

Temporal Trends in Age at Ischemic Stroke Onset by Ethnicity

Chengwei Li, MPH, Jonggyu Baek, PhD,
Lewis B. Morgenstern, MD, Lynda D. Lisabeth, PhD

Introduction

- Incidence rate of stroke is declining overall
 - Not present in the population younger than 65 years
 - Modest yet significant increases found in those younger than 55 years
- Lower average age at stroke onset?
- Considerable public health implications
 - Greater years of disability, loss of income, more costs
- Data limited



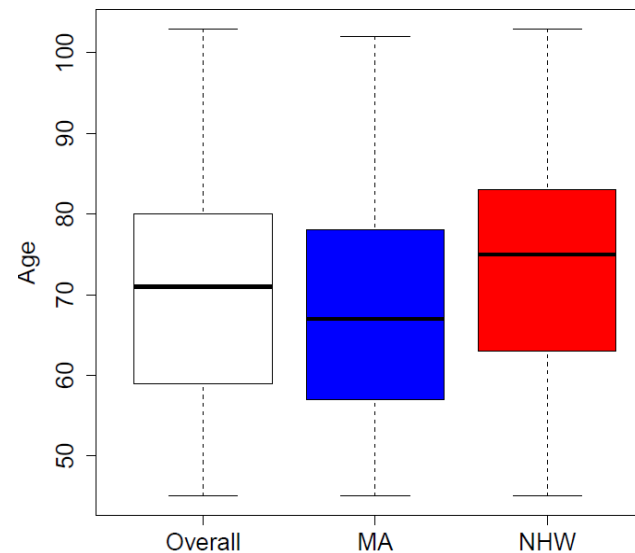
Methods

- First-ever ischemic stroke cases: 1/1/2000 – 6/30/2012
 - The Brain Attack Surveillance in Corpus Christi (BASIC) Project
- Data collection
 - Medical records: age at onset of first-ever stroke, demographics and risk factors
- Statistical Analysis
 - Trends in age at stroke - Generalized additive models (GAMs)
 - Generalized linear model with sum of smooth functions of the covariates
 - Focus on data exploration and data visualization
 - Effect modification by ethnicity



Results

- 3,496 first-ever ischemic strokes ascertained
 - 244 excluded due to not Mexican American (MA) and non-Hispanic white (NHW)
 - 1,823 MA, 1,429 NHW
- Median age (years)



