
Abstract

PURPOSE OF REVIEW:
To summarize the evidence characterizing the interactions between adrenal-regulating and calcium-regulating hormones, and the relevance of these interactions to human cardiovascular and skeletal health.

RECENT FINDINGS:
Human studies support the regulation of parathyroid hormone (PTH) by the renin-angiotensin-aldosterone system (RAAS): angiotensin II may stimulate PTH secretion via an acute and direct mechanism, whereas aldosterone may exert a chronic stimulation of PTH secretion. Studies in primary aldosteronism, congestive heart failure, and chronic kidney disease have identified associations between hyperaldosteronism, hyperparathyroidism, and bone loss, which appear to improve when inhibiting the RAAS. Conversely, elevated PTH and insufficient vitamin D status have been associated with adverse cardiovascular outcomes, which may be mediated by the RAAS. Studies of primary hyperparathyroidism implicate PTH-mediated stimulation of the RAAS, and recent evidence shows that the vitamin D-vitamin D receptor complex may negatively regulate renin expression and RAAS activity. Ongoing human interventional studies are evaluating the influence of RAAS inhibition on PTH and the influence of vitamin D receptor agonists on RAAS activity.

SUMMARY:
Although previously considered independent endocrine systems, emerging evidence supports a complex web of interactions between adrenal-regulating and calcium-regulating hormones, with implications for human cardiovascular and skeletal health.