ORIGINAL ARTICLE

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Animal studies on the reduction and/or dilution of 2-deoxy-2-[^{18}F]fluoro-D-glucose (FDG) activity in the urinary system

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To evaluate two methods for decreasing and/or diluting the FDG activity in the urinary system, five rats were intraperitoneally given 1,000 μg/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 ± 2.5 to 15.5 ± 2.5 with 2.98 m*l* (L-lysine), 22.9 ± 1.8 to 24.2 ± 1.5 with 1.41 m*l* (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-[^{18}F]fluoro-D-glucose, urinary system, L-lysine