RELIABILITY OF BRUISE MEASUREMENT FOLLOWING INVASIVE CARDIAC PROCEDURES

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: 2530-541

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Background: The most common complication following invasive cardiac procedures is the development of vascular access site (VAS) bruising. Research into this post-procedure complication is hindered by the lack of a reliable and practical bruise measurement tool. Linear measurement and planimetry, used in wound care research, are potential methods for measuring VAS bruise size. The purpose of this study was to determine the reliability of linear measurement and planimetry for measurement of VAS bruise size.

Methods: Participants having femoral or radial artery puncture for invasive cardiac procedures were included in this study. VAS bruise measurement was completed 3-11 days following the procedure. Participants followed written instructions to independently complete VAS bruise measurement. Bruise measurement was then completed independently by an advanced practice nurse (APN) and research assistant (RA) who were blinded to participant’s and each other’s measurements.

Results: Ninety nine patients with 101 potential bruise sites were recruited. Forty six participants (46%) reported VAS bruising; forty VAS bruise measurements were completed by the APN and RA. Due to the size and location of some bruises, 3 participants were unable to measure their VAS bruise. Analysis of inter-rater reliability was completed using the intraclass correlation coefficient (ICC), two-way random effects model. The ICCs for linear measurement were: APN/RA (.955; .917-.976), APN/participant (.946; .899-.947), RA/participant (.889; .795-.941). The ICCs for planimetry were: APN/RA (.942; .888-.970), APN/participant (.877; .771-.935), RA/participant (.925; .860-.961).

Conclusions: Both linear measurement and planimetry are reliable for assessment of VAS bruises by professionals and patients. The choice of measurement tool will be affected by the purpose of VAS bruise measurement, available resources, ease of use for researchers, clinicians or participants, and unique training needs for each measurement approach. Future research examining VAS complications should include VAS bruise size measurement as an outcome measure.