$ regulatory T (Treg) cell population, enhance $CD8^+$Treg suppressive function in peripheral blood mononuclear cells (PBMCs) and renal tissues.

Methods: Methods: Fourty patients with class III/IV lupus nephritis were treated with IVMP. PBMCs were isolated from patients before and after two weeks of IVMP.

Results: Results: IVMP therapy significantly increased $CD8^+Foxp3^+$ Treg cells expression with intracellular IL-10 and granzyme B in PBMCs. IVMP-treated $CD8^+CD25^+$ Treg cells directly suppressed $CD4^+$ T cell proliferation and induced $CD4^+CD45RO^+$ cell apoptosis. Histologically, a few of both $CD4^+FoxP3^+$ and $CD8^+FoxP3^+$ Treg cells in renal tissue of LN patients before IVMP by double immunohistochemical stain. $CD8^+FoxP3^+$ Treg cells increased in ten cases of follow-up renal biopsy specimens after IVMP. Difference of $CD8^+CD25^+FoxP3^+$Treg cells in PBMCs before and two weeks after IVMP correlated with decrease of Δ daily urine protein and anti-ds DNA Ab titers. siRNA of FoxP3 significantly suppressed granzyme B expression and decreasing $CD8^+CD25^+$Treg cell induced $CD4^+CD45RO^+$cell apoptosis.

Conclusions: Conclusion: IVMP therapy induces immunomodulatory effect partly by inducing $CD8^+CD25^+$Treg cell function, and hence may have therapeutic impact on treatment of LN.

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Keywords: Autoimmune Disease, T Cell Response Studies and T Cells

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