Background: Patients who are poor candidates for a native arteriovenous fistula placement due to limitations of superficial vein availability usually require placement of prosthetic expanded polytetrafluoroethylene grafts (ePTFE) for hemodialysis access. The limitations of ePTFE include diminished patency rates compared with native fistulae and an increased infectious risk usually requiring graft removal. As a bioprosthetic, bovine carotid artery graft may be superior to PTFE in resisting infection. Our experience with with bovine carotid artery heterograft as a conduit for hemodialysis (Artegraft, North Brunswick NJ, USA) is presented.

Methods: A retrospective review of all patients who underwent placement of bovine carotid artery for hemodialysis access at a tertiary care academic medical center was performed.

Results: Eighteen bovine carotid artery grafts were placed in 17 patients between March 2010 and October 2011. All Artegrafts were placed for hemodialysis access in patients determined to be at increased risk for graft infection at the discretion of the surgeon. Indications included infected pseudoaneurysms with impending rupture, recurrent PFTE infections, and immunosuppressed patients. Eleven patients were male and 7 patients were female. The mean age of the patient cohort was 65.7 ± 19 years. Actuarial primary, primary-assisted and secondary patency rates at 12 months were 58.1%, 100% and 100%, respectively. One immunosuppressed patient developed a VRE graft infection and required removal two months following the initial procedure. One patient died postoperatively of respiratory failure following emergent graft revision.

Conclusions: Bovine carotid grafts can be successfully used for angioaccess as an alternative to ePTFE. The 1-year patency rates are comparable to ePTFE as reported in the existing peer-reviewed literature. These conduits appear superior to PTFE in resisting infection, however the precise limitations of their use remain to be established conclusively.