Connection Between Kidney Disease and Heart Disease

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Dr. Matthew Poffenroth

- Chief Medical Officer for the Signature Partners Network at Inova Health System
- Experienced primary care physician
- One of his primary goals has been to help patients prevent and manage the common chronic diseases that can lead to kidney failure (diabetes, hypertension and cardiovascular disease)

Thanks to our speaker!
Agenda

• Incidence of kidney disease
• Common risk factors for kidney disease and heart disease
• How kidney disease leads to heart disease, and vice versa
• Prevention and management of kidney disease and heart disease
Chronic Kidney Disease (CKD) as a Public Health Issue

- 26 million Americans affected
- Prevalence is 11-13% of the adult population in the US
- 28% of Medicare budget in 2013, up from 6.9% in 1993
- $42 billion in 2013
- Increases risk for all-cause mortality, cardiovascular mortality, kidney failure (ESRD), and other adverse outcomes
- 6-fold increase in mortality rate with diabetes+ CKD
- Disproportionately affects African Americans and Hispanics

ESRD, end stage renal disease
Chronic Kidney Disease (CKD) Risk Factors

Changeable
• Diabetes
• Hypertension
• History of acute kidney injury
• Frequent NSAID use (pain relief drugs, like aspirin or Aleve)
• Smoking

Not changeable
• Family history of kidney disease, diabetes, or hypertension
• Age 60 or older (GFR declines normally with age)
• Race/U.S. ethnic minority status
Cardiovascular Disease (CVD) Risk Factors

Changeable
- Diabetes
- Hypertension
- Smoking
- Elevated cholesterol
- Obesity
- CKD

Not changeable
- Family history of heart disease
- Age
- Gender (male>female)
- CKD

*Partial list
AKI, acute kidney injury
**Many patients with heart disease also have CKD**
And many patients with CKD also have heart disease
As CKD gets worse, your risk of developing heart failure increases.
Adjusted survival of patients by CKD and CHF status, 2012-2013

Patients with CKD and congestive heart failure (CHF) die sooner
Survival of patients with a cardiovascular diagnosis or procedure, by CKD status, 2011-2013

For patients with both CKD and heart disease, as the kidney disease gets worse, you die sooner
How Does CKD Lead to Congestive Heart Failure (CHF)?

- High blood pressure and fluid overload strains the heart (leads to heart failure)
- Endothelial dysfunction (blood vessel cells)
- Inflammation
- Dyslipidemia (bad cholesterol elevated)
- Elevated phosphate levels
- Low vitamin D levels
Preventing CKD and CVD

“An Ounce of Prevention is Worth a Pound of Cure”

• Diet and exercise to maintain a healthy weight
• Smoking cessation
• Control diabetes
• Control blood pressure
• Control cholesterol
• Avoid excess over the counter pain medications (ibuprofen, Motrin, Aleve, etc.)
• Consider Vitamin D supplement
• Regular check up with your Primary Care Physician
For Overall Cardiovascular Health:
At least **30 minutes of moderate-intensity** aerobic activity at least 5 days per week for a total of 150
OR
At least **25 minutes of vigorous** aerobic activity at least **3 days per week for a total of 75 minutes**; or a combination of moderate- and vigorous-intensity aerobic activity
AND
**Moderate- to high-intensity muscle-strengthening activity** at least **2 days per week** for additional health benefits.

For Lowering Blood Pressure and Cholesterol:
An average **40 minutes of moderate- to vigorous-intensity** aerobic activity **3 or 4 times per week**
Diabetes Control

29 million people with diabetes and 89 million people with pre-diabetes in the US (2012)

• Diet and exercise to maintain healthy weight
• Medications if necessary to control blood sugars
• Medications to control cholesterol
• Target HbA1c < 7.0%

Regular visits with your doctor
CKD-CVD-Diabetes Link: CKD is a Disease Multiplier
Hypertension (High Blood Pressure) Control

78 million people with hypertension (1 in 3 adults) in the US (2013)

• Diet and exercise to maintain healthy weight
• Limit sodium in diet
• Smoking cessation
• Medications if necessary
  – Adults age <60: <140/90
  – Adults > 60 yrs: <150/90
  – All ages, diabetes and/or CKD: <140/90

Regular visits with your doctor
Cholesterol Control and CKD

Indications for medications (“Statins”)
• Adults > 50 years & CKD (any stage)
• Adults 18 – 49, any stage CKD, AND
  – Known coronary artery disease (CAD)
  – Diabetes
  – Prior stroke
  – Estimated 10 year incidence of heart attack >10%
• Adults with CKD on Dialysis – No Rx
Complications of CKD can Affect Heart Disease

• **Anemia** (low blood counts) can trigger chest pain (angina) and even heart attacks in patients with heart disease

• **High blood pressure** causes a strain on the heart and can lead to congestive heart failure

• **High calcium and phosphorus** levels can lead to hardening of the arteries
Key Take Away Messages

• CKD, CVD, diabetes and hypertension are all very common and related
• Lifestyle (diet, exercise, tobacco abuse) is the biggest risk factor, and the main treatment
• Prevention is key
• Regular visits with your primary care physician is important to screen for and manage these diseases
Thank You!

Questions?
Join us for next month’s webinar!

A patient’s perspective: Be your own advocate

Tuesday, March 28
1-2 p.m. (ET)

Join us to learn about:
- The meaning of being your own advocate in the healthcare setting
- Specific ways you can advocate for yourself as a dialysis/transplant patient

Eric Dolby, Sr.
- Patient advocate
- AKF 2012 Hero of Hope award recipient

Go to www.KidneyFund.org/webinars to learn more and register!