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Introduction
Lipid-lowering therapies, particularly statins, are increasingly used in the management of dyslipidemia.
However, it is not clear how this has influenced lipid profiles in the US population.
We aimed to determine the average lipid profiles of men and women from 2003 to 2012, using data from NHANES extrapolated to the US population.
Using five NHANES surveys provides a large enough sample size that is representative of the US population.
Consequently, fairly precise, clinically-relevant population estimates can be generated and changes over time identified.

Methods

NHANES

• NHANES is a major program of the National Center for Health Statistics, which is part of the Centers for Disease Control and Prevention. It is designed to assess the health and nutritional status of the US population.
• Each year, the survey examines a nationally representative sample of approximately 5000 individuals.
• Individuals chosen at random undergo interviews comprising demographic, socioeconomic, dietary, and health-related questions, as well as physical examinations, including medical, dental, and physiological measurements and laboratory tests.
• Prevalence estimates for the total adult US population were age-adjusted using the direct method to the US Census 2000 population, and were based on 117,296 observations from NHANES 2003–2012.

Study design

• CHD risk using NCEP ATP III criteria was assessed in adult participants (aged ≥20) in five 2-yearly NHANES surveys from 2003–2004 to 2011–2012.
• Patients were categorised as being at high, intermediate, or low CHD risk (Table 1).

Table 1. NCEP ATP III CHD risk categories and LDL-C goals

CHD risk category | Definition | LDL-C goal | Non-HDL-C goal | HDL-C goal |
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High-risk | CHD event or CHD risk equivalents; CVD risk factors; or diabetes or type 2 diabetes mellitus | <100 mg/dL | <130 mg/dL | ≥40 mg/dL |
Intermediate-risk | CHD event or CHD risk equivalents; one CVD risk factor; or diabetes or type 2 diabetes mellitus | <130 mg/dL | <160 mg/dL | ≥40 mg/dL |
Low-risk | None of the above | <160 mg/dL | <190 mg/dL | ≥40 mg/dL |

• Mean HDL-C levels were consistently higher in women than in men in all risk groups (Table 1).
• For both men and women in all risk categories, no obvious trend for change in mean levels of non-HDL-C, LDL-C, and HDL-C was observed (Figure 2).

Results

• From 2003–2004 to 2011–2012, a significant increase in the use of lipid-lowering therapy was observed in the low- (p<0.0001) and high- (p<0.0001) risk groups (Figure 1).

Conclusions

• Despite the increased use of lipid-lowering therapy, there was no trend for change in lipid profiles in low-, intermediate- or high-risk men and women in the US population.

• This may be due to:
  - Variability in response to lipid-lowering therapy
  - Not providing lipid-lowering therapy when appropriate
  - Inadequate adherence to lipid-lowering therapy
  - Insufficient clinical improvement for titrating lipid-lowering therapy
• These results highlight the need for more aggressive identification and treatment of individuals at risk, and the need to monitor adherence to treatment and provide appropriate follow-up.

References