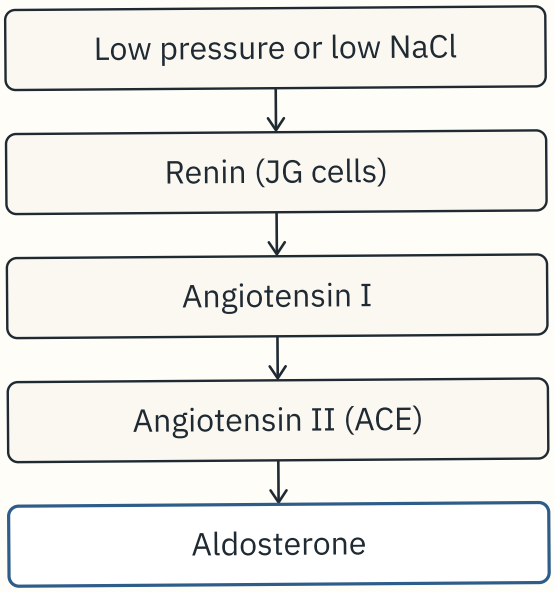
RAAS in one page

Renin release to aldosterone



Step by step

1. Renin: low pressure, low macula densa NaCl, sympathetic β_1
2. Liver angiotensinogen → angiotensin I (renin)
3. Angiotensin I → angiotensin II (ACE, mostly lung)
4. Angiotensin II → aldosterone
5. Brake: angiotensin II, pressure, macula densa NaCl

Hormone	Main actions
Angiotensin II	Vasoconstriction; efferent > afferent (GFR kept)
Angiotensin II	Proximal Na^+–H^+ exchange, ADH, thirst
Angiotensin II	Releases aldosterone
Aldosterone	Principal cells: Na^+ and water kept, K^+ lost
Aldosterone	α-intercalated cells: H^+ lost

Angiotensin II and aldosterone

Rule of thumb

Excess aldosterone: hypertension, low K^+, metabolic alkalosis

Efferent tight = GFR protected

Remove angiotensin II, and GFR can fall

Exam traps

- The kidney releases renin on low pressure or low salt, true dryness or not.
- Angiotensin II constricts efferent more than afferent.
- An ACE inhibitor in bilateral renal artery stenosis can raise creatinine.

RAAS explained: renin, angiotensin II and aldosterone

Video, written lesson, practice question and sources: medservatory.com/usmle-step-1/renal-physiology/raas-renin-angiotensin-aldosterone

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