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ORIGINAL ARTICLE

sPD-1 and sPD-L1 Levels in Serum and Urine of Patients with Primary Nephrotic Syndrome and their Clinical Significance

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SUMMARY

Background: **Primary nephrotic syndrome (PNS), a clinically prevalent glomerular disease, mostly results in a large loss of plasma albumin, and its predominant clinical manifestations are proteinuria, hypoalbuminemia, edema, and hyperlipidemia. Research has uncovered [9] that sPD-L1 and sPD-1 modulate the PD and PD-L1 pathway in the development of various autoimmune diseases.**

Methods: **We randomly selected 80 PNS patients treated for PNS in our institution from October 2017 to October 2018 as the case group and 78 healthy volunteers examined in our hospital during the same period as the control group. Not only sPD-1 but also sPD-L1 level in serum and urine was assayed via ELISA. We compared the distribution of T lymphocyte subsets in peripheral blood and mALB and NAG levels in urine. Pearson's correlation analysis was adopted for assessing the relationship of serum and urine sPD-1, sPD-L1 with T lymphocyte subsets and mALB.**

Results: **(1) In contrast to the control group, the case group harbored higher pre-treatment serum and urine sPD-1 and sPD-L1 contents ($p < 0.05$). (2) Before treatment, sPD-1 in the serum and urine held a positive relationship with sPD-L1 level (r was 0.683 and 0.235, respectively, $p < 0.05$); serum sPD-1 harbored a positive link with urine sPD-1 ($r = 0.287$, $p < 0.01$), whereas no relationship was discovered in serum sPD-L1 and urine sPD-L1. (3) In contrast to the control group, the CD4+ level in the case group abated, CD8+ increased, the CD4+/CD8+ ratio assuaged, and mALB level in urine increased (all $p < 0.05$), whereas NAG harbored no statistical difference ($p > 0.05$). (4) In the case group, the CD4+/CD8+ ratio possessed positive association with serum sPD-1 ($r = 0.384$, $p < 0.001$), and the mALB had a positive relationship with urine sPD-1 ($r = 0.704$, $p < 0.001$). (5) After treatment, in comparison with the remission group, the serum sPD-1 level of the non-remission group was increased ($p < 0.05$), whereas sPD-L1 value was not statistically different ($p > 0.05$); the sPD-1 level in urine was not statistically significant ($p > 0.05$), while sPD-L1 content was elevated ($p < 0.05$).**

Conclusions: **Serum and urine sPD-1/sPD-L1 levels of PNS patients change dynamically. Detecting sPD-L1 and sPD-1 has certain clinical value for the prognosis of PNS.**

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Supplementary Tables and Figures

Table S1. General clinical data of in remission group and non-remission group.

Classification	Remission group (n = 46)	Non-remission group (n = 34)	p
Age (years)	43.18 ± 11.18	42.89 ± 11.52	0.598
Gender n (%)			
Male	25 (57.69)	19 (66.25)	0.892
Female	21 (42.31)	15 (33.75)	
BMI (kg/m^2)	21.57 ± 2.37	21.29 ± 2.81	0.476