



CHAPTER VI

CONCLUSION AND SUGGESTION

The effects of an intrarenal arterial injection of vanadate $1.43 \mu\text{mol/kg}$ in saline control and metabolic acidosis groups can summarize that vanadate may induce an increase in mean arterial blood pressure by the direct inhibition of $\text{Na}^+\text{-K}^+\text{ATPase}$ and/or $\text{Ca}^{++}\text{-ATPase}$, leading to increase peripheral vascular resistant. The contraction of renal vascular smooth muscle caused the reduction in effective renal plasma flow and glomerular filtration rate. The fractional excretion of sodium, potassium and chloride increased significantly with a rise in plasma concentration of potassium and chloride may probably due to the inhibition of vanadate on $\text{Na}^+\text{-K}^+\text{ATPase}$, $\text{H}^+\text{-K}^+\text{ATPase}$ and acidosis, respectively. The reduction of urinary excretion rate of ammonium and titratable acid and also net acid excretion were seen. These findings suggest that a reduction in urinary acid excretion is mediated by vanadate produced a decrease in glomerular filtration rate and/or directly inhibition of $\text{H}^+\text{-K}^+\text{ATPase}$ in distal nephron segments. Our results in saline control, vanadate both increased in fractional excretion of sodium and potassium significantly and also diminished urinary acid excretion insignificantly. However, vanadate produced

a significant reduction of urinary acid excretion in acute metabolic acidosis. This may suggest that acute metabolic acidosis may enhance the effects of vanadate. Conversely, higher dose of vanadate may produce acidosis and/or elevate the violence of this condition. Thus, people in Northeastern Thailand that receive or expose to chronic administration of vanadium contents are possible to develop acidosis or distal renal tubular acidosis.

Our suggestion should immitate the real natural condition by study the effects of chronic administration of vanadate on acid excretion and histopathological change of kidney. Because vanadate also inhibits $\text{Na}^+\text{-K}^+\text{ATPase}$, this may mediate other effects. However, the direct mechanism on a decline in urinary acid excretion is still unclear and need to be searched and investigated.