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Genetic and molecular characteristics of thermosensitivity in hypertension.

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Genetic and molecular characteristics of thermosensitivity in hypertension.

Source

Abstract
Acute heat exposure is more lethal to spontaneously hypertensive mice (SHM) than to normal mice, whereas chronic heat treatment appears to be more beneficial in SHM, in that it normalizes blood pressure. By genetic breeding experiments, we demonstrated that the gene responsible for thermosensitivity segregates with an increment of blood pressure in the F2-generation and represents a genetic locus of hypertension. The molecular response to heat characterized by the induction of heat stress genes is abnormal in hypertension. There is an earlier accumulation and decline of heat-stress proteins (HSP70) and their messenger (m) RNA following heat exposure in tissues obtained from hypertensive mice. Our results indicate that thermosensitivity is genetically linked with hypertension and characterized by an abnormality in the synthesis of stress proteins as well as in the expression of their mRNA following heat exposure, which implies that a genetic defect is present in response to environmental stress in spontaneous hypertension.