

## 21. Complications From Percutaneous Access of Upper Extremity Arteries for Endovascular Procedures

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**INTRODUCTION:** To determine factors that lead to risk of complications from percutaneous access of upper extremity arteries (UEAs) from diagnostic and therapeutic endovascular procedures (DTEPs).

**METHODS:** From 1998 to 2008, all patients undergoing DTEPs accessed via UEAs by university vascular surgeons in an endovascular suite were reviewed. Patient demographics, disease factors, and procedure-related details were analyzed. Types of complications were classified as Local Vascular (LV), Local Non-Vascular (LNV) and Systemic (SYS). Complication severity was graded as Major, Minor, and Non-Significant.

**RESULTS:** 150 patients underwent DTEPs (47% DEPs, 53% TEPs). Demographic/procedure data included males - 68%, mean age - 64, mean BMI - 27, elective DTEP - 96%, left arm access - 94%, sheath exchanges - 50% (1 exchange - 42%, 2 exchanges - 8%), brachial artery - 81%, axillary artery - 28%, distribution of largest sheath French size: 4 - 6%, 5 - 55%, 6 - 30%, 7 - 7%, 8 - 2.5%. Risk factors included diabetes 26%, HTN 76%, hypercholesterolemia 45%, and smoking 78%. Forty-five complications occurred in 35 (23%) patients. Type of complications included 31 LVs (69%), 3 LNVs (7%), and 11 SYSs (24%). Patients with major and minor complications totaled 8 (5.3%) and 27 (18%), respectively. Of the 31 LVs, 6 were major, 25 minor. Of the 3 LNVs, 1 was minor, 1 non-significant. Of the 11 SYSs, 3 were major, 1 minor, and 7 non-significant. Multivariate analysis revealed the following significant odds ratios ( $p < 0.05$ ) for any major/minor complication: embolization procedure - 7.10; AAA indication - 5.29; any therapeutic intervention - 2.44. Similarly, embolization procedure and any therapeutic intervention were significantly associated with a LV complication: 7.80 and 2.58, respectively.

**CONCLUSIONS:** Complications from DTEPs utilizing percutaneous access of UEAs are not uncommon. Given the high risks of complications from therapeutic interventions, more precautionary measures should be taken. Other benefits of these data include patient education about risks and heightened suspicion following percutaneous access of an UEA.