

The Incidence of Cerebrovascular Events Following Cardiac Catheterization

Meerkin, David¹; Farkash, Rivka¹; Almagor, Yaron¹; Rosenmann, David¹; Balkin, Jonathan¹; Klutstein, Marc¹; Korn-Lubetzki, Isabelle²

¹Shaare Zedek Medical Center, Cardiology Dept, Jerusalem, Israel; ²Shaare Zedek Medical Center, Neurology Dept, Jerusalem, Israel

Background: Catheterization related acute cerebrovascular events (CVEs) are one of the most feared complications in the catheterization laboratory. We aimed to assess the real-life incidence, etiology, and risk factors of this complication.

Methods: All patients undergoing cardiac catheterization in our center are prospectively registered in a database, recording patient and procedural characteristics and in-hospital progress. A retrospective analysis assessing acute CVEs (transient ischemic attack- TIA, ischemic stroke- IS or intracerebral hemorrhage- ICH), in this population over 20 years was performed. CVEs occurring within 24 hours from procedure commencement were included. CT confirmation was obtained in all cases.

Results: 42,286 cardiac catheterizations were performed in 29,781 patients of which 12,437 (29.4%) were combined diagnostic and interventional studies (PCI). 47 CVEs (0.11 %) were reported. Of these, 38 patients suffered IS, six had TIAs and three ICH. IS were predominantly to the anterior circulation (27; right hemispheric 14, left hemispheric 13), while only 11 involved the posterior circulation. Three patients died during hospitalization: one with left occipital intracerebral and subarachnoid bleeding and two with massive posterior circulation infarction. 33/49 (67.3%) of the CVEs were patients undergoing PCI, such that the stroke risk for a diagnostic catheterization was 0.054% (16/29849) and 4 times greater for patients undergoing PCI (0.27%, 33/12437). The age range was 46-89 (median 72) years, 32/49 (65.3%) were males, with almost all patients having significant risk factors for coronary and cerebrovascular disease (hypertension 90%, hyperlipidemia 68%, diabetes 50% and smokers 27%).

Conclusions: CVEs following diagnostic cardiac catheterization are extremely rare but 4 fold higher following coronary interventions. The incidence of intracranial bleeding is negligible.