

Beta-Blocker Effect on a Range of Health Outcomes in Older Adults with CAD and COPD

Principal Investigator: Mary Tinetti, MD
Institution/Partners: Yale University School of Medicine
Project Period: 09/30/10 - 09/29/11
Grant Number: R21 HS19446-01

Description

For people with multiple chronic diseases, treatments for one disease may exacerbate other co-occurring diseases, or adversely affect overall health. This study examined how beta-blocker use affects older adults who have coronary artery disease (CAD) and chronic obstructive pulmonary disease (COPD). The methods developed and validated for this study can be used to investigate other sets of conditions and medications.

Specific Aims

1. Determine the prevalence of CAD co-occurring with COPD or asthma.
2. Determine whether cardiovascular and pulmonary outcomes differ according to beta-blocker use for those with co-occurring CAD and COPD.
3. Determine whether mortality differs according to beta-blocker use or intensity for these patients.
4. Develop an innovative method for comparing different treatment strategies in situations where the treatment of one condition could exacerbate other conditions or affect other health outcomes.

Findings

- Among Medicare patients aged 65 or older with CAD or CAD risk factors and COPD or asthma, beta-blocker treatment had no significant effect, either beneficial or harmful, on cardiovascular and pulmonary outcomes or death.
- Among the subset of patients with a history of prior heart attack, a mildly elevated but not significant risk for pulmonary events and death was observed with beta-blocker use.

Implications

In persons with multiple conditions, it is necessary to look for possible benefits and harms of medications prescribed across conditions. To

Main Objective

Develop a methodology that can be used for determining optimal treatments across a range of health conditions for the growing number of older adults with multiple health conditions.

Chronic Conditions Considered

Coronary Artery Disease (CAD)
Chronic Obstructive Pulmonary Disease (COPD)

Study Design & Methods

Analytical epidemiologic study

Marginal structural models using inverse probability weighting based on propensity scores

Data Sources & Sample Size

Approximately 7,500 patients with co-occurring CAD and COPD from two national, population-based cohorts: the Medicare Current Beneficiary Survey and the Medical Expenditure Panel Survey, both of which include longitudinal, participant-reported, medication and claims/health care use data.

Strategies Addressed from the HHS Strategic Framework on Multiple Chronic Conditions

- 1.B. Define appropriate health care outcomes
- 3.A. Identify best practices and tools
- 4.C. Increase clinical research

Beta-Blocker Effect on a Range of Health Outcomes in Older Adults with CAD and COPD (continued)

reduce medication burden and risk of adverse effects, consideration should be given to discontinuing medications without evidence of benefit.

Publications (as of September 2013)

Publications currently in preparation.