Experimental Observations Regarding the Absorption of Cisplatin from an Ileal Segment Used as a Part of the Urinary Tract

Shinichiro IRIE[1] and Asami ARIYOSHI[2]

Department of Urology [1]*Fukuoka University School of Medicine and* [2]*Kawanami Hospital, Fukuoka, Japan*

Abstract: Background: Metabolic abnormalities in patients with intestinal urinary diversion is caused by the re-absorption of urine solutes across the ileal segment. The reason for this is that some drugs excreted in the urine may also be re-absorbed. The purpose of the present study was to explore the possibility of cisplatin re-absorption from an ileal segment using a canine model with a unilateral ileal conduit.

Methods: Seven female mongrel dogs weighing 8.0 to 15.8 kg were used. After intravenous pentobarbital anesthesia, a 20-cm segment of the terminal ileum, (starting 10 cm from the ileocecal valve) was used to construct an ileal conduit. The right ureter was anastomosed to the oral end of the ileal segment, and the distal end was brought out through the abdominal wall to make an everted stoma. The left ureter was left intact. After an intravenous bolus injection of cisplatin (0.5 mg/kg B.W.), the urine from both ureters was collected for 3 hours. The urinary volume, pH, urinary components, and the cisplatin concentration were then determined and compared between the stomal urine and the contralateral control urine.

Results: The amount of excreted cisplatin in the control urine was 1.20±0.35 mg, while that of the stomal urine was 0.92±0.30 mg ($p < 0.01$). The re-absorption rate from the ileal conduit was 23.4±12.8%, and cisplatin was re-absorbed to a greater extent at a lower urinary pH ($r = -0.57$).

Conclusions: We consider that excreted cisplatin is therefore significantly re-absorbed from the ileal segment which is part of the urinary tract.

Key words: Cisplatin, Urinary diversion, Dogs, Re-absorption, Urinary pH