

Effect of exercise-induced activation of sympathetic nerve activity on clearance of ^{123}I -MIBG from the myocardium

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The effect of exercise on the cardiac kinetics of ^{123}I -MIBG was investigated in the present study. ^{123}I -MIBG was administered intravenously at rest in 6 healthy male volunteers, and anterior planar and SPECT images were obtained 15 minutes, and 2 and 4 hours after administration (protocol A). After 4 weeks, ^{123}I -MIBG was again administered intravenously at rest, and images were obtained 15 minutes later. After imaging, the subjects ran 10 km in approximately 1 hour, and anterior planar and SPECT images were obtained 2 and 4 hours after administration of ^{123}I -MIBG (protocol B). The heart-to-mediastinum uptake ratio (H/M) was calculated from each anterior planar image, and the mean ^{123}I -MIBG clearance from 15 minutes to 2 hours, and from 2 hours to 4 hours was calculated with a bull's eye display. The H/M was much lower after exercise. The mean clearance rate between 15 minutes and 2 hours in protocol B was significantly higher than that between 2 hours and 4 hours, and that between 15 minutes and 2 hours in protocol A. It was concluded that the clearance rate of ^{123}I -MIBG may be a useful index of cardiac sympathetic nerve activity.

Key words: ^{123}I -MIBG scintigraphy, exercise, cardiac sympathetic nerve function, clearance rate