Rituximab regulates the expression of the Raf kinase inhibitor protein via NF-κB in renal tissue of rats with diabetic nephropathy

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ABSTRACT. This study aimed to investigate the expression levels of the Raf kinase inhibitor protein (RKIP) and NF-κB in renal tissues of diabetic nephropathy (DN) rats, and to determine the underlying molecular targets of rituximab (RTX), with the goal of developing new clinical treatment selection for DN. Sprague-Dawley rats were randomly divided into a normal group (N), a DN group (M), and an RTX treatment group (D). Blood glucose and 24-h urine protein levels of rats were determined. The expression levels of RKIP and NF-κB in glomerular tissues were determined by immunohistochemistry staining and Western blotting. Comparisons between the M and N groups revealed that the concentrations of blood glucose and 24-h urine protein were significantly increased by DN (P < 0.01), and the expression levels of RKIP and NF-κB
were significantly decreased and increased (P < 0.05), respectively. In the D group, the expression levels of RKIP and NF-κB were, respectively, upregulated and downregulated by RTX, and the concentrations of 24-h urine protein were also decreased by RTX. These results suggest that expression levels of RKIP might be regulated by RTX via NF-κB. This pathway could play an important role in the development and pathogenesis of DN. Therefore, RTX could be selected for clinical treatment of DN.

**Key words:** Diabetic nephropathy; Rituximab; RKIP; NF-κB