Determining risk factors associated with failure of best medical therapy in Carotid Stenosis

Elisa Caron, MD[1,3,]; Randall A. Bloch, MD[1]; Stephen B. Caron, BS[2]; Katie E. Shean, MD[1]; Scott G. Prushik, MD[1]; Marc L. Schermerhorn, MD[3]; Mark F. Conrad, MD[1]

1. St Elizabeth's Medical Center 2. Boston University 3. Beth Israel Deaconess Medical Center

Introduction

- There is level 1 evidence that supports Carotid Endarterectomy (CEA) for the prevention of stroke in patients with severe carotid stenosis.
- A recent meta-analysis of statin trials concluded that the risk of stroke in patients taking statins is so low that most patients should be managed medically.
- However, patients continue to present with carotid related Stroke or TIA despite medical therapy.

Objectives

- The goal of this study is to determine which risk factors are associated with failure of medical therapy.

Methods

- All patients who underwent carotid revascularization (CEA or TCAR) from 2017-2021
- Patients were then stratified by symptomatic status.
- BMT included antiplatelet therapy, a statin and smoking cessation.
- Multivariable logistic regression was used to evaluate the association between compliance with best medical therapy and the odds of symptomatic presentation
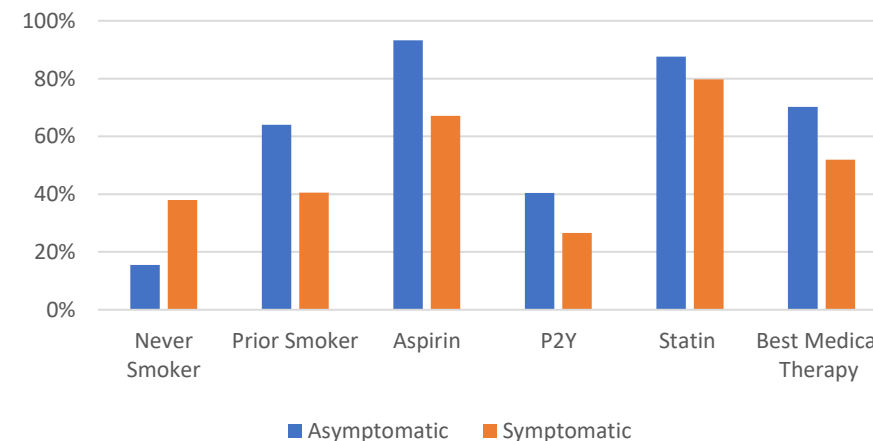
Tables & Figures

Baseline Characteristics

Presentation	Asymptomatic	Symptomatic	P-value
	(N=161)	(N=79)	
Age (Median [IQR])	73.0 [52.0, 91.0]	73.0 [49.0, 90.0]	0.705
Sex			
Male	108 (67.1%)	43 (54.4%)	0.067
Female	53 (32.9%)	36 (45.6%)	
Race			
Other	7 (4.3%)	10 (12.7%)	0.033
White	154 (95.7%)	69 (87.3%)	
BMI Category			
Underweight	5 (3.1%)	3 (3.8%)	0.925
Overweight	75 (46.6%)	36 (45.6%)	
Obese	36 (22.4%)	21 (26.6%)	
Morbidly Obese	6 (3.7%)	3 (3.8%)	
Prior Hypertension	142 (88.2%)	67 (84.8%)	0.532
Prior Diabetes	54 (33.5%)	28 (35.4%)	0.779
Prior COPD	30 (18.6%)	15 (19.0%)	1
Prior CAD	50 (31.1%)	17 (21.5%)	0.13
Prior Dialysis	5 (3.1%)	0 (0%)	0.169
Prior CHF	14 (8.7%)	8 (10.1%)	0.829
Prior Arterial Procedure	39 (24.2%)	9 (11.4%)	0.023
Prior Major Amputation	17 (10.6%)	16 (20.3%)	0.057
Prior CABG or PCI	73 (45.3%)	29 (36.7%)	0.219
Insurance			
Medicare	100 (62.1%)	45 (57.0%)	0.433
Medicaid	8 (5.0%)	7 (8.9%)	
Private	51 (31.7%)	27 (34.2%)	

Multivariable Predictors of Symptomatic Presentation

Characteristic	OR1	95% CI1	p-value
Best Medical Therapy	0.4	0.21, 0.74	0.004
Age	1.02	0.98, 1.05	0.4
Sex			
Male	—	—	
Female	1.58	0.84, 2.95	0.2
Race			
Other	—	—	
White	0.24	0.07, 0.75	0.017
Prior CHF	1.17	0.39, 3.35	0.8
Prior Hypertension	0.63	0.26, 1.57	0.3
Prior Diabetes	1.45	0.65, 3.24	0.4
Prior COPD	1.12	0.50, 2.42	0.8
CAD	0.78	0.33, 1.84	0.6
Prior Major Amp	3.98	1.68, 9.67	0.002
Prior Arterial Intervention	0.3	0.11, 0.70	0.008
Prior CABG or PCI	0.68	0.28, 1.64	0.4

1 OR = Odds Ratio, CI = Confidence Interval

Adherance to Best Medical Therapy

(Bar chart with categories: Never Smoker, Prior Smoker, Aspirin, P2Y, Statin, Best Medical Therapy; Asymptomatic and Symptomatic)

Results

- There were 240 patients, 79 (33%) symptomatic and 161 (67% asymptomatic).
- Of these, 52% were on BMT prior to the index procedure.
- BMT was protective against symptomatic presentation.
- A history of a prior major amputation was associated with increased odds of stroke or TIA
- However, a history of prior vascular intervention reduced the odds of symptomatic presentation

Conclusions

- There is a continued role for CEA in the management of severe carotid artery stenosis.
- While this sample was small it suggests that patients with vascular disease in other areas would likely benefit from screening.

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Corresponding Author:
Mark F. Conrad, MD, FACS
St Elizabeth's Medical Center
E-mail: mark.conrad2@steward.org