



Contents lists available at ScienceDirect

Indian Heart Journal

journal homepage: www.elsevier.com/locate/ihj



Original Article

Implications of the 2013 ACC/AHA cholesterol guidelines on contemporary clinical practice for patients with atherosclerotic coronary and peripheral arterial disease

Prasad Gunasekaran, Vinodh Jeevanantham, Suresh Sharma, Rashmi Thapa, Kamal Gupta*

Division of Cardiovascular Diseases, University of Kansas Medical Center, Kansas City, KS, United States

ARTICLE INFO

Article history:

Received 10 May 2016

Accepted 19 May 2017

Available online xxx

Keywords:

Peripheral arterial disease

Statin utilization

New cholesterol guidelines

ABSTRACT

Background: Cholesterol management guidelines from the American College of Cardiology/American Heart Association (ACC/AHA-2013) recommend fixed statin dosing (dose depends on age \leq or >75 years) compared to the earlier adult treatment panel III (ATPIII) guidelines which recommended specific low-density lipoprotein-cholesterol (LDL-C) targets. Clinical implications of this recommendation are not known.

Methods: We retrospectively compared cholesterol levels and statin utilization across cohorts with coronary artery disease (CAD) (n=9563), peripheral arterial disease (PAD) (n=596) and CAD+PAD (n=975) by applying both guidelines. The percentage of patients who achieved guideline-specific targets using 2013 ACC/AHA (use of moderate/high intensity statins) or ATPIII guidelines (LDL-C < 100 mg/dl) was compared between all groups.

Results: Using both guidelines, the PAD only group demonstrated lower utilization and lower statin doses than the CAD or CAD+PAD groups. When applying the ACC/AHA guidelines, more patients in the CAD only group (age ≤ 75 years) were considered at goal as compared to the ATPIII guidelines (92.2% vs. 75%), primarily driven by the group placed on moderate/high intensity statins but had an LDL-C level >100 mg/dl. **Conclusions:** Application of the ACC/AHA guidelines results in a higher percentage of patients considered to be 'at goal' when compared to the ATP III guidelines without changes in clinical practice. This is due to patients ≤ 75 years old on adequate statin doses but still have LDL-C levels >100 mg/dl, thereby raising concerns that physicians may not pursue alternate LDL reduction strategies since they are now considered at goal despite LDL-C >100 mg/dl. Lipid management of PAD patients remains sub-optimal as compared to CAD and CAD+PAD.

© 2017 Published by Elsevier B.V. on behalf of Cardiological Society of India. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

The current cholesterol guidelines from the American College of Cardiology (ACC) and the American Heart Association (AHA) were published in 2013 and were a significant departure from the Adult

Treatment Panel III (ATP III) guidelines.^{1,2} Unlike the ATP III guidelines that recommended targeting low-density lipoprotein-cholesterol (LDL-C) levels of <100 mg/dl for adults with established atherosclerotic cardiovascular disease (ASCVD), the 2013 ACC/AHA guidelines abolished LDL-C testing and recommended fixed dose statin drugs with some allowance of dose reduction for age >75 years. In assessing the impact of these new guidelines, Pencina et al. estimated that in the United States (U.S.), 12.8 million more would be eligible for statin drugs. However, this was mostly due to increase that would be seen in the older adults without ASCVD who had LDL-C >100 mg/dl.³ It is well known that the use of statin drugs for established ASCVD patients while increasing, is still suboptimal.⁴ Our prior research demonstrated suboptimal lipid control in patients with peripheral arterial disease (PAD) in the absence of concurrent coronary artery disease (CAD). Specifically, the mean LDL-C in the PAD group was higher than

Abbreviations: ATP III, adult treatment panel; ACC/AHA, American College of Cardiology/American Heart Association; ASCVD, atherosclerotic cardiovascular disease; CAD, coronary artery disease; HIC, high-income countries; ICD-9, International Classification of Disease – 9th Revision; LDL-C, low-density lipoprotein cholesterol; LMIC, low-mid income countries; MACE, major adverse cardiac events; NCDR, National cardiovascular disease registry; PAD, Peripheral arterial disease; U.S., United States.

