

Renewed Interest in Bovine Heterograft for Vascular Access: A Comparison Between Polytetrafluoroethylene and Bovine

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Purpose:

Retrospective comparison of graft survival and complications in chronic hemodialysis access when using bovine carotid artery versus PTFE.

Methods:

From 1990 to 2003, 692 hemodialysis vascular access grafts were placed in 538 patients, (283 female, 255 male) at a single-center. Four hundred forty-six PTFE, 245 bovine carotid artery, and 1 cryovein grafts were used. Grafts were placed in the forearm most commonly (548), followed by upper arm (113) and femoral (31) locations. Diabetes mellitus and hypertension were the cause of renal failure in 67% of this population

Results:

Primary patency at one and three years for bovine was 34% and 17%, and PTFE was 36% and 13% respectively. Secondary patency for the same time intervals was 86% and 62% for bovine, and 82% and 64% for PTFE. Infection occurred in 10% of the PTFE grafts compared to only 5% in bovine ($p=.01$).

Interventions per graft life were significantly less for bovine grafts than PTFE (1.84 vs. 4.3, $p<.001$). Aneurysms that required treatment occurred equally in graft types, 4.1% for bovine and 6.5% for PTFE. Overall incidence of steal syndrome was 4.7%, and not significantly different between graft types.

Conclusion:

Although secondary patencies were not significantly different between the two graft types, bovine grafts required significantly less interventions than PTFE grafts to maintain their patency. Bovine grafts also had less incidence of infection and were not associated with significant aneurysmal complications. This data would suggest that bovine carotid heterograft may be a preferred material for hemodialysis vascular access grafts.

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