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Natriuretic peptides: a potential target for metabolic diseases?

Cardiac natriuretic peptides (NP) have recently emerged as potent metabolic hormones. Physiological release of cardiac atrial NP (ANP) during exercise increases fatty acid mobilization from adipose tissue and utilization by skeletal muscle. Clinical studies have shown that although very high plasma NP level characterizes cardiac dysfunction and heart failure, a consistently reduced plasma NP level is observed in metabolic diseases such as obesity and type 2 diabetes (T2D). A low circulating level of NP predicts the risk of new onset T2D. Experimental evidences from mouse models argue that the “natriuretic handicap” observed in obesity is causally associated with T2D. Recent work indicates that ANP activate a thermogenic program in brown and white fat, as well as non shivering thermogenesis by inducing brown adipose tissue activity and lipolysis in white fat upon cold exposure. Collectively, targeting the NP pathway may offer a novel therapeutic avenue for the management of obesity and T2D.