COMPARISON OF TRANSRADIAL AND FEMORAL APPROACHES FOR PERCUTANEOUS CORONARY INTERVENTIONS: A HIERARCHICAL BAYESIAN META-ANALYSIS

i2 Oral Contributions
Ernest N. Morial Convention Center, Room 353
Tuesday, April 05, 2011, 8:00 a.m.-8:14 a.m.

Session Title: Vascular Access
Presentation Number: 2910-5

Authors: Olivier F. Bertrand, Patrick Belisle, Dominique Joyal, Olivier Costerousse, Sunil V. Rao, Sanjit Jolly, David Meerkin, Lawrence Joseph, Quebec Heart-Lung Institute, Quebec, Canada, McGill University, Montreal, Canada

Background: Transradial approach (TRA) for percutaneous coronary interventions (PCI) has been performed since 1994. Despite lower risks of access-site related complications compared to the femoral approach (FA), the clinical benefit of TRA is uncertain. We undertook a systematic review and meta-analysis comparing TRA and FA for PCI.

Methods: A literature search aimed at identifying all clinical trials and observational studies comparing TRA with FA for PCI with reports of clinical outcomes was performed. Odds ratios (OR) were estimated by a hierarchical Bayesian random-effects model with prespecified stratification for observational and randomized designs. The primary outcomes examined were rates of death, combined incidence of death or myocardial infarction (MI), bleeding and transfusions, early (≤ 30 days) and late after PCI.

Results: We collected data from 73 studies (14 randomized, 59 observational) involving a total of 1,022,123 patients. There was a strong association between TRA and mortality early after intervention (OR 0.52, 95% credible interval (CrI) 0.43-0.62), although the effect was mainly due to observational studies (OR 0.49, 95% CrI 0.39-0.59), with an OR 0.74 (95% CrI 0.38-1.40) in randomized trials. An association between TRA and death or MI was observed over short-term follow-up (OR 0.66, 95% CrI 0.51-0.82), with an OR of 0.72 (95% CrI 0.41-1.14) for long-term follow-up. Compared with FA, TRA was associated with a major reduction in bleeding (OR 0.22, 95% CrI 0.16-0.29) and in transfusions (OR 0.20, 95% CrI 0.10-0.31). These findings were consistent in both randomized and observational studies.

Conclusions: Our results suggest that PCI performed by TRA is associated with lower risks of death, death or MI, bleeding and transfusions when compared to FA. While an adequately powered randomized trial for ischemic and bleeding outcomes is required to definitively establish the superiority of TRA over FA for PCI, our results suggest that greater adoption of TRA has the potential to substantially improve outcomes among patients undergoing PCI.