

Trust but verify? Utility of Intraoperative Angiography After Revascularization for Vascular Trauma

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Introduction

Trauma surgical dogma teaches that patients should have completion intraoperative angiography (IA) if the surgeon cannot identify a palpable pulse in the injured extremity following a vascular repair or bypass. This study was undertaken to assess the utility of IA in trauma patients who underwent open brachial or femoral artery revascularization.

Methods

Retrospective analysis of the Prospective Observational Vascular Injury Trial (PROOVIT) database from 2013-2021 evaluated adult patients ≥ 16 years with penetrating or blunt injuries requiring operative intervention of the brachial artery, superficial femoral artery, or common femoral artery. PROOVIT registry data evaluated included documented palpable pulse in the injured extremity at revascularization completion, adjunctive IA, immediate revision of the vascular repair, and vascular reintervention at any time during the hospitalization.

Results

Of the 5057 patients with vascular injury, 185 patients met our inclusion criteria. The majority were male (86.5%) with a median age, injury severity score and systolic blood pressure of 29, 12 and 117, respectively. 73.5% of patients presented due to penetrating trauma alone. Of the patients in our study, 39% underwent completion IA, 14% had immediate revision, and 8% required vascular reoperation during their admission. Patients who underwent IA, because no palpable pulse was documented after brachial or femoral artery repair were significantly more likely to require immediate revision before leaving the operating room (22% vs. 9%, $p=0.01297$) and were not more likely to require vascular reoperation, compared to those who did not undergo IA (7% vs 9%, $p=0.6126$).

Conclusions

IA is a valuable tool for surgeons when performing vascular repair for extremity trauma and is associated with a greater rate of immediate vascular revision. Surgical judgement, as opposed to surgical dogma, should be utilized when assessing the need for IA.