NEW PRACTICE GUIDELINES FOR THE MANAGEMENT OF LIPIDS IN CHRONIC KIDNEY DISEASE

New clinical practice guidelines for assessment and treatment of lipids in patients with chronic kidney disease (CKD) were published in 2013 by the Kidney Disease: Improving Global Outcomes (KDIGO) organization. These guidelines apply to both children and adults with dialysis-dependent and non-dialysis-dependent CKD and to those who have undergone a kidney transplant. This issue of CLIPs briefly summarizes these guidelines. If you need further information, please contact the Samford University Drug Information Service at (205) 726-2659.


Background

- The decision to prescribe a cholesterol-lowering agent to a non-CKD patient is often based on the low-density lipoprotein (LDL) level due to evidence that LDL levels are an accurate indicator of coronary event risk.
- Gauging the patient’s coronary risk is the true objective in determining the appropriateness of cholesterol lowering agents; LDL is simply used as a surrogate measure.
- LDL should not be used to assess coronary risk in CKD patients because LDL less accurately reflects coronary risk in this population. Instead, it is recommended to use the absolute risk of coronary events as well as available evidence of the level of benefit provided by the lipid lowering agent when choosing whether to initiate a lipid lowering medication in a patient with CKD.
- Below are the recommendations accompanied by levels of evidence (Table 1) and rationale.

### Table 1. Levels of Evidence

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Implication to Clinicians</th>
<th>Strength of Recommendation</th>
<th>Overall Quality of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Most patients should receive the recommended course of action.</td>
<td>Grade Level</td>
<td>Letter Grade</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>Different choices will be appropriate for different patients. Each patient needs help to arrive at a management decision consistent with his or her values and preferences.</td>
<td>Not Graded</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not Graded</td>
<td>D</td>
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**Recommendations Regarding Lipid Assessments**

1) **In adults with newly identified CKD, evaluation with a lipid profile is recommended.** *(1C)*

- **Rationale:** The purpose of evaluating a lipid profile in newly diagnosed CKD patients is to identify cases of dyslipidemia (e.g., severe hypercholesterolemia or hypertriglyceridemia) and identify secondary causes. Patients with a fasting triglycerides level of <1,000 mg/dL or an LDL level of <190 mg/dL should be referred to a specialist.

2) **In adults with CKD, follow-up lipid level measurement is not required for most patients.** *(Not Graded)*

- **Rationale:** Trending lipid levels is not usually necessary because cardiovascular risk is a better estimate for events in patients with CKD. Only draw lipid levels in situations in which the results will guide therapeutic decisions (e.g., verifying statin adherence, change in renal replacement method, or identification of suspected secondary dyslipidemia causes).

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**Recommendations Regarding Lipid Treatment**

1) In adults aged ≥50 years with eGFR <60 mL/min/1.73 m² but not treated with chronic dialysis or kidney transplantation (GFR categories G3a-G5), treatment with a statin or statin/ezetimibe is recommended. (1A)
   - **Rationale:** In patients with GFR categories G3a-G5 enrolled in the Study of Heart and Renal Protection (SHARP), a reduction in risk of major atherosclerotic events was evident in patients who received combination simvastatin/ezetimibe compared with placebo. Subgroup analyses of other statin versus placebo clinical trials also support the efficacy of statins in CKD patients of this age and renal function.

2) In adults aged ≥50 years with CKD and eGFR ≥60mL/min/1.73 m² (GFR categories G1-G2), treatment with a statin is recommended. (1B)
   - **Rationale:** These patients were likely represented in trials that have shown efficacy of statins in the general population; therefore, it is reasonable to generalize these results to this CKD population.

3) In adults aged 18–49 years with CKD but not treated with chronic dialysis or kidney transplantation, statin treatment is suggested in patients with one or more of the following (2A):
   - Known coronary disease (myocardial infarction [MI] or coronary revascularization)
   - Diabetes mellitus (DM)
   - Prior ischemic stroke
   - Estimated 10-year incidence of coronary death or non-fatal MI >10%
   - **Rationale:** In CKD patients of this age group, having coronary disease, DM, or previous ischemic stroke equates their 10-year risk for coronary death or nonfatal MI to 12.2% (95% CI, 9.9–15.0%).

4) In adults with dialysis-dependent CKD, it is suggested that statins or statin/ezetimibe combination should not be initiated. (2A)
   - **Rationale:** Statins were not shown to reduce the risk of cardiovascular events in dialysis-dependent patients in three clinical trials. These trials lacked sufficient power; nonetheless, for patients who are not already on statins or combination therapy, initiation of these agents is not recommended without studies showing their benefit.

5) In adults already receiving statins or statin/ezetimibe combination at the time of dialysis initiation, it is suggested that these agents be continued. (2C)
   - **Rationale:** A subgroup analysis was performed as part of SHARP that included patients on statins who did not have kidney failure at the beginning of the study but did begin dialysis within the trial period and continued the statin. This analysis did suggest a benefit.

6) In adult kidney transplant recipients, treatment with a statin is suggested. (2B)
   - **Rationale:** In adult patients with a kidney transplant, the 10-year risk for a fatal coronary event or nonfatal MI is approximately 21.5%. The Assessment of Lescol in Renal Transplantation (ALERT) study showed a significant reduction in risk of coronary death or nonfatal MI in renal transplant patients receiving fluvalastatin compared with placebo after 6.7 years of follow-up.

**Recommendations Regarding Dosing**

- For adult patients with an eGFR G1-G2, no special dose adjustments are recommended.
- For adult patients with an eGFR G3a-G5, dialysis patients, and kidney transplant patients, the following doses are recommended based on doses used in trials that enrolled similar patients: atorvastatin 20 mg/day, fluvastatin 80 mg/day, pitavastatin 2 mg/day, pravastatin 40 mg/day, rosuvastatin 10 mg/day, simvastatin 40 mg/day, simvastatin/ezetimibe 20 mg/10mg/day.

**Conclusion**

- CKD patients may have high cardiovascular risk despite low to normal LDL levels. Therefore, it is inappropriate to use LDL levels as the primary determining factor for statin therapy in CKD patients.
- The decision to initiate or continue statin therapy should be patient-specific and should be based on cardiovascular risk and evidence of therapeutic efficacy.
- Dosing of statins is generally lower in patients with eGFR <60 mL/min/1.73 m² than in the general population.

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