The Effects of Retinoic Acid on Renal Cells in Mice
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Vitamin A derivative Retinoic acid (RA), has effects on cell cycle, proliferation and differentiation (1). Various studies propounded that RA has critical roles on renal development and repairment of renal damage (2). Aim of this study is to investigate the effects of exogenous RA on cell proliferation and RAR alpha expression in rat kidney.

12 adult female balb-c mice were used in control and experimental group. 80mg/kg/day 13-cis RA was applied for 5 days in experimental group, but in control group only saline was given by gavage. Kidneys were embedded in paraffin and stained with anti RAR alpha and BrDU antibody.

As BrDU immunoreactivity was investigated, no anti-proliferative effect was detected in RA treated group (Fig. 1). Positive RAR alpha immunoreactivity was seen especially in epithelial cells of loop of Henle and collecting duct in medulla rather than glomerular and tubular cells (Fig. 2).

Intracellular retinoic acid level depends on enzymes that synthesize and metabolize RA, transport proteins and nuclear receptors. The finding that endogenous retinoic acid has effects on principle cells and intercalated cells of collecting duct is compatible with our study which shows RAR immunoreactivity in collecting duct cells of mice kidney treated with exogenous retinoic acid (3). Although Xu Q. et al. (4) showed that exogenous RA treatment increases mortality and fibrosis in a dose-dependent manner in endogenous RA deficient transgenic mice, retinoic acid dose which is used in our study has no significant antiproliferative effect on healthy kidney cells.

References
Fig. 1: RA treated group BrdU immunoreactivity

Fig. 2: RAR alpha immunoreactivity of Henle loop and collectory canals of RA treated group.