

ABSTRACT

Endovascular treatment of arteriovenous fistula for dialysis

Aim:

Aim of presented retrospective study was to evaluate the primary patency of angioplasty using a drug eluting balloon (DEB) and conventional balloon (PTA) in dysfunctional dialysis fistula.

Methods:

58 adult patients treated for fistula dysfunction in the period from 2015 to 2018 were enrolled based on following criteria – matured native fistula with stenosis above 50 % compared to the adjacent healthy vein. Patients with restenosis, swing point, cephalic arch, and central vein stenosis, and multiple distant stenoses were ruled out. Patients were divided into two groups according to received treatment - DEB and PTA. Primary patency of angioplasty was defined as the function of dialysis without the need for clinically driven endovascular or surgical intervention on culprit lesion during follow-up. Secondary, dialysis access patency, 12-month assisted patency, technical, clinical success, complication rate, and mortality among treated groups were evaluated.

Results:

Primary patency at 6 and 12 months follow up was evaluated in 25 patients in the DEB and 25 patients in the PTA group. Primary lesion and access patency were in DEB vs. PTA: 96 % vs. 76 % ($p = 0,1$) and 96 % vs. 72 % ($p = 0,049$) at 6 months, 80 % vs. 56 % ($p = 0,13$), 80 % vs. 52 % ($p = 0,073$) at 12 months. Assisted patency was: 96 % vs. 76 % ($p = 0,1$). Primary technical success was in DEB vs. PTA: 70 % vs. 74 % ($p = 0,9$), secondary: 100 % vs. 94 % ($p = 0,5$), clinical success: 100 % vs. 97 % ($p > 0,9$), overall rate of complications: 15 % vs. 9, 7 % ($p = 0,7$). Number of interventions in access in 12 months was significantly lower in DEB group with 5 interventions compared to PTA group with 14 interventions ($p = 0,02$).

Conclusion:

Patients treated with DEB needed significantly fewer reinterventions on access during 12-month follow-up. Patients after angioplasty with DEB achieved better primary patency at 6 and 12 months after the intervention, however without statistical significance. Results were achieved with comparable technical, clinical success, and complication rate compared to conventional angioplasty.

Keywords:

angioplasty, DEB, DCB, dialysis, fistula