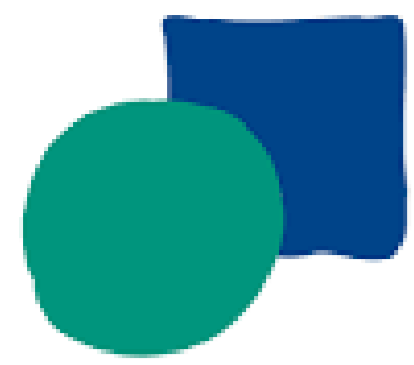


EARLY FAILURE AND PATENCY IN HEMODIALYSIS FISTULAS: PROGNOSTIC FACTORS



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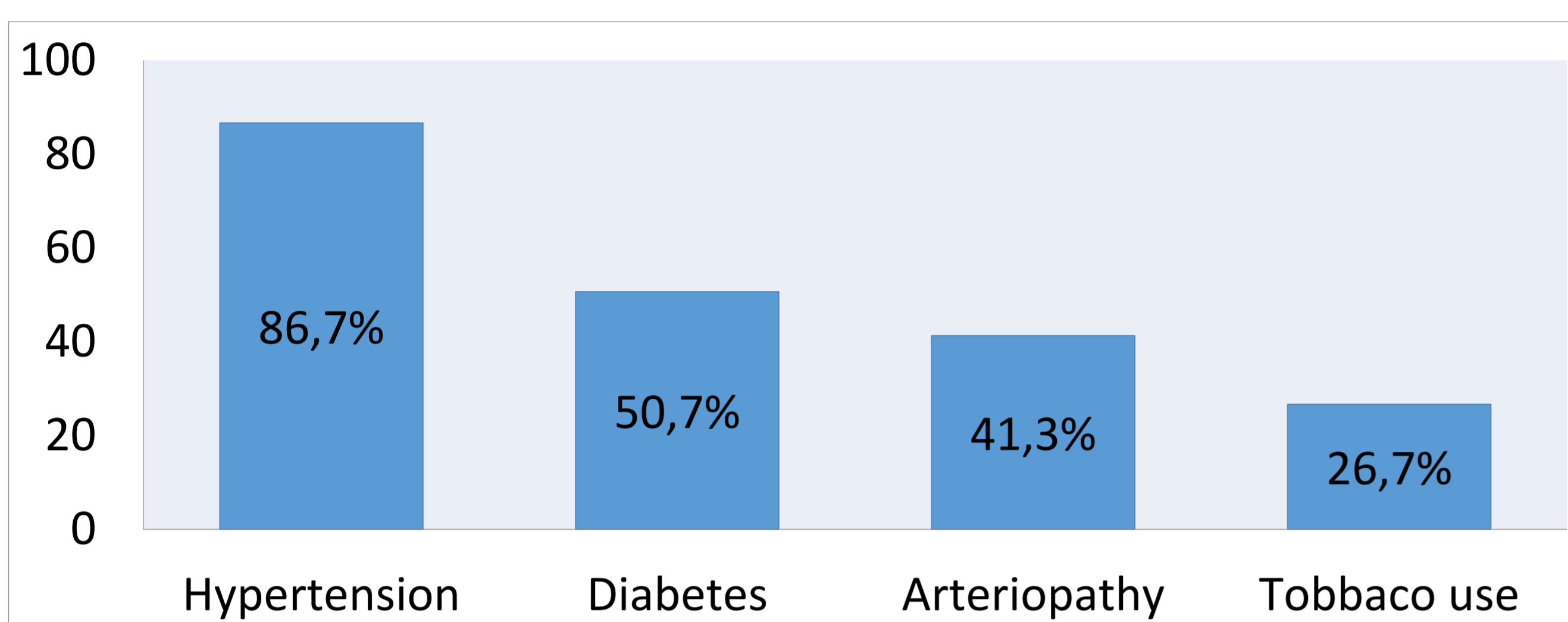
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INTRODUCTION AND AIMS

