A Pharmacist's Impact on Secondary Stroke Prevention

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Background

Patients admitted to Temple University Hospital (TUH) with a cerebrovascular accident (CVA) or transient ischemic attack (TIA) are referred to the pharmacist-run Stroke Prevention Clinic (SPC). CVA/TIA risk factors include hypertension, dyslipidemia, diabetes, atrial fibrillation, and smoking. Once a patient has an initial CVA/TIA, the risk for another event is higher than someone without an event. The American Heart Association has published joint guidelines with the American Stroke Association on the secondary prevention of stroke. After a CVA/TIA, anti-hypertensives are indicated for patients with a blood pressure (BP) ≥140/90. Statin therapy is recommended for patients with a stroke of atherosclerotic origin, an LDL ≥ 100mg/dL, with or without evidence of other clinical ASCVD. Lastly, all post-CVA/TIA patients should be screened for diabetes. Patients with a Hemoglobin A1C (HbA1C) ≥ 6.5% should be initiated on hyperglycemic agents.[1]

The SPC adjusts medications based on patient characteristics in order to prevent hospital admissions for CVA/TIA, myocardial infarction (MI), and/or peripheral artery disease (PAD). The goals of the SPC are to obtain optimal surrogate markers including blood pressure of <140/90mmHg, LDL <100mg/dL and preferably <70mg/dL , and HbA1C <7%, and increase smoking cessation rates to reduce hospital admissions for secondary CVAs/TIAs, MI, and PAD.

The PREVENTION study was a prospective, randomized control trial in Canada that evaluated pharmacist-based case management of BP and lipids after a minor stroke. Benefits of pharmacist-based care were demonstrated in this trial.[2]

Our study was a retrospective chart review of patients referred to the SPC to determine if pharmacist-based care was valuable in TUH's post-CVA/TIA population.

Objectives

To determine if patents that visit the SPC had:

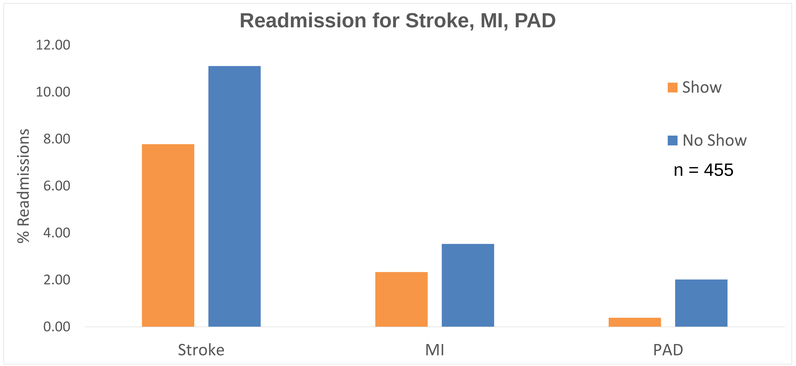
- less hospital readmissions for secondary strokes, MIs, and PAD than patients that did not visit the SPC
- improved surrogate markers including BP <140/90, LDL <100 mg/dL and optimally <70mg/dL, and HbA1C <7% than patients that did not visit the SPC

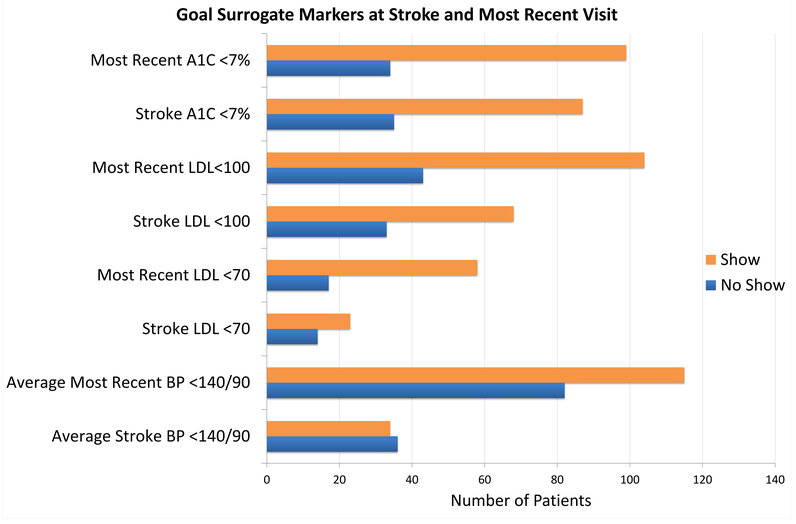
To evaluate the total change in BP, LDL, and HbA1C from time of CVA/TIA to most recent value post pharmacist intervention SPC

