Introduction

- In 2002, the National Kidney Foundation published Kidney Disease Outcomes Quality Initiative (KDOQI) guidelines intended to provide a common framework for defining and staging chronic kidney disease (CKD).
- Other clinical practice guidelines for CKD stages 1-4 followed, covering dyslipidemia management, bone metabolism and diseases, hypertension, anemia, and diabetes.
- As the prevalent end-stage renal disease (CKD stage 5) population is projected to reach 712,290 by 2015, these guidelines aim to slow CKD progression and reduce morbidity and mortality.
- CKD patients are more than 6 times likely to die, mainly from cardiovascular disease (CVD), than to reach end-stage disease.
- We used NHANES 1999-2004 data with the goal of providing a baseline assessment of current CKD population health and adherence to KDOQI recommendations for dyslipidemia management.

Methods

- Analyses were limited to adult (≥20) NHANES 1999-2004 MEC-examined participants (n = 14,213). CKD was identified following KDOQI classification guidelines.
- LDL cholesterol levels were classified according to the NCEP ATP III guidelines:
  - Optimal: <100 (mg/dL)
  - Near optimal: 100 - <130
  - Near optimal: 130 - <160
  - Healthy: 160 - <190
  - Borderline high: 190 - <240
  - Very high: >240
- Target LDL cholesterol levels are:
  - Near optimal: 100 - <130
  - Optimal: < 100 (mg/dL)

Results

- In patients without a reported history of CVD, CKD stage 1-2 patients were 25% more likely to be hypercholesterolemic (OR 1.25, 95% CI 0.99-1.59, p<0.04); however, CKD stage 3-4 patients were 5 times as likely to be hypercholesterolemic compared with non-CKD patients (OR 5.03, 95% CI 3.60-7.03, p<0.01; Figures 2 & 3).
- In patients with a reported history of CVD, CKD patients were more than 50% less likely to be hypercholesterolemic (Figure 6; stage 1-2: OR 0.49, 95% CI 0.16-1.07, p=0.07; stage 3-4: OR 0.39, 95% CI 0.17-0.90, p<0.003).
- In patients without a prior history of CVD, CKD stage 3-4 patients were less likely to aware of, treated for, and in control of their hypercholesterolemia (Figure 5).
- In patients with a prior history of CVD, CKD patients were not significantly different from non-CKD patients in terms of awareness, treatment, and control, with the exception of CKD stage 3-4 patients who were more likely to be in control (Figure 6).

Conclusions

- Stage 3-4 CKD patients without prior CVD were 5 times more likely to be hypercholesterolemic, but were 65% less likely to be aware of the condition and 61% less likely to be treated for the condition, and 86% less likely to be in control of hypercholesterolemia compared with non-CKD patients.
- Among patients with prior CVD, CKD patients were less likely to be hypercholesterolemic, and levels of awareness, treatment, and control were nearly equal to those of non-CKD patients.
- These findings highlight the opportunity to find and treat hypercholesterolemia in CKD patients, particularly stage 3-4 patients without prior known CVD.