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Impact of operator experience with radial approach for clinical outcome on percutaneous coronary intervention in acute coronary syndrome performed with femoral artery access site

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Introduction: Radial approach (RA) for percutaneous coronary intervention (PCI) is associated with reduced mortality and access site complications. The routine use of the RA in patients should be strongly considered, keeping in mind the learning curve associated with the technique. However, promotion of RA may interfere with the equally important goal of maintaining proficiency in the femoral approach (FA), which is essential in a variety of procedures as well as when RA fails. There is possible risk of higher rate of complications in PCI with FA performed by operators mainly using radial artery as access site.

Purpose: The aim of this study was to evaluate impact of experience and proficiency with RA for clinical outcomes on PCI via FA in "real-world" patients with acute coronary syndrome (ACS).

Methods: A total of 539 invasive cardiologists performing PCI in 151 invasive cardiology centers on the Polish territory between 2014 and 2017 were included in study analysis. Proficiency threshold has been set at >400 procedures during four consecutive years per individual operator. They were categorized to quartiles according to total volume of radial artery utilization during all PCIs. Procedures performed on patients with Killip-Kimball class IV on admission to catheterisation laboratory were excluded from analysis.

Results: The most of the operators performed >75% of all procedures via radial artery (326 (60.5%)), 112 (20.8%) used RA in 50–75% of cases, 67 (12.4%) in 25–50% of all PCIs and only 34 (6.3%) invasive cardiologist were using RA in less than 25% of all procedures. Mortality during PCI via FA was higher in group of invasive cardiologist with >75% of all procedures performed with radial access (>75% vs. 50–75% vs. 25–50% vs. <25%: 1.63% (±2.52%) vs. 0.93% (±1.05%) vs. 0.68% (±0.73%) vs. 0.31% (±0.40%); p=0.01). A trend towards higher rate of bleeding at the puncture site during PCI procedures with femoral artery were reported in groups of operators with higher expertise in RA (>75% vs. 50–75% vs. 25–50% vs. <25%: 0.43% (±1.09%) vs. 0.14% (±0.36%) vs. 0.21% (±0.45%) vs. 0.14% (±0.37%); p=0.09).

Conclusions: Higher experience in radial access might be linked to worse outcome in PCI via FA in ACS settings. Femoral artery is important vascular approach and should not be abandoned while learning procedures with radial artery utilization.