

# Comparison of Ultrasound Accelerated Thrombolysis Versus Simple Infusion Catheter Directed Thrombolysis for Acute Arterial Thrombosis

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**Objectives:** Catheter-directed intra-arterial thrombolysis for acute peripheral arterial ischemia has become a standard practice for acute arterial thrombosis. There has been significant amount of literature published as far as the choice of the thrombolytic agent and injection techniques. One technique used to accelerate thrombolysis is with the use of ultrasound imaging (EKOS). We looked at our experience to compare the outcomes with a simple side-hole infusion catheter (Unifuse) vs EKOS catheters.

**Methods:** We retrospectively reviewed our data set from January 2006 to August 2008 for all the patients undergoing catheter-directed thrombolysis for acute lower extremity arterial ischemia. The primary comparison variables were the duration of thrombolysis and technical success rate. The technical success rate was defined as complete or nearly complete clearance of clot burden allowing intervention in form of percutaneous transluminal angioplasty (PTA) and/or stenting. The data were also stratified according to the location of the thrombus, complications, mortality, and limb loss rates. Tissue plasminogen activator (TPA) was infused at 0.5 to 2.0 mg/h and patients underwent serial angiography every 12 to 24 hours.

**Results:** There were 69 cases of peripheral catheter-directed thrombolysis with the Unifuse catheter and 22 were performed using the EKOS catheter during the study period. The average duration of thrombolysis was 1.65 days (SD, 0.83) in the Unifuse catheter group vs 1.9 days (SD, 0.92) in the EKOS catheter group ( $P = .22$ ). Technical success was achieved in 72% in the Unifuse group vs in 86% in the EKOS group ( $P = .31$ ). Ten of 69 (14%) in Unifuse group and 2 of 22 (9%) in the EKOS group had limb loss ( $P = .46$ ). Complications were compartment syndrome requiring fasciotomy and bleeding requiring premature cessation of thrombolysis. No deaths occurred as an immediate result of complications. The complication rate was 13% in the Unifuse group vs 10% in the EKOS group ( $P = .46$ ).

**Conclusions:** There was no statistically significant difference in the outcomes in catheter-directed thrombolysis in the treatment of acute arterial ischemia using the Unifuse catheter vs the more expensive EKOS catheter.