COST-EFFECTIVENESS OF TRANSRADIAL PERCUTANEOUS CORONARY INTERVENTION: A DECISION-ANALYTIC MODEL

i2 Oral Contributions
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Introduction: Transradial percutaneous coronary intervention (TRI) is associated with reduced bleeding rates and length of stay (LOS), compared to transfemoral PCI (TFI). However, the cost-effectiveness of transradial vs. transfemoral PCI in real-world practice is unknown.

Methods: We developed a decision-analytic model of costs and bleeding events of transradial vs. transfemoral PCI using inputs from 4 hospitals, and direct PCI costs from each hospital’s respective cost accounting system. Independent costs of radial PCI, urgent vs. elective PCI indication and bleeding complications were identified by a linear regression model and used as model inputs. The efficacy measure was major bleeding as defined by the NCDR.

Results: Cost and clinical data were derived from the 2,972 consecutive PCI procedures (TRI N=559) performed in 6/2009-3/2011. TRI was associated with a shorter LOS (1.4 ± 1.4 days) vs. TFI (1.9 ± 2.3 days), P< 0.001. Although procedural day costs were similar in the 2 groups - $12,949 ± 3932 for TRI vs. 13,104 ± 3325 for TFI, post-procedural day costs were lower in the TRI groups ($1524 ± 4108 vs. TFI group $ 2798 ± 9076), primarily from a reduced LOS. Hence, total costs were lower with TRI ($14,468 ± 5442) vs. TFI ($15,608 ± 6920), P<0.001, by $1,140. There was a trend towards reduced bleeding with TRI (1.1%) vs. TFI (1.9%), P=0.159. In economic analysis, TRI was a dominant strategy. In probabilistic sensitivity analyses (with 1000 simulations to account for variation in clinical practice) the decision-analytic model projected that TRI would remain economically dominant in 96.3% of simulations. Cost data from 4 additional high volume centers will be included prior to the ACC presentation.

Conclusions: This is the first decision-analytic modeling study which shows TRI is an economically dominant strategy with lesser costs and a trend towards greater efficacy (less bleeding), when compared against TFI. Cost savings resulting from TRI are large and exceed $1000/patient undergoing PCI. Apart from the known advantages of patient convenience and reduced bleeding complications, increased adoption of TRI may result in significant cost-savings to hospitals and ultimately the U.S. healthcare system.