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[\[PDF \(689K\)\]](#) [\[References\]](#)**Effect of vitamin B6 deficiency on glyoxylate metabolism in rats with or without glyoxylate overload**Saori NISHIJIMA¹⁾, Kimio SUGAYA¹⁾, Sanehiro HOKAMA¹⁾, Yoshinori OSHIRO¹⁾, Atsushi UCHIDA¹⁾, Makoto MOROZUMI¹⁾ and Yoshihide OGAWA¹⁾

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ABSTRACT

We examined the effect of vitamin B6 deficiency on glyoxylate metabolism and hepatic alanine: glyoxylate aminotransferase (AGT) activity in rats with normal or high glyoxylate intake. Male rats were divided into four groups: a control group, a vitamin B6-free diet group, a glyoxylate water group, and a vitamin B6-free diet + glyoxylate water group. Each group was given special diet (control or vitamin B6-deficient diet) and drinking water (plain or 0.5% glyoxylate water) for 4 weeks, after which biochemical parameters and hepatic AGT mRNA level were measured. Compared with control rats, the urinary oxalate/creatinine ratio was higher in each of the other 3 groups. The urinary glycolate/creatinine ratio was also higher in the vitamin B6-free diet group and the vitamin B6-free diet + glyoxylate water group than the control group, while the urinary glycine/creatinine and citrate/creatinine ratio was lower in both groups. The hepatic AGT mRNA level was reduced in the vitamin B6-free diet group, but was increased in the glyoxylate water group than the control group. These results suggest that vitamin B6 is necessary for glyoxylate metabolism as a coenzyme of AGT. Especially in the presence of a high glyoxylate intake, vitamin B6 deficiency leads to severe hyperoxaluria and hypocituria.

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