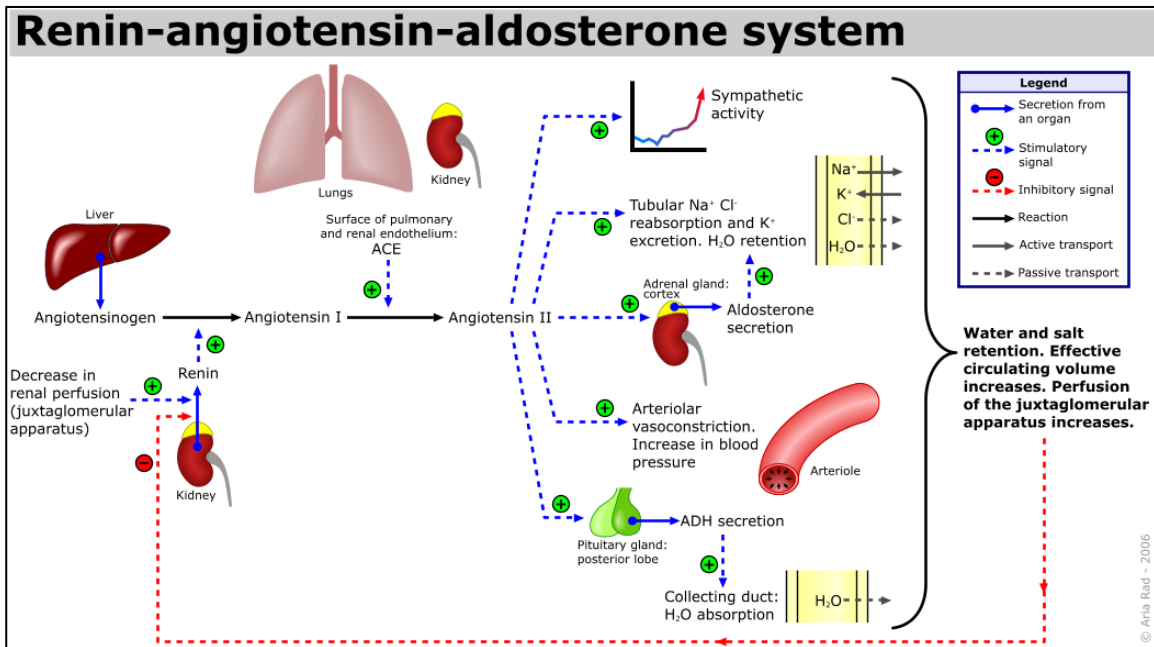


Pre-Operative ACE Inhibitors

Anesthetic Pearls: Anesthetic Implications of Pre-Operative ACE Inhibitors

The kidneys increase secretion of the enzyme **Renin** in response to:

1. Decreased perfusion of the kidneys
2. Sympathetic stimulation



- Renin is produced by the juxtaglomerular (**JG**) cells in the renal corpuscle of the kidney.
- Renin converts **Angiotensinogen** (produced by the liver) to Angiotensin-1.
- In the lung parenchyma, **Angiotensin-I** is converted to **Angiotensin-II** by an **Angiotensin Converting Enzyme (ACE)**.
- Angiotensin-II then stimulates the secretion of **Aldosterone** which causes systemic vasoconstriction (increasing renal perfusion), sodium / water retention, sympathetic activation, and Endothelin production.
- ACE inhibitors act at the level of inhibition of angiotensin converting enzyme thereby causing a decrease in SVR, urinary loss of sodium / water, and potential cardiac remodeling.

Common names of ACE inhibitors: Lisinopril, Captopril, Enalapril, Benazepril, Quinapril

Indications:

1. HTN
2. CHF (afterload reduction / decrease SVR, cardiac remodeling)
3. Post-MI (associated with improved survival)
4. Diabetic Nephropathy

ACE inhibitors cause:

- A. Increased sensitivity to hypovolemia
- B. Prone to hyperkalemia (especially in patients with renal insufficiency)
- C. Tendency toward vasodilation
- D. Angioedema
- E. Persistent dry cough

Pre-Op evaluation should include: basic chemistry, BUN, creatinine