* Corresponding author at: Division of Cardiovascular Diseases, University of Kansas Medical Center, Mail Stop 3006, 3901 Rainbow Boulevard, Kansas City, KS, 66160, United States.

E-mail address: kgupta@kumc.edu (K. Gupta).

<http://dx.doi.org/10.1016/j.ihj.2017.05.016>

0019-4832/© 2017 Published by Elsevier B.V. on behalf of Cardiological Society of India. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Please cite this article in press as: P. Gunasekaran, et al., Implications of the 2013 ACC/AHA cholesterol guidelines on contemporary clinical practice for patients with atherosclerotic coronary and peripheral arterial disease, Indian Heart J (2017), <http://dx.doi.org/10.1016/j.ihj.2017.05.016>

the CAD (92 vs 83 mg/dl, respectively, $p < 0.001$) and the combined CAD+PAD groups (92 vs 80 mg/dl, respectively, $p < 0.001$).⁵ Maddox et al. recently reported that application of the 2013 guidelines to U.S. cardiology practices demonstrated that 32.4% of statin eligible adults were not receiving statins.⁴ However, similar information is not available for non-coronary ASCVD such as PAD, which is a 'CAD equivalent' in terms of mortality and morbidity.⁶ We studied the implications of the 2013 ACC/AHA cholesterol guidelines on current practice of lipid management in PAD patients compared to patients with CAD alone and CAD with PAD.

2. Methods

We conducted a retrospective observational study of lipid management practice in the University of Kansas Hospital, a large tertiary healthcare system in the U.S. The electronic medical records of 11,134 patients, age 18 years and above from January 2009 – August 2014 were screened using the *International Classification of Disease – 9th Revision (ICD-9)* codes for CAD and PAD, resulting in the identification of 3 distinct cohorts: PAD only, CAD only and PAD with CAD. Patients with known allergy or intolerance to statin drugs as reported in the medical records were excluded. Specific ICD-9 codes used to identify CAD in our study include 410.x–414.x, and 429.2 V45.81. These ICD-9 codes have demonstrated excellent specificity and positive predictive value of 96% each. Similar values for specificity and PPV for risk factors such as diabetes mellitus, hypertension and stroke were noted in this study. However, the sensitivity and negative predictive value of these conditions were rather modest at approximately 50–75%.⁷ Similarly, ICD-9 codes for PAD (440.20–440.29) were used to identify our PAD subset. These codes have shown excellent specificity of approximately 90% but a modest sensitivity of 68%.⁸

The most recent lipid profiles as well as medication lists of these patient cohorts were reviewed for LDL-C levels, statin usage and their specific doses. If a patient had multiple visits during this time frame, the index visit was used to ascertain baseline characteristics. If the patients had multiple lipid profile measurements in

this period, the values of cholesterol fractions such as LDL-C were expressed as mean \pm standard deviations of all individual values of lipid profile tests performed in this period. In accordance with the 2013 ACC/AHA Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risk in Adults, the intensity of statin therapy were classified into high, moderate and low based on an average reduction in LDL-C levels, by approximately $\geq 50\%$, 30 to $<50\%$ and $<30\%$, respectively.² The cutoffs for magnitude of reduction in LDL-C were derived from randomized controlled trial evidence in the guidelines. The potency of the various individual statin medications were ascertained using the doses specified in Table 5 of the guideline document (e.g. Atorvastatin 40 mg and 80 mg are considered high-intensity and 10 mg and 20 mg are considered moderate-intensity statin doses).² Subsequently, we compared the proportion of patients on various intensity statin doses between the PAD only vs. CAD only, PAD vs. PAD with CAD groups (after sub-stratification of these cohorts based on age above or below 75 years) using a Chi-Square test (Table 2). The percentage of patients who had achieved guideline specific targets of either an LDL-C level of <100 mg/dl (ATP III) or by virtue of use of high (Age ≤ 75 years) or moderate-high intensity statins (Age >75 years or statin dose reduction due to side-effects) (2013 ACC/AHA) was recorded. Fig. 1 elicits the comparative differences in the percentage of patients who achieved the 2 distinct guideline specific targets across the PAD only, CAD only and PAD with CAD groups. A p-value of <0.05 was considered statistically significant. All analyses were performed using SPSS (version 19.0; SPSS, Inc., Chicago, Illinois).