Methods

Data was collected from Temple's electronic medical record, EPIC. All subjects included in the chart review were patients that experienced a CVA/TIA and were assigned an appointment at the SPC from October 2012 through December 2014. Baseline characteristics including age, gender, and race was recorded for all subjects. Blood pressure, LDL, and HbA1C were collected at time of CVA/TIA, before initial visit to the SPC, and after last SPC visit. Hospital admissions were reviewed to assess for secondary CVA/TIA, MI, and PAD. Data was collected for patients that did not attend clinic visits ("no-shows") at the SPC and was utilized as a control. Chi-square test was used to evaluate the number of patients in each group that were readmitted with the composite endpoint of CVA/TIA, MI, or PAD.

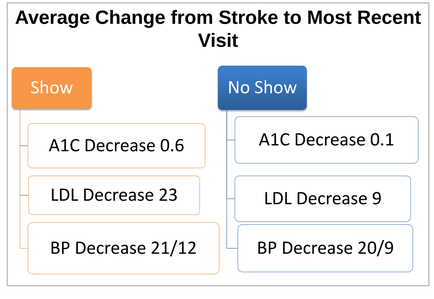
Results





Demographics

	Show	No Show
Number of Patients	257	198
African-American	66.54%	64.14%
Female	52.9%	45.5%
Average Age	63.9	63.4



Discussion

Patients that visited the SPC had 4% less hospital admissions for CVA/TIA, 1.71% less hospital admissions for MIs, and 1.63% less hospital admissions for PAD than patients that did not visit the SPC. The composite endpoint of hospital readmissions for CVA/TIA, MI, or PAD attained statistical significance (p=0.013).

Average BP from stroke to most recent visit decreased by 21/12 mmHg for show patients and by 20/9 mmHg for no show patients. One hundred and two additional patients achieved their BP goal after visiting the SPC, compared to only 61 patients that did not attend clinic. Average LDL decreased by 23 mg/dL for show patients and by 9 mg/dL for no show patients. An additional 36 patients achieved an LDL value <100 mg/dL after visiting the SPC, compared with only 10 no show patients. Of the 36 patients with an LDL value <100 mg/dL seen in the SPC, 35 of them achieved an LDL value <70 mg/dL. Average HbA1C decreased by 0.6% for show patients compared to only 0.1% in no show patients. An additional 12 patients reached an HbA1C goal of <7% after pharmacist intervention in the SPC, while no additional patients who did not visit the SPC achieved their HbA1C goal.

Patients seen in the SPC are more likely to achieve surrogate marker goals than patients who do not come to clinic. This may indicate that pharmacists can play a role in improving outcomes in TUH's post-CVA/TIA population.

Due to the nature of this retrospective chart review, missing data for both the stroke and most recent visits resulted in a smaller set of complete data for surrogate markers. Additionally, since this study was limited to data and records entered into Temple's system, patients that may have had a hospitalization at an outside hospital could not be accounted for in this study. There is still 18 months of new patient data that is eligible for chart review.

Conclusions

All surrogate markers indicate that patients receiving pharmacist intervention in the SPC are more likely to achieve goals than if they did not come to clinic. This indicates that pharmacists can play a role in improving outcomes in the post-CVA/TIA patient population. These results demonstrate that pharmacists in the SPC reduce patient risk factors for secondary CVA/TIA and can prevent future hospital admissions.

References

1. Guidelines for the Prevention of Stroke in Patients With Stroke and Transient Ischemic Attack: A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association. Stroke 2014. Online at http://stroke.ahajournals.org/content/45/7/2160
2. Mcalister FA, Majumdar SR, Padwal RS, et al. Case management for blood pressure and lipid level control after minor stroke: PREVENTION randomized controlled trial. CMAJ. 2014;186(8):577-84

Disclosures

Authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have direct or indirect interest in the subject matter of this presentation.