

Comorbidities are associated with a fewer arteriovenous fistula in our haemodialysis patients

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Introduction

Primary patency of arteriovenous fistulas (AVF) at 1 year is reported to be 42-70% (1,2), while secondary patency is 60-71% (3).

Other conditions, such as haemostatic or ischaemic complications often affect the usage of AVF despite its suitability.

Besides surgeon experience, age, female gender, and comorbidities (especially obesity, cardiovascular disease, and diabetes mellitus) were shown to be risk factors for AVF failure (1).

There is still controversy whether treatment with statin, aspirin or acenocoumarol can improve AVF functioning.

Objectives

To identify that are factors influencing AVF patency and usage.

Methods

This was a single centre, retrospective, longitudinal and observational study which included 49 haemodialysis patients with 58 newly created AVFs over an observational period of 19 months (the study started on 10.05.2016 and ended on 31.12.2017). At the end of time period, patients were divided in two groups: AVF in use (n=30) vs. AVF not in use (n=28). Table 1 shows the AVF anatomic locations for the 2 groups. There was no significant difference in AVF location distribution (p=0.234). Between the groups we compared some factors influencing AVF patency: age, Charlson Comorbidity Index (CCI), age-adjusted Charlson Comorbidity Index (aaCCI), diabetes mellitus, mean haemoglobin during AVF life time and treatment with aspirin, statin and acenocoumarol during AVF life time (recorded if administered at least 1 month).

Statistics

Student t-test for numerical normally distributed data and Wilcoxon test, test for non-normally distributed data were applied. Pearson's Chi-squared test for factors was used.

Results

The reasons for not using AVF at the end of the study period are displayed in Table 2.

There was no significant difference between the 2 groups in terms of age, gender, diabetes mellitus, CCI, haemoglobin and treatment with aspirin or statin or acenocoumarol (Table 3).

Patients with AVF not in use had a significantly higher aaCCI compared to patients with AVF in use (Figure 1).

Conclusion

Comorbidities, but not age, gender, haemoglobin or treatment with statin, aspirin and acenocoumarol, affected the use of AVF in our hemodialysis centre.

References

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Table 1. Arteriovenous fistula anatomic locations

	AVF not in use	AVF in use
Distal radiocephalic AVF	7	10
Median radiocephalic AVF	5	4
Brachiocephalic AVF	5	6
Brachio basilic AVF	11	10

Table 2. Reasons for not using AVF

Thrombosis	11
Maturation failure*	6
Ongoing maturation **	4
Superficialisation needed	3
Deceased	2
Difficult haemostasis	1
Closure because of complications (steal syndrome)	1

AVF-arteriovenous fistula

* not in use after 3 months since creation

** less than 3 months since creation on 31.12.2017

Table 3. Patients demographic data and factors influencing AVF patency in the 2 study groups

	AVF not in use	AVF in use	p
Age (years)	64.19±9.17	58.36±14.17	0.07
Gender (M/F)	14/14	19/11	0.305
Dialysis history (months)	23 (12.7-62.25)	30.5 (14.25-96.75)	0.265
Body mass index (kg/m ²)	29.45±7.32	27.93±6.48	0.416
Charlson Comorbidity Index	3.80±1.60f	3.20±1.47	0.147
Diabetes (No/Yes)	18/10	19/11	0.939
Mean haemoglobin	11.02±0.92	11.2±0.91	0.47
Statin treatment (No/Yes)	17/11	24/6	0.1
Aspirin treatment (No/Yes)	19/9	21/9	0.86
Acenocoumarol treatment (No/Yes)	24/4	24/6	0.56

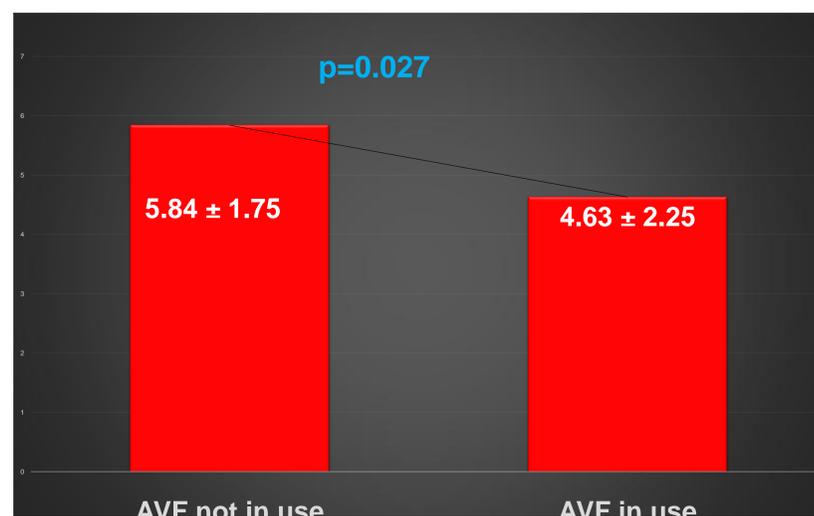


Figure 1. Age-adjusted Charlson Comorbidity Index