



E186
JACC March 27, 2012
Volume 59, Issue 13



ACC-i2 with TCT

IMPACT OF A LEARNING CURVE ON COST SAVINGS FROM TRANSRADIAL PERCUTANEOUS CORONARY INTERVENTION

i2 Poster Contributions

McCormick Place South, Hall A

Saturday, March 24, 2012, 9:30 a.m.-Noon

Session Title: Vascular Access

Abstract Category: 24. Vascular Access, Closure Devices and Complications

Presentation Number: 2530-475

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Introduction: Transradial percutaneous coronary intervention (PCI) reduces bleeding complications; however initiation of a hospital system-wide transradial program involves a learning curve. Whether a) transradial PCI reduces costs and b) the cost impact of a learning curve when initiating a hospital system-wide transradial PCI program is unknown.

Methods: We compared costs of transradial (n=563) and transfemoral PCI (n=2600) during the first year (2009) and second year (2010 and until 02/2011) after a transradial program was initiated in 4 hospitals of the same system. Detailed direct costs of resources used during PCI were derived from the hospital's cost accounting system. The cost differences between transradial vs. transfemoral PCI were assessed over time via a linear regression model.

Results: Overall, of the 3163 PCI cases 18.8% were performed via the transradial approach. The proportion of transradial PCI increased between year one and year two (15.6% vs. 21.6%, $P < 0.001$). Transradial PCI was associated with a reduced length of stay vs. transfemoral PCI (1.4 ± 1.4 vs. 1.9 ± 2.3 days, $p < 0.01$), resulting from a higher proportion of same day discharges (5.4% vs. 1.5%, $p < 0.01$). There was a trend towards reduced NCDR-defined major bleeding with transradial PCI (1.1% vs. 1.9%, $P = 0.159$). Overall costs of transradial PCI were lower ($\$14,468 \pm 5442$ vs. $\$15,608 \pm 6920$, $P < 0.001$), resulting in a $\$1,140$ savings for transradial PCI. There was a trend towards greater cost savings associated with transradial PCI during the second year ($\$1357$ vs. $\$851$, interaction $p = 0.567$).

Conclusions: In a single-center experience, transradial PCI resulted in reduced LOS, reduced costs of PCI and a trend towards reduced bleeding complications. The learning curve of transradial PCI directly impacted costs savings, although an interaction test was underpowered to detect significant differences. Hospitals initiating programs for transradial intervention may expect greater cost savings beyond the first year.