Native arteriovenous fistula (AVF) is considered the gold standard of vascular access for hemodialysis due to its longer survival, fewer complications, less mortality and costs. Patency is important for an effective dialysis treatment and this remains a challenge. There are not well defined the prognostic factors for short and long term AVF survival. The aim is to evaluate comorbidity, biology and ultrasound (US) variables as prognostic factors for early failure and AVF patency

RESULTS

N=117; Gender: 59,8% male; age: 69 y.o and Charlson: 6,3± 2.2



METHODS

Prospective cohort, uni-center study, 5 years of follow-up

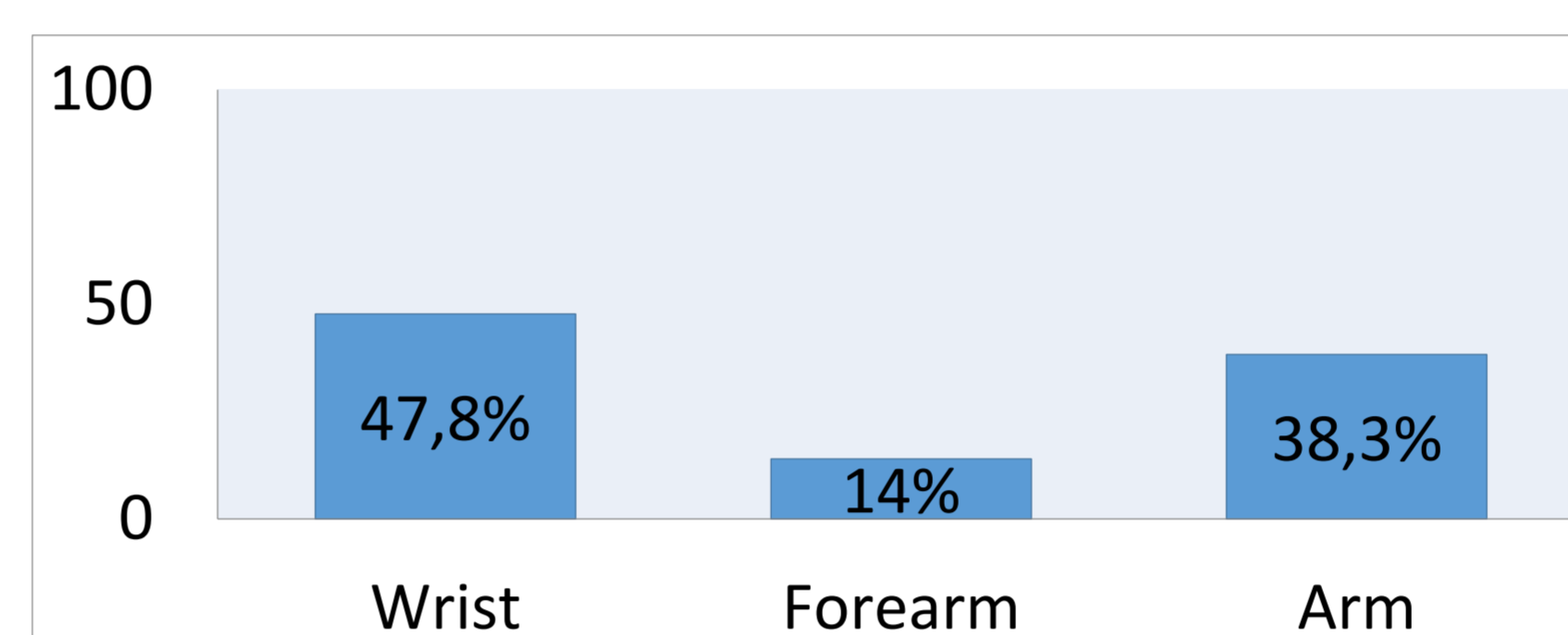
Inclusion criteria

Patients with new native AVF placements between 1st January of 2011 to 31th December of 2015 and known vascular access survival's data at the end of follow-up

