

## **Uptake and washout of I-123-MIBG in neuronal and non-neuronal sites in rat hearts: Relationship to renal clearance**

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We investigated the uptake and washout of I-123-metaiodobenzylguanidine (MIBG) in neuronal (both intra- and extravascular) and non-neuronal sites in the heart and its relationship to renal clearance. Acute renal failure was induced in rats by ligating the renal vessels, and the findings were compared with those of sham-operated rats. Each group consisted of control, reserpine-treated and 6-hydroxydopamine (6-OHDA)-treated subgroups. Rats were sacrificed at 10 minutes and 4 hours after injection of MIBG. MIBG activity was calculated in specimens of heart, spleen, lung and blood. At 10 minutes, no significant difference in MIBG uptake in the heart was observed among the subgroups or between sham-operated and renal failure rats despite a significantly higher blood MIBG activity in the latter. At 4 hours, however, the hearts of both reserpine-treated and 6-OHDA-treated rats showed significantly lower MIBG uptake than control rats. Furthermore, the hearts of renal failure rats showed higher MIBG uptake in the control and reserpine-treated rats than in the corresponding subgroups in sham-operated rats. Intra and extravascular neuronal uptake of MIBG in the heart were estimated using control, reserpine-treated and 6-OHDA-treated rats. Vesicular uptake values were similar in both the sham-operated group (0.51% ID/g) and the renal failure group (0.44% ID/g). But extravascular neuronal uptake values were quite different in the renal failure group (0.86% ID/g) and the sham-operated group (0.19% ID/g). In conclusion, uptake to and washout from extravascular neuronal sites may depend on the concentration of MIBG in the blood or the state of renal clearance, but vesicular uptake may be independent of these factors.

**Key words:** MIBG, heart, renal clearance, reserpine, 6-OHDA