Arthritis as a Potential Barrier to Physical Activity Among Adults With Heart Disease—United States, 2005 and 2007

MMWR. 2009;58:165-169

1 figure, 2 tables omitted

BEING PHYSICALLY ACTIVE IS AN IMPORTANT COMPONENT OF HEART DISEASE (HD) MANAGEMENT; however, patients with HD are less likely to comply with physical activity recommendations than those without HD. Arthritis is a common comorbidity among persons with HD, and arthritis-associated joint pain and fear of further joint damage can be an unrecognized barrier to physical activity among persons with HD (CDC, unpublished data, 2008). To provide estimates of the magnitude of this problem at the state level, CDC combined 2005 and 2007 Behavioral Risk Factor Surveillance System (BRFSS) data to estimate overall and age- and sex-specific prevalence of self-reported doctor-diagnosed arthritis among adults aged ≥18 years with self-reported HD, and the prevalence of physical inactivity among adults with HD by arthritis status. The results indicated that, for these 2 years combined, arthritis affected 57.4% of adults with HD, compared with 27.4% of adults in the general population. Among adults with HD, the likelihood of physical inactivity was 30% greater compared with that of persons with HD but without arthritis, when adjusted for age, sex, race/ethnicity, education level, and body mass index (BMI) (odds ratio [OR] = 1.3). These results suggest that arthritis might be an additional barrier to increased physical activity among persons with HD. Healthcare providers and public health agencies should consider addressing this barrier with arthritis-specific or general evidence-based self-management education and exercise programs for their patients with arthritis and HD.

BRFSS is a state-based, random-digit-dialed telephone survey of the noninstitutionalized U.S. civilian population aged ≥18 years. Data were collected from the 50 states, District of Columbia (DC), Puerto Rico, and U.S. Virgin Islands. Response rates were calculated using Council of American Survey and Research Organizations (CASRO) guidelines; for 2005 and 2007, respectively, median response rates were 51.1% and 50.6% and cooperation rates were 75.1% and 72.1%. A total of 13,725 respondents with missing arthritis or HD data were excluded, resulting in a final sample of 757,959.

HD was defined as a “yes” response to at least one of two questions: “Has a doctor, nurse, or other health professional ever told you that you had . . . a heart attack, also called a myocardial infarction?” or “. . . angina or coronary heart disease?” Doctor-diagnosed arthritis was defined as a “yes” response to the question, “Have you ever been told by a doctor or other health professional that you have some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia?” Physical activity level of respondents was determined from six questions† that asked about frequency and duration of participation in nonoccupational activities (i.e., lifestyle activities) of moderate and vigorous intensity; persons reporting no participation in such activities were classified as inactive. Physical activity guidelines in effect during 2005 and 2007 were used for classifying physical inactivity.§ Body mass index (BMI) was calculated from self-reported height and weight.

To generate nationwide estimates and 95% confidence intervals (CIs), data from 2005 and 2007 for the 50 states and DC were combined, and an annual average weighting was applied to account for multistage probability sampling. Data for arthritis and heart disease were not collected in all states in 2006, and so, were not included. To assess factors potentially confounding an association between doctor-diagnosed arthritis and physical inactivity among those with heart disease, data were combined across states, in unadjusted and adjusted (by age, sex, race/ethnicity, education level, and BMI) logistic regression models. All other estimates in this report are unadjusted. Estimates were calculated for the 50 states, DC, and territories. Because states are most interested in the number of affected persons and unadjusted prevalence for use in planning and resource allocations, unadjusted state-specific estimates are provided in this report. Statistical significance was determined by the chi-square test (p<0.05).

Average annual adult prevalence was 6.5% for HD and 26.9% for arthritis. Among all respondents, 3.7% reported HD and arthritis, 2.8% reported HD only, 23.2% reported arthritis only, and 70.4% reported neither condition. By sex, males had a higher prevalence of HD only and a slightly higher prevalence of both conditions (p<0.01); females had a higher prevalence of arthritis only (p<0.01). The likelihood of having one or both conditions increased with increasing age. Whites were more likely than blacks to have one or both conditions (p<0.01). Prevalence of physical inactivity was lowest among adults without arthritis or HD (11.0%; CI = 10.8%-11.2%), higher among adults with arthritis alone (17.6%; CI = 17.3%-18.0%) and HD alone (21.0%; CI = 20.0%-22.2%), and highest among adults with both conditions (29.3%; CI = 28.5%-30.2%) (p<0.01).