Data collected: US mapping (morphology and hemodynamic), comorbidity (blood pressure, severe arteriopathy, diabetes, Charlson index), Hb, Ca, P, PTH, Ferritin and CRP

Primary end-points: secondary patency by Kaplan-Meier and early AVF failure
Multivariate analysis was applied

AVF location:



AVF number:

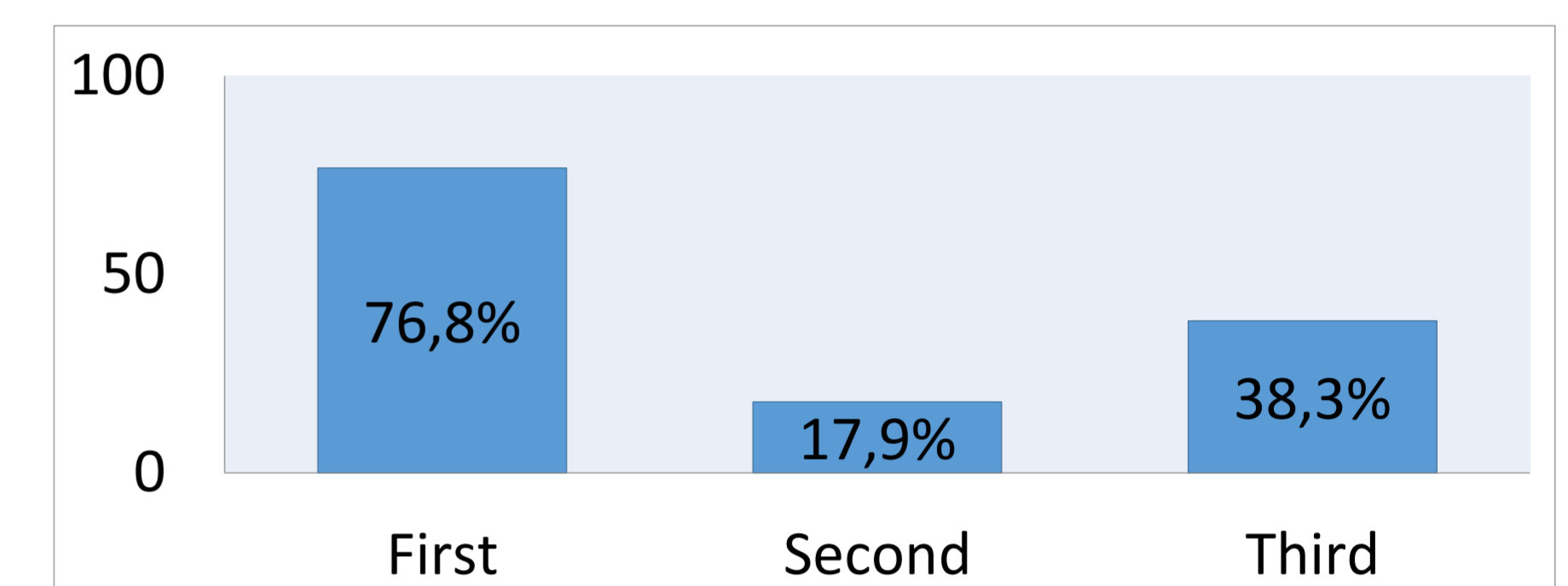
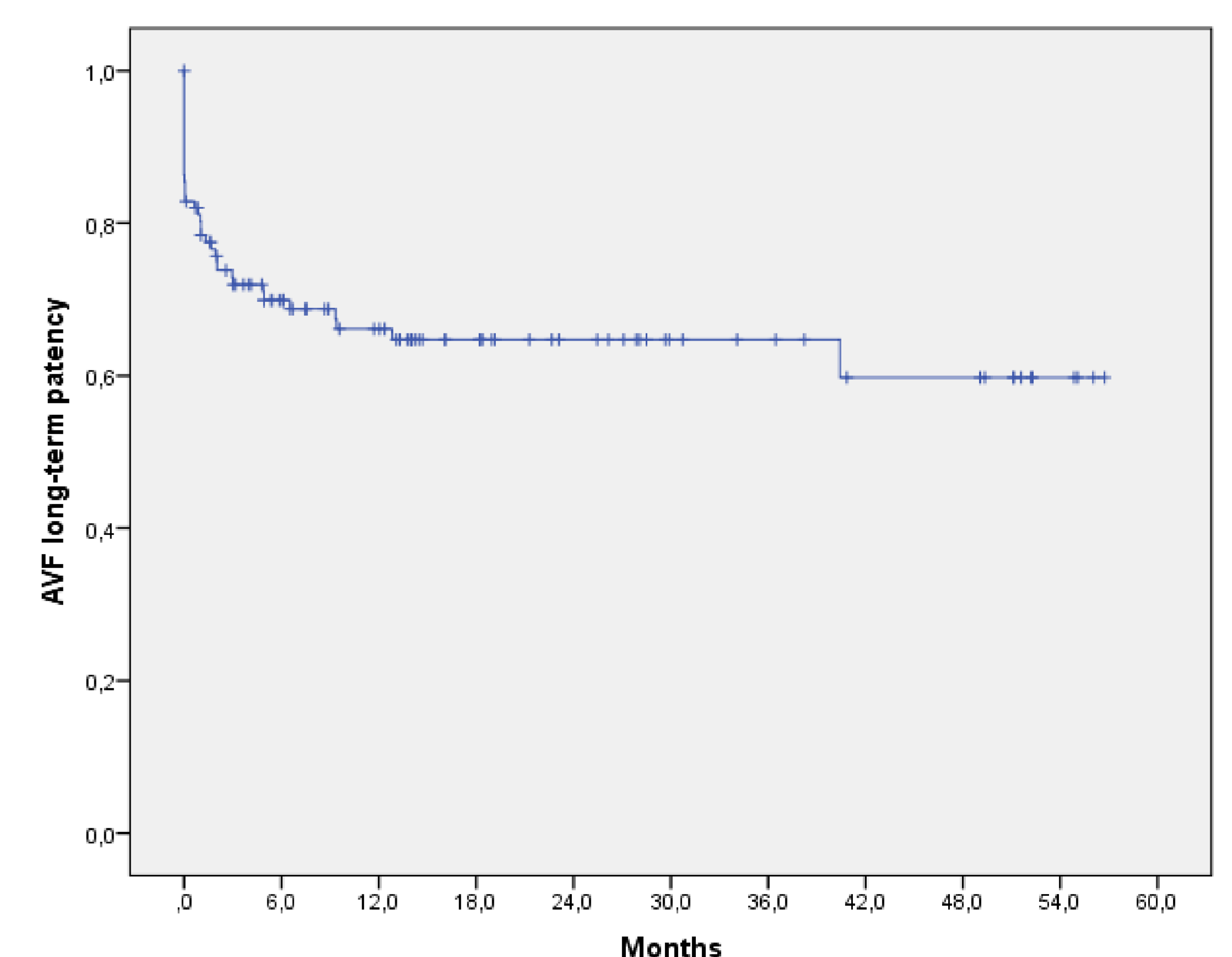


Table 1. Baseline characteristics (n=117)

