ORIGINAL ARTICLE

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Washout rate of ^{123}I-metaiodobenzylguanidine increased by posture change or exercise in normal volunteers

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^{123}I-metaiodobenzylguanidine (MIBG) imaging detects sympathetic nerve function in the heart. The present study was conducted to clarify whether posture change or exercise affects ^{123}I-MIBG kinetics in normal volunteers. Seven subjects underwent three ^{123}I-MIBG studies, i.e., supine protocol, sitting protocol and exercise protocol. Planar ^{123}I-MIBG images were obtained at 15 minutes, 1 hour and 4 hours after injection of ^{123}I-MIBG. The washout rate (WR) from 15 minutes to 1 hour in the supine position in all subjects was similar for all three protocols, whereas the WR from 1 hour to 4 hours was significantly augmented in the sitting protocol and the exercise protocol as compared to the supine protocol ($p < 0.05$ and $p < 0.01$). The serum concentration of noradrenaline was significantly increased from the baseline to the 4 hour sampling in the sitting protocol and the exercise protocol (both $p < 0.01$), but was not altered in the supine protocol. The WR from 1 hour to 4 hours significantly correlated with the noradrenaline concentration in 4 hour sampling ($r = 0.59$, $p < 0.01$). It also significantly correlated with an increase in the noradrenaline concentration from the baseline to the 4 hour sampling ($r = 0.53$, $p < 0.05$). It is concluded that posture change or exercise affects the WR of ^{123}I-MIBG in normal healthy subjects.

Key words: sympathetic nerve, upright position, supine position, noradrenaline