

**Aims:** To evaluate the safety of a single and combined use of ultrasound-guided femoral puncture (U) and percutaneous arterial closure devices (P) in femoral artery procedures (FAP) compared to fluoroscopic guidance (F) and manual compression (M) in a large radial-focused interventional centre. U and P, taken individually, have improved safety in femoral arterial access procedures compared to traditional techniques.

**Methods and results:** All FAP performed between July 2017 and December 2018 in our centre were divided into three phases: (i) control period with F and M mainly performed; (ii) phase out period where U and P were introduced; and (iii) intervention period where a 6-month expertise on the novel techniques was acquired. The overall population was further stratified into subgroups: F/M, U/M, F/P, and U/P. The primary study endpoint was in-hospital access site bleeding events (BE) according to the BARC criteria. The secondary endpoint was vascular site complications (VASC). 418 procedures (14%) out of 3025 were performed via FA access during the study period. The overall access-site in-hospital BE were 97 (23%). Decreasing rates of BE (phase 1:  $n=46$ , 29%; phase 2:  $n=38$ , 22% e phase 3:  $n=13$ , 15%;  $P=0.027$ ) and VASC were observed during the three periods. BE occurred significantly more often in F/M group (F/M:  $n=48$ ; 32%; U/M:  $n=12$ , 16%; F/P:  $n=18$ , 21%; U/P:  $n=19$ , 17%;  $P=0.008$ ). F/M subgroup was an independent predictor of BE both in multivariable analysis and propensity score matching analysis.

**Conclusions:** The introduction of ultrasound-guided femoral puncture and percutaneous arterial closure devices has reduced access site bleeding with a progressive improvement after the first 6 months learning period.

**470 Percutaneous arterial closure devices and ultrasound-guided trans-femoral puncture observational investigation: insights from the PETRONIO registry**

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