Variable	Value
Male gender	59,8%
Age (years)	69 (18)
Hypertension	86,7%
Diabetes	50,7%
Arteriopathy	41,3%
Tobacco use	26,7%
AVF location	
Wrist	47,8%
Forearm	14%
Arm	38,3%
AVF number	
First	77,8%
Second	17,9%
Third	4,3%
Score Charlson	6,3±2,2
Hemoglobin (g/dL)	11,0±1,2
Calcium (mg/dL)	9,0 (0,9)
Phosphorus (mg/dL)	4,9 (1,8)
PTH (pg/mL)	248 (218)
Ferritin (ng/mL)	310 (410)
C-reactive protein (CRP) (mg/dL)	0,8 (2,0)
Resistance index (RI)	0,78±0,12
Artery diameter (mm)	2,3±0,5
Vein diameter (mm)	2,5±0,9
Peak systolic velocity (PSV) of radial artery (cm/s)	60 (32)
PSV of ulnar artery (cm/s)	60 (30)

Variables	Early failure (n=23)	No early failure (n=94)	P-value
Male gender	47,8%	62,8%	0,237
Age (years)	76	67	0,034
Hypertension	100%	84,1%	0,138
Diabetes	66,7%	47,6%	0,346
Arteriopathy	41,7%	41,3%	0,980
Tobacco use	33,3%	25,4%	0,569
Distal AVF location	56,5%	45,7%	0,363
Score Charlson	6,9	6,0	0,200
Hemoglobin (g/dL)	11,0	11,1	0,852
Calcium (mg/dL)	8,9	9,1	0,274
Phosphorus (mg/dL)	4,5	5,1	0,100
PTH (pg/mL)	148	256	0,518
Ferritin (ng/mL)	227	308	0,082
CRP (mg/dL)	0,6	0,8	0,649
RI	0,76	0,77	0,729
Diameter of artery (mm)	2,2	2,3	0,515
Diameter of vein (mm)	2,2	2,6	0,041
PSV of radial artery (cm/s)	54	62	0,281
PSV of ulnar artery (cm/s)	47	60	0,162

Variables	Survival (n=78)	No survival (n=39)	P-value
Male gender	60,3%	59%	1,0
Age (years)	67	71	0,216
Hypertension	87,5%	84,2%	0,716
Diabetes	48,2%	57,9%	0,597
Arteriopathy	37,5%	52,6%	0,288
Tobacco use	23,2%	36,8%	0,368
Distal AVF location	43,4%	56,4%	0,237
Score Charlson	5,9	6,6	0,269
Hemoglobin (g/dL)	11,2	10,7	0,125
Calcium (mg/dL)	9,1	8,8	0,052
Phosphorus (mg/dL)	5,2	4,7	0,146
PTH (pg/mL)	259	154	0,204
Ferritin (ng/mL)	312	248	0,206
CRP (mg/dL)	0,6	1,2	0,527
RI	0,77	0,77	0,931
Diameter of artery (mm)	2,3	2,3	0,698
Diameter of vein (mm)	2,7	2,3	0,075
PSV of radial artery (cm/s)	64	52	0,006
PSV of ulnar artery (cm/s)	65	48	0,018



Multivariate analyse - early failure

Variables	OR	P-value
Vein diameter (mm)	3,79	0,026
Age (years)	0,94	0,047
PSV of radial artery (cm/s)	1,01	0,589
PSV of ulnar artery (cm/s)	1,01	0,670

Laboratory	Value
Hemoglobin (g/dL):	11,0±1,2
Calcium (mg/dL)	9,0 (0,9)
Phosphorus (mg/dL)	4,9 (1,8)
PTH (pg/mL)	248 (218)
Ferritin (ng/mL)	310 (410)
C-reactive protein (mg/dL)	0,8 (2,0)

US mapping	Value
Resistance index (RI)	0,78±0,12
Artery diameter (mm)	2,3±0,5
Vein diameter (mm)	2,5±0,9
Peak systolic velocity (PSV) of radial artery (cm/s)	60 (32)
PSV of ulnar artery (cm/s)	60 (30)

CONCLUSIONS

Predictors of early and late patency are different.:

- ✓ Age and vein diameter had more impact on early AVF failure.
- ✓ Arterial hemodynamics showed prognostic value in long term patency