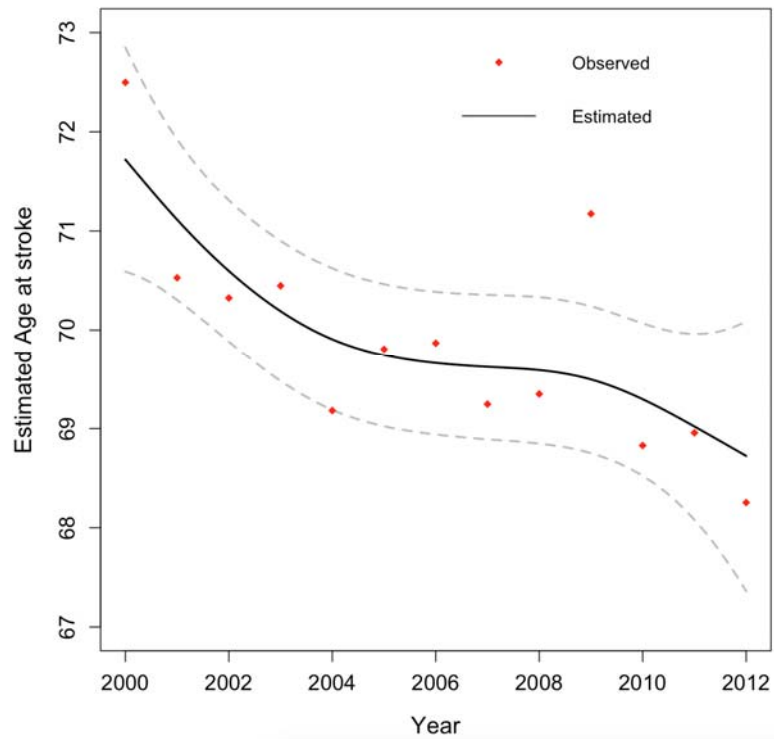
Results

Variable	2000-2002	2010-2012	Mean change from 2000-2012	P-value
Age (y)	72.0	68.0	-2.44	< 0.001
Female (%)	52.22	48.41	-4.13	0.152
MA (%)	52.57	59.33	9.85	< 0.001
NIHSS	3.0	4.0	1.26	0.002

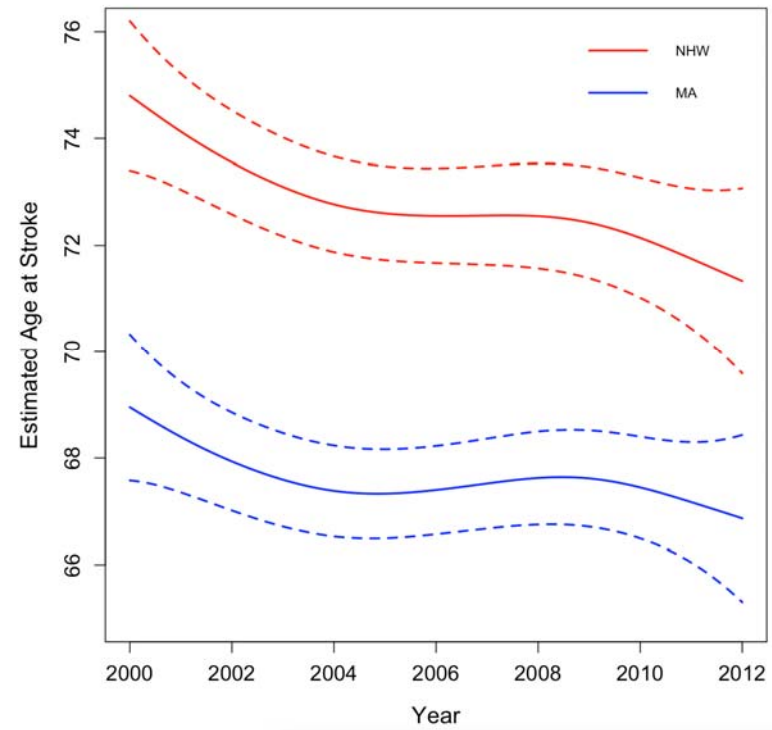
Results

Variable	2000-2002 (%)	2010-2012 (%)	Mean change from 2000-2012	P-value
Diabetes Mellitus	37.49	45.37	9.77	< 0.001
High Cholesterol	18.68	44.61	33.41	< 0.001
Hypertension	68.14	79.97	15.55	< 0.001
Current/Ever Smoker	31.03	38.60	7.39	< 0.001
Uninsured	6.00	11.99	6.74	< 0.001
Atrial Fibrillation	10.06	15.48	6.35	0.001
CAD	31.02	26.86	-0.83	0.753
Excessive Alcohol	5.87	7.59	1.31	0.359

Results



Temporal trends in age at stroke overall



Temporal trends in age at stroke by ethnicity

Conclusion

- Age at first-ever ischemic stroke declined significantly over time ($p = 0.004$)
- Ethnicity significantly modified this association ($p < 0.001$)
 - Greater declines were observed among NHWs compared with MAs
- Reasons for the declines in age at stroke onset should be further investigated



Limitations

- Potential confounders were not adjusted in the fitted models
 - Goal was to describe overall trends
- No point estimates using GAMs
 - Introduce less bias, give better visualization



Ongoing Research

- Adjusting for age of population at risk by ethnicity over time
- Studying the impact of increased use of MRI on such trends
 - Trends in stroke severity by age groups



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Thank you
for listening

