



The Impact of Diabetes Mellitus on Arteriovenous Access Patency: A Retrospective Study from a Single Institution

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Introduction

- This study investigates the relationship between diabetes and AV access patency, considering additional factors such as AV access type, pre-operative blood glucose values on the day of surgery and post-operative glycemic control.
- We hypothesize that poor blood glucose control would decrease long term AV access patency.

Methods

Study – Retrospective Cohort study

Patients – All patients who underwent AV access creation between January 1 – December 31, 2019

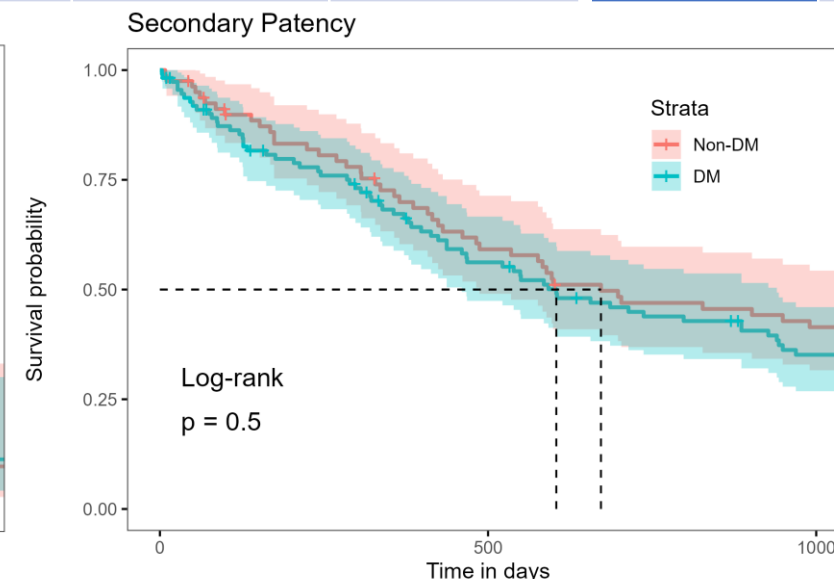
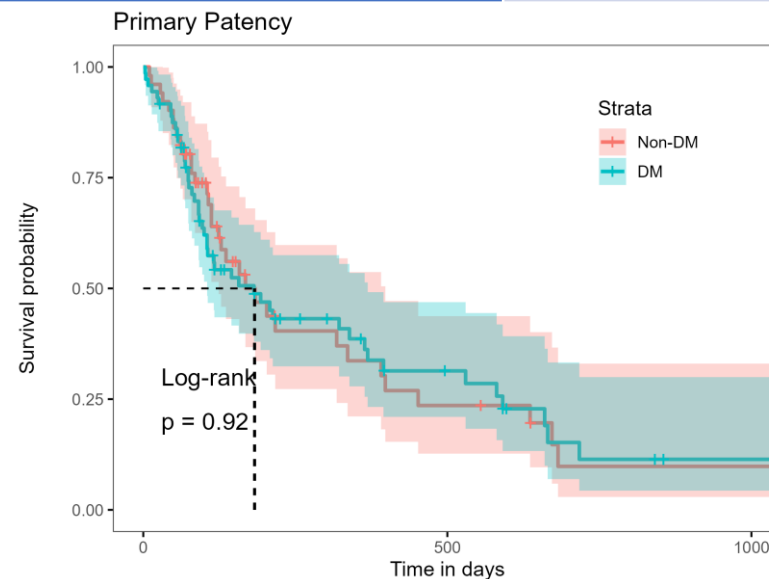
Patient data, including diabetes status, access type, blood glucose levels on the day of surgery within one-year of surgery, number of interventions following AV access creation was collected

Outcomes – Primary Patency (time to first intervention), Secondary patency (duration of viable access for dialysis)

Results

- 192 patients were included
- Most common type – Brachiocephalic fistula (52%)
- Diabetes has no effect on secondary patency or death
- Fistulagram with intervention was the most frequent type of re-intervention

		Non-DM	DM			Non-DM	DM		
Number of patients		79	113	Outcome(%)	Death	23 (29.1)	39 (34.5)		
Gender (%)	Male / Female	48 (60.8) / 31 (39.2)	66 (58.4) / 47 (41.6)		End of study	17 (21.5)	19 (16.8)		
Age on Surgery (mean (SD))		59.23 (18.09)	64.57 (10.82)		Fistula thrombosed / closed	16 (20.3)	32 (28.3)		
Cause of ESRD (%)	Diabetes Mellitus	0 (0.0)	97 (85.8)		Lost to Follow-up	8 (10.1)	16 (14.2)		
	HTN	22 (27.8)	5 (4.4)		Transplant	15 (19.0)	7 (6.2)		
	Multifactorial / Unclear etiology	14 (17.7)	5 (4.4)		Primary Patency (median [IQR])	P-value = 0.91	112.00 [71.00, 216.00]	117.00 [68.50, 324.50]	
	Other	43 (54.4)	6 (5.3)			Cumulative Patency (mean (SD))	P-value = 0.72	689.91 (502.41)	663.20 (509.87)
Type of Current fistula (%)	Brachial-axillary AV graft	6 (7.6)	18 (15.9)						
	Brachiocephalic fistula	40 (50.6)	60 (53.1)						
	Radiocephalic Fistula	3 (3.8)	8 (7.1)						
Glucose value on day of surgery (median [IQR])		91.00 [84.00, 97.00]	129.50 [99.00, 174.50]						
HbA1c value within perioperative one year	N = 101	5.29	7.77						



Conclusions

Diabetes Mellitus, blood glucose levels on the day of AV access creation, and postoperative glycemic control do not exert a discernible effect on the primary or secondary patency of arteriovenous access.