Heart Disease Risk Knowledge among SHIELD Respondents with Dyslipidemia

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BACKGROUND

- Coronary heart disease (CHD) is the leading cause of death in the US, accounting for more than 650,000 deaths in 2005[1]

- Extensive evidence has shown that modifying risk factors can prevent the development of cardiovascular disease (CVD) events[2-4]

- As reported in one study, fewer than 50% of American women know that heart disease is the leading cause of death in women, and only 38% of women reported that their doctors had ever discussed heart disease with them[5]

- Being aware of the risk of heart disease is important as the first step in taking action to lower risk and empower individuals to live a healthy life

STUDY OBJECTIVE

- Assess whether respondents with a diagnosis of dyslipidemia were aware of their heart disease risk and if the self-reported risk level correlated with the derived National Cholesterol Education Program (NCEP) Adult Treatment Panel (ATP) III guidelines risk level

METHODS

Study Design

- Data were derived from the Study to Help Improve Early evaluation and management of risk factors Leading to Diabetes (SHIELD), a 5-year population-based survey conducted to better understand the risk and disease burden of diabetes and CVD
  - Survey responses for 211,097 adults from 127,420 households (64% response rate) were obtained, based upon a screening questionnaire mailed to 200,000 nationally representative households
  - A 64-item survey was sent to 22,001 selected individuals derived from the screening respondents
  - Annual surveys have captured self-reported information on health status, health attitudes and behaviors

- This investigation is a cross-sectional analysis of knowledge of heart disease risk among SHIELD respondents to the 2006 survey (n = 13,877)

Study Population

- Respondents were categorized as having dyslipidemia based upon self-report of having been told by a doctor, nurse or other healthcare professional that they have cholesterol problems

Study Measures

- Knowledge of heart disease risk was assessed by the question **"Do you know your level of heart disease risk?"** Response categories were low, moderate, high, don't know

Study Measures (Continued)

- Respondents also reported the name of each prescription medication currently prescribed to them. Respondents with a diagnosis of dyslipidemia were stratified by whether they indicated taking lipid-modifying treatment or not

- NCEP ATP III risk level was estimated using self-reported risk factor information collected from other questions in the survey
  - High CHD risk was defined by self-reported diagnosis of heart disease/ heart attack, narrowed or blocked arteries, stroke or diabetes
  - Moderate CHD risk included $\geq$ 2 of the following risk factors: men aged > 45 years, women aged > 55 years, diagnosis of hypertension, low high-density lipoprotein cholesterol (HDL-C), current smoking, and family history of CHD
  - Low CHD risk included $\leq$ 1 risk factor

Statistical Analyses

- Comparisons between respondents who did and did not know their heart disease risk were made using chi-square tests for proportions and t-tests for comparison of means

- Multivariate logistic regression was used to identify predictors of heart disease knowledge, and odds ratios and 95% CI were reported

RESULTS

- In the SHIELD population, 7,629 respondents had a diagnosis of dyslipidemia
  - 65% (n = 4,938) were taking lipid-modifying therapy

Table 1. Characteristics of SHIELD respondents with dyslipidemia

Characteristics	Total dyslipidemia sample (n = 7,629)	Treated dyslipidemia respondents (n = 4,938)	Untreated dyslipidemia respondents (n = 2,691)
Age, years, mean (SD)	60.6 (13.3)	62.7 (12.2)*	56.8 (14.5)
Women, %	58.9	55.9*	64.3
White, %	90.6	91.8*	88.5
Education, % with no more than a high school degree	32.6	33.6*	30.9
Income, % with <$35,000	41.2	40.3	42.8
NCEP ATP III risk level			
High CHD risk, %	62.1	69.4*	48.9
Moderate CHD risk, %	24.6	22.8	27.9
Low CHD risk, %	13.2	7.8	23.2

*p < 0.001 for treated vs. untreated

- The majority (62%) of the dyslipidemia respondents were classified as high CHD risk, and an additional 25% were moderate risk according to NCEP ATP III guidelines

- The treated dyslipidemia group was older, comprised more men and whites, and had a greater proportion with low education level, and high CHD risk compared with the untreated dyslipidemia respondents (p < 0.001)

RESULTS (Continued)

Figure 1. Proportion of SHIELD respondents with dyslipidemia who knew their heart disease risk
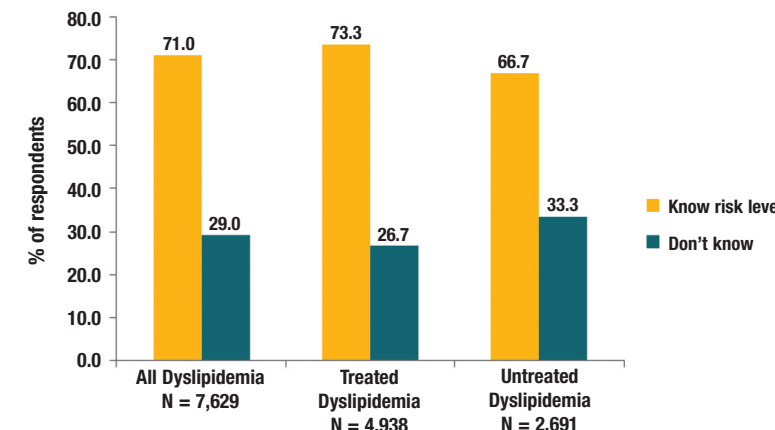

p < 0.001 for treated vs. untreated

- Among all respondents with dyslipidemia, 29% did not know their heart disease risk level

