Cardiac catheterization and acute ischemic stroke: who is at risk?

Maharaj Singh PhD; Reji Babygiri; Richard Rovin MD; Kessarin Panichpaisal MD

1Aurora Research Institute; 2 Aurora Neuroscience Innovation Institute

Background/Significance

- Cardiac catheterization (CC) is a well-established invasive procedure that is used to diagnose and treat coronary artery disease (CAD).
- Stroke is one of the debilitating complications after cardiac catheterization procedures, resulting in death and disability for thousands of patients each year.
- The incidence of stroke following percutaneous coronary intervention (PCI) has been variably reported between 0.3% and 0.4%.
- Timely and specialized treatment of ischemic stroke is crucial for increasing survival and reducing morbidity.
- The risks and complications associated with these procedures relate to the patient's concomitant conditions.

Objective

- To identify predictors of acute ischemic stroke in patients undergoing CC procedure

Methodology

- Retrospective data analysis of patients who underwent CC between January 2008 to March 2017 at Aurora St Luke’s Medical Center (ASLMC).
- Demographics and comorbidities were compared among those patients with and without incident stroke using Area Under the Curve (AUC) c-statistic.

Results

- A total of 35,268 patients were included in the study.
- Of these, 59% were male, 87.5% were white and 10.7% black. Acute Ischemic stroke was reported among only 0.4% of these patients.
- The main predictors for acute ischemic stroke with area under curve (c-statistics) of 0.68, were: age (in 10-years increment) at the time of CC procedure (adjusted odds ratio (AOR)=1.37, 95% CI 1.10-1.63, p<0.001), atrial fibrillation (AOR=2.36, 95%CI 1.16-4.8, p=0.0182), hypertension (AOR=0.53, 95%CI 0.34-0.82, p = 0.0046), and history of stroke (AOR=3.15, 95%CI 1.94-5.11, p <0.001).

Conclusions

- Acute ischemic stroke is a relative rare occurrence.
- The independent predictors for stroke were age, atrial fibrillation and history of prior stroke.
- Hypertension was found to be protective of acute ischemic stroke, however data on evidence-based therapy (such as beta-blocker, statin or antiplatelet) use was not analyzed.

References