EARLY MORTALITY IN HEMODIALYSIS DIABETIC PATIENTS

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INTRODUCTION AND AIMS

A number of epidemiological studies have analyzed factors affecting long-term survival of diabetic patients on hemodialysis (HD) but less is known about early mortality.
The aim of our study was to assess the influence of diabetes on early survival of HD patients during the first year of treatment.

PATIENTS AND METHODS

From a retrospective cohort of 166 HD patients who started maintenance hemodialysis at our institution between January 2005 and December 2011 we had studied only patients who had been on a HD program as their first dialysis modality. Finally the study group encompassed 120 patients (all Caucasians) – Tab.1.
We analyzed the relationship of age and initial vascular access with early mortality.
The statistical analysis was performed with R for Windows, version 2.15.1 and MedCalc for Windows, version 12.3.1.0.
Linear relationship between two quantitative variables were analysed using Pearsons correlation coefficient, or Spearmans correlation coefficient.
Associations between two categorical variables were tested by means of Pearson's chi-square test of independence and Fisher's exact test.
Survival analysis was conducted using Kaplan-Meier estimator with logrank significance test to estimate survival function of patients and the multivariate Cox proportional hazard model to investigate the influence of qualitative variables on risk of death.

RESULTS

97 patients from the initial cohort of 120 (80.8%) survived the 12-month observation period – Tab.2.
During the 3rd, 6th, 9th month mortality rate was at 13.3%, 2.5%, 2.5% respectively. Annual mortality rate was 19.2%.
The only independent mortality risk factors in the Cox proportional hazard regression model was the type of initial vascular access (p= 0.003) - Tab.3.
The significant superior survival demonstrated the patients who initiated HD with a functional arteriovenous fistula – Fig.1.

Table 1. Patients characteristics at dialysis onset (n=120)

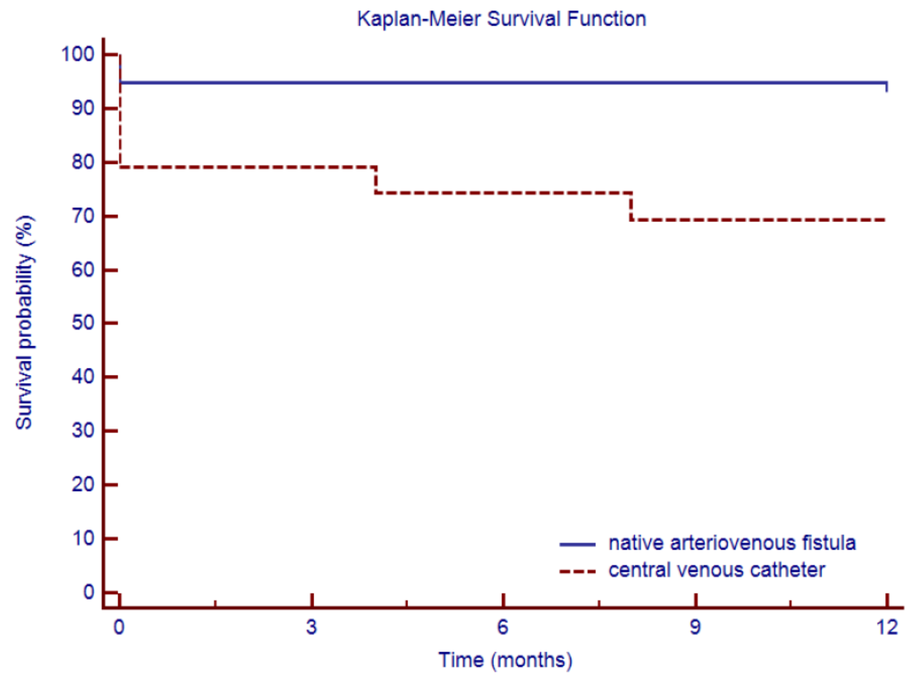
Age [y.] n=120					
Mean	SD	Min	Median	Max	25 - 75 P
66.98	12.84	31.00	69.00	89.00	58.50 – 76.00
Age groups					
<50 y.			13 [10.8%]		
51-64 y.			34 [28.3%]		
65-75 y.			36 [30%]		
>75 y.			37 [30.8%]		
Gender [M/F]					
63 [%]			57 [%]		
Initial vascular access					
native arteriovenous fistula			central venous catheter		
58 [%]			62 [%]		
Primary diagnosis					
Diabetes mellitus			20 [16.7%]		
Hypertensive nephropathy			58 [48.3%]		
Interstitial nephropathy			12 [10%]		
Chronic glomerular disease			12 [10%]		
Polycystic kidney disease			5 [4.2%]		
Others			13 [10.8%]		
Diabetes mellitus as cause of ESRD & comorbidity					
Diabetics			52 [43.3%]		

Table 3. Cox proportional hazard regression model

Characteristics	Surviving pts n=97 [80.8%]	Deceased pts n=23 [19.2%]	p-value
Age [years]			
Median	73	68	0.07
25 - 75 P	62.5 - 79.75	58 - 75	
Diabetics	43	9	0.82
Non-diabetics	54	14	
Initial vascular access			
native arteriovenous fistula	54	4	0.002*
central venous catheter	43	19	

* P < 0.05, statistically significant; ** 0.05< P< 0.1.

Figure 1. Kaplan Meier Survival Function
Mortality of the patients during 12-months observation period.
Comparison of survival curves (Logrank test; p = 0.001)



Conclusions:

1. Diabetes did not exert the significant impact on the early survival in HD patients.
2. A native arteriovenous fistula provides a significant survival advantage within the first year of HD.
3. The greatest mortality occurred in early 90 day initiation HD period