In logistic regression analyses of adults with HD, those with doctor-diagnosed arthritis were 60% more likely to be physically inactive (OR = 1.6; CI = 1.4-1.7; p<0.01); when adjusted for age, sex, race/ethnicity, education level, and BMI,
they were 30% more likely to be inactive (OR=1.3; CI=1.2-1.4; p<0.01). The state median prevalence estimate for arthritis among adults with HD was 57.4% (range: 46.9% in Hawaii to 68.6% in Mississippi). The state median prevalence of physical inactivity among adults with HD and arthritis was 27.2% (range: 20.5% in Colorado to 50.3% in Kentucky); among adults who had HD only, the state median was 19.5% (range: 13.5% in Utah to 38.0% in Kentucky).

**References**


Guidance for Control of Infections With Carbapenem-Resistant or Carbapenemase-Producing Enterobacteriaceae in Acute Care Facilities

MMWR. 2009;58:256-260

INFECTION WITH CARBAPENEM-RESISTANT Enterobacteriaceae (CRE) or carbapenemase-producing Enterobacteriaceae is emerging as an important challenge in health-care settings.1 Currently, carbapenem-resistant Klebsiella pneumoniae (CRKP) is the species of CRE most commonly encountered in the United States. CRKP is resistant to almost all available antimicrobial agents, and infections with CRKP have been associated with high rates of morbidity and mortality, particularly among persons with prolonged hospitalization and those who are critically ill and exposed to invasive devices (e.g., ventilators or central venous catheters). This report provides updated recommendations from CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC) for the control of CRE or carbapenemase-producing Enterobacteriaceae in acute care (inpatient) facilities. For all acute care facilities, CDC and HICPAC recommend an aggressive infection control strategy, including managing all patients with CRE using contact precautions and implementing Clinical and Laboratory Standards Institute (CLSI) guidelines for detection of carbapenemase production. In areas where CRE are not endemic, acute care facilities should (1) review microbiology records for the preceding 6-12 months to determine whether CRE have been recovered at the facility, (2) if the review finds previously unrecognized CRE, perform a point prevalence culture survey in high-risk units to look for other cases of CRE, and (3) perform active surveillance cultures of patients with epidemiologic links to persons from whom CRE have been recovered. In areas where CRE are endemic, an increased likelihood exists for importation of CRE, and facilities should consider additional strategies to reduce rates of CRE.2 Acute care facilities should review these recommendations and implement appropriate strategies to limit the spread of these pathogens.

For CRKP, the most important mechanism of resistance is the production of a carbapenemase enzyme, bla_kpc. The gene that encodes the bla_kpc enzyme is carried on a mobile piece of genetic material (transposon), which increases the risk for dissemination. Since first described in North Carolina in 1999, CRKP has been identified in 24 states and is recovered routinely in certain hospitals in New York and New Jersey.3 Analysis of 2007 data regarding health-care–associated infections reported to CDC indicated that 8% of all Klebsiella isolates were CRKP, compared with fewer than 1% in 2000 (CDC, unpublished data, 2008). CRKP poses significant treatment challenges, and CRKP infections have been associated with increased mortality, length of stay, and increased cost.4 The emergence and spread of CRKP and other types of CRE is another in a series of worrisome public health developments regarding antimicrobial resistance among gram-negative bacteria and underscores the immediate need for aggressive detection and control strategies.5

A difficulty in detecting CRE is the fact that some strains that harbor bla_kpc have minimal inhibitory concentrations (MICs) that are elevated but still within the susceptible range for carbapenems. Because these strains are susceptible to carbapenems, they are not identified as potential clinical or infection control risks using current susceptibility testing guidelines. To address this challenge, in January 2009, CLSI published a recommendation that carbapenem-susceptible Enterobacteriaceae with elevated MICs or reduced disk diffusion zone sizes be tested for the presence of carbapenemases using the modified Hodge test (MHT).6 The MHT is a phenotypic test used to detect carbapenemases in isolates demonstrating elevated but susceptible carbapenem MICs and has demonstrated sensitivity and specificity exceeding 90% in identifying carbapenemase-producing Enterobacteriaceae.6 If the MHT reveals the presence of a carbapenemase, CLSI recommends that a comment be added to the microbiology report to inform clinicians and infection preventionists. Because treatment information on MHT-positive, carbapenem-susceptible isolates is limited, CLSI guidelines do not recommend any changes regarding the reporting of susceptibility results themselves. Strains of Enterobacteriaceae that test intermediate or resistant to carbapenems should be reported as such and do not need to be subjected to the MHT.

Patients with unrecognized CRKP colonization have served as reservoirs for transmission during health-care–associated outbreaks.7 For example, during an outbreak of 39 cases of CRKP infection in a hospital in Puerto Rico in 2008, in addition to a review of infection control practices, active surveillance cultures were performed on patients in the same units as persons with confirmed CRKP infection. Cultures performed on 30 patients in the