ACE inhibitors or ARBs

ASSK Study
- Albuminuria more detrimental to hypertensive black patients
- Long acting ARB more effective than short
- Cost vs side effects

Taking the medication works better than not, NO matter which drug!

20% bump in Scr is normal-ignore it!

ACE inhibitors or ARBs

ACEi or ARB

Efficacy and safety of dual blockade of the renin-angiotensin system: meta-analysis of randomised trials, Jan 2013

Dual Blockade means- increased risk of Complications
And
No decrease in mortality

Complications include: Hyperkalemia, hypotension, and kidney failure

ACE Inhibitor and Angiotensin Receptor-II Antagonist Prescribing and Hospital Admissions with Acute Kidney Injury: A Longitudinal Ecological Study

Increased risk of AKI with ACEi/ARB

Off the Couch!

60 minutes of exercise = 0.5% slower decline in kidney function

Short term changes after a weight reduction intervention in Advanced Diabetic Nephropathy*

*Clinical Journal American Society of Nephrology, Nov 2013
A1C Goal 7%

CKD 4, 5, 5D = 7.5%

Metabolic Acidosis

Serum Bicarb <22mEq/L
GFR<33ml/min

Blood Pressure

Annals of Internal Medicine

Blood pressure and mortality in U.S. veterans with CKD: A cohort study
Annals Int Med
Aug 2013

As a PA, I don’t always cause white coat HTN
But when I do, I treat the patient with 3 drugs, bottom out the BP and totally box their kidneys

Blood Pressure

Goal for CKD Patients
140/90

JNC 8 Guidelines

African American Study of Kidney Disease and Hypertension

ACE and ARBs decrease progression to kidney failure in the African American population In all stages of CKD Regardless of risk factors
APOL1 variants associate with increased risk of CKD among African Americans
J Am Soc Nephrol. 2013 Sep;24(9):1484-91

Screen for Chronic Conditions

Iatrogenic Kidney Disease

Alcohol consumption is inversely associated with the risk of developing CKD
PREVEND Study Group
Kidney International 14 January 2015

ETOH is cardioprotective, renoprotective and diabetic protective
FAPA President's Reception- Friday 6:30 pm - 10:30 pm

OTC Medications
- Decongestants such as pseudoephedrine (e.g., Sudafed®) or phenylephrine can potentially increase blood pressure to dangerous levels. Patients may also experience decreased appetite, insomnia, and/or difficulty urinating.
- Non-steroidal anti-inflammatory drugs (NSAIDs), especially in patients with chronic kidney disease, should be avoided because they can inhibit prostaglandin-dependent vasodilation and may increase the risk of acute kidney injury. These medications are associated with an increased risk of heart attack, stroke, and stomach ulceration, with greater chances of occurring in the elderly. Patients who have had a recent coronary artery bypass graft should not use NSAIDs.
- Magnesium (common in many laxatives such as milk of magnesia (e.g., Phillips®, Gaviscon®) and magnesium citrate) can result in accumulation of magnesium, hypermagnesemia, muscle weakness, and diarrhea. This should not be used in CKD patients.
- Phosphorus (Fleet’s® enemas) can result in accumulation of phosphorus (hyperphosphatemia), phosphate nephropathy, and acute kidney injury. See FDA warning:
- Bismuth (Pepto-Bismol® and Kayopectate) may cause tongue discoloration (darkening), graying black stools, and ringing in the ears (salicylate toxicity).
- Aluminum is not excreted efficiently in late stage CKD and can accumulate causing bone toxicity, anemia, and potentially encephalopathy in CKD patients. Care must be taken with some of the GI preparations that contain aluminum (Maalox®, Rolaids®, Gaviscon® and Amphojel®). Some county water systems use aluminum in their reservoir water to settle dissolved dirt.
- Sodium Bicarbonate (Alka-Selzer®, both the ‘upset’ stomach and cold remedy versions along with the anti-heartburn medication Zegrid® (omeprazole/sodium bicarbonate)), can effect a metabolic alkalosis if taken in large quantities. Patients may experience constipation, fecal discoloration (white specks), and stomach cramps.
- Goody’s® Powders, BC Powder®, and Stanback® powder are toxic to the kidneys and may cause stomach upset and ulcers.
- Ranitidine, grapefruit, and cimetidine are potent CP450 inhibitors (cimetidine > ranitidine) and interfere with metabolism of many of the medications that CKD patients take.
- Cimetidine inhibits active secretion of creatinine and can result in approximately a 15% increase in serum creatinine which is not associated with reduced glomerular filtration rate. You can get a falsely high serum creatinine.
- Calcium-based reflux medications (calcium carbonate (e.g. Tums®)) can cause calcium loading in the CKD patient because of impaired excretion of calcium and mineral and bone hormonal disruption and can increase the risk of calcification of peripheral vessels.
- Excessive Vitamin D can increase the chance of kidney stones in the susceptible CKD patient.
- Salt substitutes may contain potassium rather than sodium which can lead to hyperkalemia and risk is markedly increased with concomitant ACE inhibitor or ARB use.

Managing Chronic Kidney Disease in the Primary Care Setting
Numerous, sometimes conflicting CKD guidelines challenge providing appropriate care

OTC Medications

Managing Chronic Kidney Disease in the Primary Care Setting
Kidneys in a Box

20 units
PI-CME 1
AANPA.org

Laurie Benton, Nephrology

AAPA Board of Directors
YES!!!

CKD

We are all in this together
We can help slow progression
We cannot change final outcomes

After years of study and research, the same old rules apply
1) Lose Weight
2) Quit Smoking
3) Exercise
4) First do no harm
....do not cause iatrogenic kidney problems!

What is the most critical predictor for progression of kidney disease?

1) Systolic Blood Pressure
2) A1C Levels
3) Urine Albumin to Creatinine
4) SCr Levels

Which of the following slows kidney disease progression?

1) Keep Blood Pressure below 120/80
2) Keep A1C below 6.5%
3) Give baking soda if the serum bicarb is below 22 mEq/L
4) Keep the Hgb level above 12

Which of the following is true?

1) Everyone loses kidney function as they age
2) Caucasian patients carry an APOL1 gene that pre-disposes them to CKD
3) Iatrogenic kidney injury is uncommon
4) Most medications are safe for CKD patients until they reach stage 4 and beyond