- Untreated respondents were less likely to know their heart disease risk (33% don't know) than respondents who were treated for dyslipidemia (27%) (p <0.001)

Figure 2. Predictors of knowing the level of heart disease risk (n = 6,363)
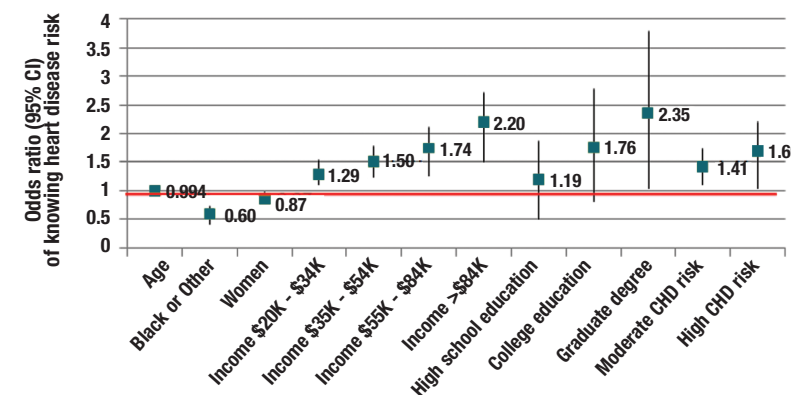
- Multivariate regression showed that increasing age, white race, male gender, higher income, higher education, and higher CHD risk level were independently associated with knowledge of heart disease risk level (p < 0.05)

- Moderate CHD risk respondents were 41% more likely and high CHD risk respondents were 69% more likely to know their heart disease risk compared with low CHD risk respondents (p < 0.01)

Figure 3. Concordance between patient-reported heart disease risk level and estimated NCEP ATP III CHD risk level for all respondents with dyslipidemia (n = 7,629)
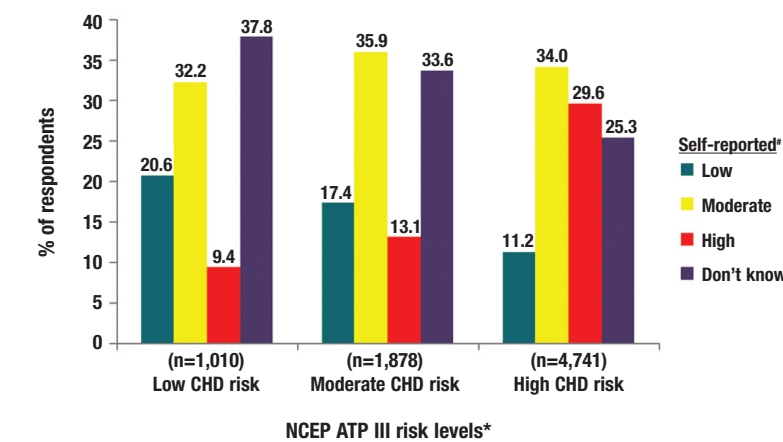
*Estimated from survey risk factor data; #self-reported knowledge of risk level

- Approximately one third of respondents with dyslipidemia reported the same risk level as their estimated ATP III risk level; thus, concordance was low

- Among high CHD risk respondents, 30% correctly reported that their heart disease risk was high; 45% reported a lower risk level

- For moderate CHD risk respondents, 36% correctly reported that their heart disease risk was moderate

- Significantly more respondents with low CHD risk reported not knowing their heart disease risk compared with high CHD risk respondents (p < 0.001)

LIMITATIONS

- Diagnosis of dyslipidemia and prescription medications were self-reported without independent confirmation by a physician or examination of medical records due to the survey approach

- Recall of diagnoses by respondents could potentially differ for recently diagnosed respondents compared with respondents given the diagnosis years before

- Household panels, like the SHIELD study, tend to under-represent the very wealthy and very poor segments of the population and do not include military or institutionalized individuals

CONCLUSIONS

- Approximately one third of SHIELD respondents reported not knowing their heart disease risk even though they had been diagnosed with dyslipidemia

- Components of heart disease risk are known to respondents, but respondents are unaware of the increased risk associated with combinations of risk factors

- Even among respondents who reported knowing their risk level, only 21%–36% correctly reported the same risk level as their estimated NCEP ATP III risk

- There is still much room for improvement in an individual's knowledge and awareness of his or her heart disease risk

- Physicians may easily incorporate the NCEP ATP III guidelines into routine clinical practice to educate their patients on heart disease risk

- Incorporation of risk stratification educational materials and guidelines into other venues such as pharmacies, grocery stores, and health clubs may help improve awareness

- Knowledge of heart disease risk level should facilitate discussion about prevention goals to achieve a heart-healthy life

References

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Abbreviations

ATP	Adult Treatment Panel
CHD	Coronary heart disease
CI	Confidence interval
CVD	Cardiovascular disease
HDL-C	High-density lipoprotein cholesterol
NCEP	National Cholesterol Education Program
SHIELD	Study to Help Improve Early evaluation and management of risk factors Leading to Diabetes

DISCLOSURES

Authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation:

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