Table V. Monogenic forms of HTN and Treatment

Syndrome	Genetic Defect	Mechanism	Treatment
Glucocorticoid-remediable Aldosteronism **(aka Familial Hyperaldosteronism Type I)**	**Chimeric gene formation** (portions of 11 β-hydroxylase gene and the aldosterone synthesis gene)	Chimeric gene stimulates ACTH to generate aldosterone	**Glucocorticoid** (dexamethasone or prednisone) administration leads to decreased ACTH production
Apparent Mineralocorticoid Excess	**Loss of function mutation** of 11 β-hydroxysteroid dehydrogenase	Decreased 11β-hydroxysteroid dehydrogenase leads to increased circulating cortisol; cortisol activates the aldosterone receptor leading to increased sodium reabsorption in the renal principal cells	**Restriction of dietary sodium.** **Mineralocorticoid receptor antagonists (i.e. spironolactone)**
Congenital Adrenal Hyperplasia	**Loss of function mutation** leading to 11 β-hydroxylase deficiency	11β-Hydroxylase deficiency leads to increased ACTH and accumulation of 11-deoxycorticosterone (a potent mineralocorticoid) and 11-deoxycortisol. These elevated precursors also lead to increased responsiveness of Aldosterone Synthase to stimuli (Angiotensin II, Potassium)	**Glucocorticoid** administration.
Liddle Syndrome	**Gain of function mutation** in the β or γ subunits of the ENaC	Leads to marked increase in Sodium reabsorption irrespective of circulating aldosterone levels	**Low salt diet** plus **distal nephron sodium transporter antagonists.** Responds to: **amiloride** (inhibitor of distal renal ENaC) and **Triamterene** (Potassium sparing diuretics)
Type 2 Pseudo-hypoaldosteronism **(aka Gordon's Syndrome; familial hyperkalemia)**	**Loss of function mutation** in WNK kinases	**Leads to distal sodium-chloride cotransporter activation, which leads to sodium retention, volume expansion, hyperkalemia**	**Triamterene** or **thiazide diuretics**

ACTH – Adrenocorticotropic Hormone; ENaC – epithelial sodium channel