Animal studies on the reduction and/or dilution of 2-deoxy-2-\textsuperscript{18}Ffluoro-d-glucose (FDG) activity in the urinary system

Shigeru Kosuda, Susan Fisher and Richard L. Wahl

Division of Nuclear Medicine, Department of Internal Medicine, The University of Michigan Medical Center University Hospital

To evaluate two methods for decreasing and/or diluting the FDG activity in the urinary system, five rats were intraperitoneally given 1,000 \( \mu \)g/g of l-lysine 4 times, starting from 60 minutes before iv injection of FDG, and then at 30-minute intervals for 90 minutes. Five rats were used as controls. In a furosemide study, 12 rats were allocated to three groups. Group 1 received iv injection of FDG alone. Group 2 received saline before iv injection of FDG. Group 3 received furosemide (7 mg/kg) and saline (1/30 of body weight). Neither renal uptake nor urinary excretion of FDG had a statistically significant difference: renal uptake; 0.179 ± 0.011 (l-lysine) vs. 0.119 ± 0.003 (control) % kg injected dose/g. The % dose excreted and total urine volume were: 15.0 ± 2.3 to 15.5 ± 2.5 with 2.98 ml (l-lysine), 22.9 ± 1.8 to 24.2 ± 1.3 with 1.41 ml (control). The furosemide study revealed a statistically significant difference: Group 1: 7.57 ± 4.73, Group 2: 0.686 ± 0.638, Group 3: 2.37 ± 2.33% kg injected dose/g (p < 0.01 for Group 1 vs. Group 2, p < 0.05 for Group 1 vs. Group 3). While pretreatment with l-lysine or furosemide failed to decrease renal activity of FDG, saline injection without furosemide markedly decreased urinary activity.

Key words: 2-deoxy-2-\textsuperscript{18}Ffluoro-d-glucose, urinary system, l-lysine