

Outcomes of Blood Pressure Management in Diabetes Patients with Comorbidities

Principal Investigator: Caroline S. Blaum, MD
Institution/Partners: University of Michigan at Ann Arbor
Project Period: 09/30/08 – 09/29/10
Grant Number: R21 HS17625-01

Description

Blood pressure (BP) control in patients with diabetes requires individualized decisions to balance treatment risks and benefits. However, little evidence is available to guide such decision making.

This study aimed to investigate predictors, patterns, and outcomes of blood pressure management among patients with diabetes and coexisting health conditions. The long-term goal is to use these findings to optimize existing blood pressure management guidelines for patients with diabetes.

Specific Aims

1. Examine how BP in patients with diabetes is influenced by other chronic diseases over time.
2. Evaluate the association of BP control and the burden of other chronic disease with adverse clinical outcomes (stroke, ischemic cardiac events, hospitalization, and death) in diabetes patients.
3. Use study results to develop guideline prototypes that minimize the probability of adverse events in complex patients.

Findings

- Control of blood pressure (BP) in patients with type 2 diabetes is complex and varies over time.
- People with more comorbidities had better BP control than did other groups, and diabetes patients with an established primary care provider were more likely to achieve control than were patients with no primary care visits.
- For all age groups, except possibly the oldest men, BPs tended to decline over time. However, the variability of BP measurements over time increased markedly with age.

Main Objective

Enhance guidelines for blood pressure management among patients with multiple health problems, including diabetes.

Chronic Conditions Considered

Hypertension
Type 2 diabetes

Preventive Service Considered

Screening for type 2 diabetes mellitus in adults

Study Design, Data Sources & Sample Size

Longitudinal cohort study
Approximately 20,000 patients enrolled in the University of Michigan clinical diabetes registry from 2005-2008.

Strategies Addressed from the HHS Strategic Framework on Multiple Chronic Conditions

- 3.C. Address multiple chronic conditions in guidelines
- 4.C. Increase clinical health research

Outcomes of Blood Pressure Management in Diabetes Patients with Comorbidities (Continued)

Implications

- One time measurement of BP control in patients with type 2 diabetes may not be the best way to assess quality of care. When these one-time measurements are used to assess quality, providers may get credit for patients whose BP is already controlled either by other providers, or because the patient does not even have hypertension. Longitudinal measures that demonstrate BP improvement over time in patients with poorly controlled BP should be developed.
- Assessments of different trajectories of BP and their associations with outcomes are important to understand whether there is potential overtreatment of complex patients and whether BP targets for older adults with complex conditions need to be modified.

Publications (as of September 2013)

Boyd CM, Wolff JL, Giovannetti E, Reider L, Weiss C, Xue Q, Leff B, Boulton C, Hughes T, Rand C. Health Care Task difficulty among older adults with multimorbidity. *Medical Care*. In Press, 2013.

Rogers MA, Ward K, Gure TR, Choe HM, Lee PG, Bernstein SJ, Blaum CS. Blood pressure trajectories prior to death in patients with diabetes. *Diabetes Care*. 2011 Jul;34(7):1534-9.