3. Results

Table 1 describes the demographic and other relevant clinical details of the study cohort. The mean ages in the CAD only, PAD only and in the CAD+PAD groups are 69, 70 and 72 years respectively. The pertinent study results are summarized in Table 2. We observed that when lipid management practice is evaluated using the new ACC/AHA guidelines, there were a higher

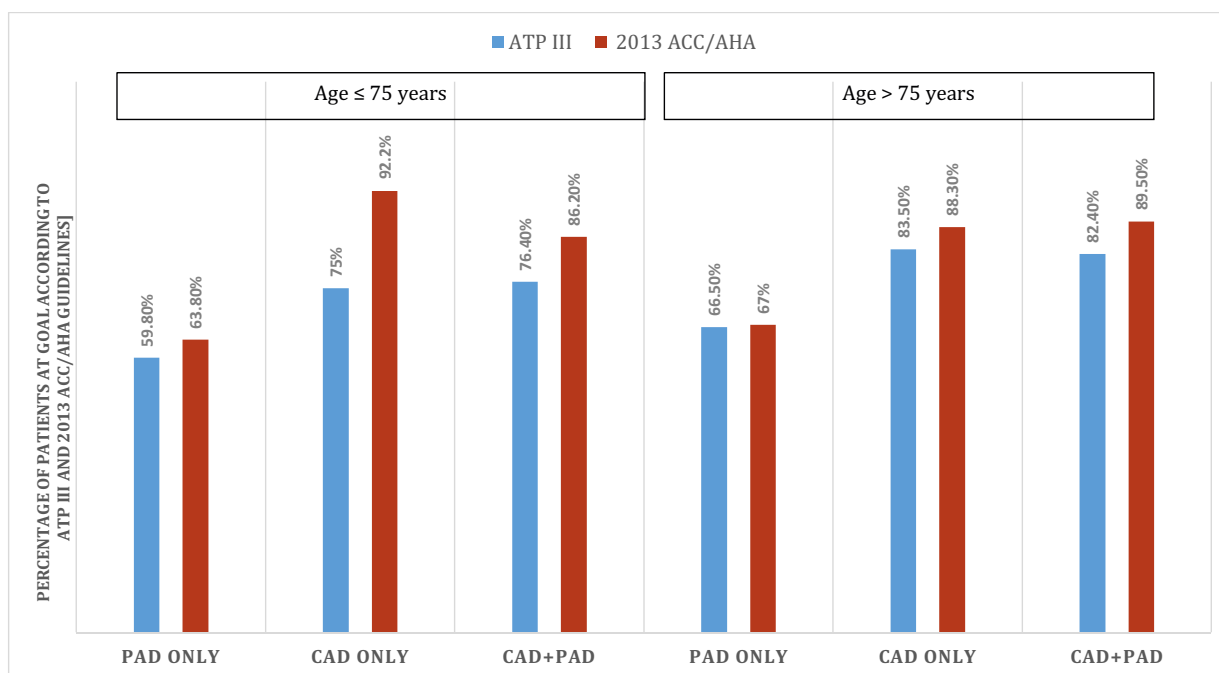


Fig. 1. Comparison of the Proportion of Patients at Guideline Specific Targets Using the Adult Treatment Panel III (LDL Cholesterol Level <100 mg/dL) and 2013 American College of Cardiology/American Heart Association Guidelines (Use of Moderate or High-Intensity Statin Therapy).

Download English Version:

<https://daneshyari.com/en/article/8661410>

Download Persian Version:

<https://daneshyari.com/article/8661410>

[Daneshyari.com](https://daneshyari.com)