

Introduction

- in the United States, heart disease is the leading cause of death for men, women, and people of most racial and ethnic groups. In 2005, more than 18 million deaths were due to cardiovascular events leading to major heart procedure, representing around one-third of all global deaths.
- Thus, CVD is today the most significant single contributor to global mortality and will continue to dominate mortality trends in the future (WHO, 2009e). Many individuals who suffer CAD end up undergoing major heart surgery such as bypass surgery, catheterization, or angioplasty. More than 200,000 bypass surgeries are performed each year in the United States.

Objectives

- This study aimed at evaluating the risk of having a major heart surgery as a long-term complication in patients with high blood pressure.

Methods

- Midlife in the United States (MIDUS) is a national longitudinal study of health and well-being. Data collection for the original MIDUS sample (M1) began in January 1995 and ended in September 1996. The second wave of data collection (M2) started in January 2004 and continued via other MIDUS projects (stress, biomarkers, and neuroscience) through May 2009. The third wave of data collection (M3) began in January 2003.

Predictor

In the past twelve months, have you experienced or been treated for any of the following - HIGH BLOOD PRESSURE OR HYPERTENSION. Answers options were (YES, NO, DON'T KNOW, REFUSED/MISSING)

Outcome

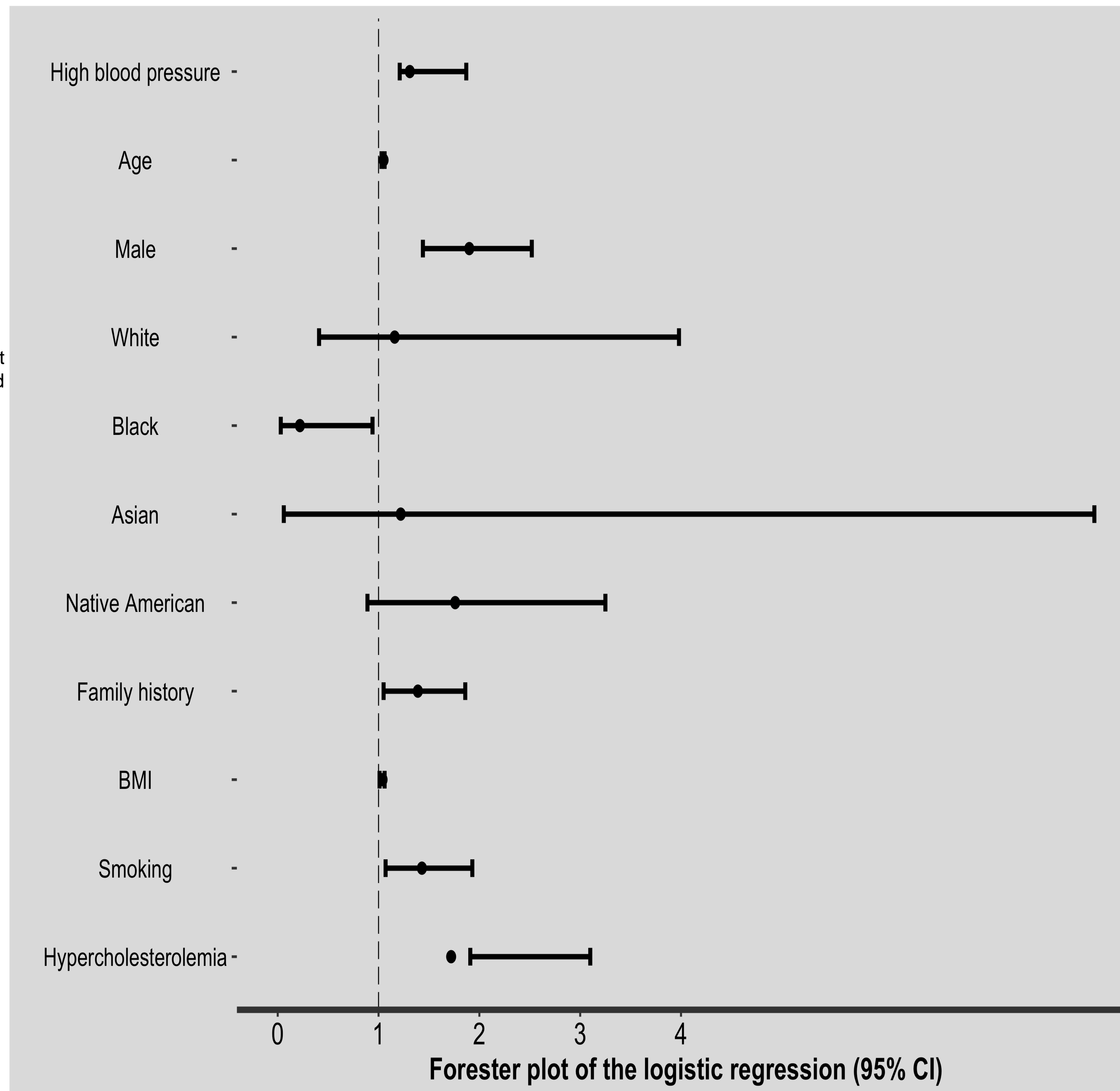
Have you ever had a major heart procedure, such as catheterization, bypass surgery, or angioplasty? "And answers options were. Answer's options: " YES, NO, DON'T KNOW

Covariates

- Categorized age, gender, race/ethnicity, family, smoking hx...
- Statistical analysis
- bivariate analysis, specifically a cross-tabulation using tally, and tested for significance using the chi-square test
- Logistic regression
- Model 1
- Model 2: adjusted for covariates
- R-4.0.3 with the mosaic library and the RStudio interface

Results

Forester plot of our Logistic Regression adjusted for the covariates



Results

- A total of 6291 participants were included. Bivariate analysis using Chi-square to determine the relationship with our predictor shows that more participants with high blood pressure had a major heart procedure nineteen years later than do people without high blood pressure at baseline: 30% vs. 5.9% ($p < 0.001$). A total of 6,291 individual participated in this study. Most of them (52.5%) were Females and the majority (91.9%) were White. Most of the participants (56.3%) reported that they have family history of high blood pressure and 67.7% are smokers.
- Every 1-year increase in age, individuals who had high blood pressure at baseline had 5% higher odds of getting a major heart procedure after 19 years later compared to those who without high blood pressure at baseline [OR=1.05, (1.03, 1.06)]
- Compared to females, males with high blood pressure are more likely to have major heart surgery, with 90% of higher odds than females [OR=1.90, (1.44, 2.52)].
- Compared to other races, Black or African Americans who have high blood pressure are less likely to have a major heart procedure with 78% lower odds [OR=0.22, (0.03, 0.94)]
- For each unit increase in BMI, those who had high blood pressure at baseline have 5% higher odds of getting a major heart procedure 19 years later compared to those who without high blood pressure at baseline, [OR=1.04, (1.01, 1.06)].

Discussion/Conclusion

- The adjusted analysis suggests that major heart procedures are common among individuals who suffer from high blood pressure at baseline, Luo D et al found a significant relationship between high blood pressure and the incidence of major heart procedure, $p < 0.00$.
- This work responds to calls to prioritize research assessing the public health burden of hypertension. Estimating the prevalence and public health effects of high blood pressure in the United States remains essential, since experts believe that it's going to take a lot of work to combat high blood pressure rate around the globe

Limitations

- Although we account for age at measurement (by including age as a factor in the model and in the baseline hazard), we have not accounted for changes in blood pressure and other risk factors over time.

Faculty Advisor

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