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Beneficial effect of lactoferrin on the renal failure in 5/6 nephrectomized rat

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Lactoferrin (Lf) is a physiological compound produced by exocrine glands and released at a high concentration in colostrum. It plays numerous biological and beneficial functions. In this study, we investigated a beneficial effects of Lf on the chronic kidney disease model induced by 5/6 subtotal nephrectomy rat. Male wistar rats 5 weeks old underwent resection of 2/3 of the left kidney and total excision of the right kidney with an interoperative interval of 1 week (NX rat). The rats were divided into four groups, NX+BSA (300 mg/kg, po), NX+bovien Lf (300 mg/kg, po) and sham+BSA, sham+bLf. Blood and urine samples were collected every 2 weeks and the blood urea nitrogen (BUN) and creatinine (Cre) were determined up to 12 weeks after the operation. Blood pressure was also measured during the first two weeks. At the 12th week, the rats were sacrificed and then kidney tissue was collected and analyzed histopathologycally. In the NX+BSA group, BUN, Cre, urine volume and urinary protein increased time dependently. Blood pressure also increased at the 3rd day after the operation in NX+BSA rat. In contrast, NX+bLf group showed lower BUN, urinal protein/Cre ratio and suppressed the increment of blood pressure. Although bLf improved decreasing of glomerular counts, there were no significant differences in interstitial fibrosis and glomerular sclerosis (Masson's trichrome stain) between NX+BSA and NX+bLf group.

Biography

Takashi Takeuchi is currently a Professor at the Department of Veterinary Medicine, Tottori University, Japan. His research interest is focused on the novel function of lactoferrin, including intestinal absorption, improvement of liver and kidney failure, anti-stress and anti-nociceptive effect, etc.

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