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Preventive Aspirin Use among Patients at Risk for Coronary Heart Disease: Suboptimal Use among SHIELD Respondents

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BACKGROUND

- Approximately 1 million Americans die from myocardial infarction and other forms of CHD annually[1]
- Regular use of aspirin has reduced the risk of CHD in persons who have never had a heart attack or stroke but who were at increased risk[2]
- AHA 2004 guidelines for cardiovascular disease prevention in women recommend aspirin use for moderate- and high-risk individuals[3]
- U.S. Preventive Services Task Force and AHA recommend that clinicians discuss the benefits and harms of aspirin therapy with men and women who are at increased risk of CHD[4-5]
- For women at low risk of CHD, the AHA guidelines recommend that aspirin not be used for cardiovascular disease prevention due to increased incidence of gastrointestinal bleeding and hemorrhagic strokes[3]
- Evidence is limited on whether individuals at risk for CHD and their physicians are adopting the AHA guidelines regarding aspirin use

OBJECTIVE

- Assess aspirin use in a population at risk for CHD to determine whether the AHA guidelines were adopted

METHODS

Study Design

- Cross-sectional analysis of use of aspirin among SHIELD respondents at risk for CHD
- SHIELD is a 5-year longitudinal population-based survey conducted to better understand the burden of illness of people living with diabetes and those at risk for its development

METHODS

Study Population

Respondents were 18 years of age or older

Risk of CHD was determined based on NCEP ATP III risk categories:

1. **High CHD Risk:** patient-reported diagnosis of heart disease/heart attack, narrow or blocked arteries/carotid artery disease, stroke or diabetes
2. **Moderate CHD Risk:** respondents reporting ≥2 of the risk factors:
   a. Men >45 years, women >55 years
   b. Reported diagnosis of low HDL-C
   c. Reported diagnosis of high blood pressure
   d. Current smoking status
   e. Family history of heart disease, narrow or blocked arteries, stroke, or diabetes
3. **Low CHD Risk:** respondents with 0-1 of the above risk factors

ASPIRIN USE ASSESMENT

- In the past 4 weeks, how often did you take aspirin every day?
- Those responding "most of the time" or "always" were considered daily users
- Reason for taking aspirin was not collected in the survey

STATISTICAL ANALYSES

- Bivariate ANOVA with t-tests and chi-square tests to test for differences in aspirin use among CHD risk groups
- Gender-specific analyses examining differences in aspirin use
- Logistic regression adjusting aspirin use for age, gender, and race
- Statistical significance was set a priori at p<0.05

RESULTS

Total of 17,159 respondents provided information on aspirin use and CHD risk

Table 1. Baseline characteristics of SHIELD respondents by CHD risk group

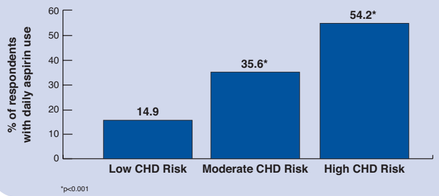
Characteristics	High CHD Risk N=7409	Moderate CHD Risk N=4627	Low CHD Risk N=5123
Age, mean years	60.3	57.0*	43.3*
Women	4148 (56.0%)	2730 (59.0%)*	3558 (69.5%)*
Race, whites	6366 (85.9%)	4068 (87.9%)*	4489 (87.6%)
Education, with some college or higher	4757 (64.2%)	3131 (67.7%)*	3815 (74.5%)*
Income, <$40,000/yr	3922 (52.9%)	2013 (43.5%)*	1802 (35.2%)*
Geographic region			
Northeast	1443 (19.5%)	900 (19.5%)	987 (19.3%)
North central	1773 (23.9%)	1182 (25.5%)	1293 (25.2%)
South Atlantic	1493 (20.2%)	920 (19.9%)	908 (17.7%)
South central	1324 (17.9%)	755 (16.3%)	832 (16.2%)
Mountain	445 (6.0%)	265 (5.7%)	377 (7.4%)
Pacific	931 (12.6%)	605 (13.1%)	726 (14.2%)

*p value <0.01 for comparison with high-risk group

- High-risk respondents were older and lower proportion were women, white, college educated, and lower income than moderate- and low-risk respondents

Aspirin Use

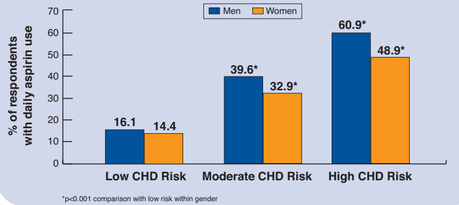
Figure 1. Proportion of SHIELD respondents with daily aspirin use by CHD risk group



*p<0.001

- Significantly greater proportion of high CHD risk respondents indicated daily aspirin use, compared with moderate and low CHD risk groups (Fig. 1)
- 46% of high CHD risk respondents were **not** taking aspirin daily
- 15% of low CHD risk respondents were daily aspirin users

Figure 2. Proportion of SHIELD respondents with daily aspirin use by gender and CHD risk group



*p<0.001 comparison with low risk within gender

- Among men, 61% of high CHD risk group reported daily aspirin use, which was significantly higher than moderate and low CHD risk respondents (Fig. 2)
- Similar relationship for women, with 49% of high CHD risk respondents taking daily aspirin vs. significantly lower proportions for moderate and low CHD risk women
- Yet, 39% of high-risk men and 51% of high-risk women were **not** taking aspirin daily
- The gap in preventive aspirin use is wider for moderate CHD risk group, with 60% of men and 67% of women not taking aspirin daily
- Significantly fewer women were taking daily aspirin than men in the high-risk and moderate-risk groups, p<0.001

Table 2. Odds ratio for daily aspirin use, adjusted for age, gender, and race

Parameters	Odds ratio (95% CI)
High CHD risk	3.69 (3.34 - 4.07)*
Moderate CHD risk	1.84 (1.66 - 2.05)*
Age	1.043 (1.040 - 1.045)*
Gender (female)	0.73 (0.68 - 0.78)*
Race (non-white)	0.77 (0.69 - 0.87)*

*p<0.0001

- High CHD risk respondents were 3.7 times more likely than low-risk respondents to take aspirin daily, after adjustment for age, gender, and race
- Moderate CHD risk respondents were 1.8 times more likely than low-risk respondents to be daily aspirin users, after adjustment

LIMITATIONS

- Respondents were not asked the reason they were taking aspirin daily; thus, their aspirin use may be related to other chronic conditions like arthritis or headaches
- 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

SUMMARY/CONCLUSIONS

- **High CHD risk SHIELD respondents reported the highest rate of daily aspirin use, compared with moderate- and low-risk groups, consistent with AHA guideline recommendations**
- **A substantial proportion of individuals at risk (46% of high risk and 64% of moderate risk) for CHD are not taking aspirin**
- **More men than women are taking aspirin, indicating potential gaps in efforts to raise awareness of CHD risk in women**
- **There remains opportunity for significant improvement in raising awareness and motivating at-risk individuals to adopt preventive measures for reducing cardiovascular disease**
- **It may also be appropriate to increase awareness among all CHD risk individuals of the potential risk and benefit of daily aspirin**

REFERENCES

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LIST OF ABBREVIATIONS

AHA	American Heart Association
CHD	coronary heart disease
NCEP ATP III	National Cholesterol Education Program Adult Treatment Panel III
SHIELD	Study to Help Improve Early evaluation and management of risk factors Leading to Diabetes

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