

عنوان مقاله:

Central and Peripheral Thermoregulatory Responses to Cold Exposure: Involvement of Sympathetic System, Nitric Oxide, and Orexin

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خلاصه مقاله:

In hypothermia, the core temperature of the body decreases below 35°C . In this situation, the body initiates some thermal regulatory process. Thermal regulation is the balance between heat production (thermogenesis) and heat loss (thermolysis) during thermal changes. Thermoregulation in skin blood flow can maintain body temperature and so homeostasis. A large body of literature has shown that in cold exposure, the hypothalamus contributes to thermoregulation by affecting skin blood flow. Moreover, some peripheral factors contribute to thermoregulation through modification of skin blood flow. Furthermore, the sympathetic nervous system can regulate the body temperature through a noradrenergic vasoconstrictor and a vasodilator system. As orexin receptors are also found in several peripheral mammal tissues, the activation of the orexin may stimulate the autonomic nervous system to increase blood pressure leading to control of heat balance. The present study aimed to evaluate the activity level and involvement of thermal regulators in cold stress. Generally, more experiments should be accomplished to find the regulatory pathways in these situations. Furthermore, this study was focused on the effect of orexin on thermoregulatory functions. This brief review intended to report the studies revealing the prime effects of orexin on the body temperature through influences exerted on the sympathetic nervous system.

کلمات کلیدی:

Cold exposure, Blood flow, Thermal regulation, Central and peripheral thermoregulation, Orexin

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