Renal care in a ISO-certified pre-dialysis clinic

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Introduction

In 2008 a multidisciplinary pre-dialysis clinic, with a renal nurse, a renal dietician, a social assistant dedicated to the renal clinic and a nephrologist, was started in the ZNA renal clinic. In 2012 this pre-dialysis clinic became ISO-certified, offering a protocol-driven approach, evaluated in PDCA-cycles. Although a lot of patients were offered the possibility of this organized pre-dialysis care, still a lot of other patients were followed in renal standard care, provided by the same nephrologists. Some patients were late referrals.

Methods

We examined the influence of organized, multidisciplinary care on the outcome at one year of dialysis, against the group of patients on standard care or referred too late. Of all patients, starting dialysis, patient characteristics were registered at start and after one year of renal replacement therapy, as well as dialysis access and SF-36, as an indication of quality of life.

Results

A total of 69 patients had a follow-up before the start of dialysis in the pre-dialysis clinic, 62 patients received standard care. Additionally, 87 patients were late referrals and started dialysis less than 3 months after their first contact with a nephrologist.

Demographical and clinical characteristics of the patients followed in the pre-dialysis clinic did not differ from those receiving standard care except for smoking (Tables 1 and 2). Renal biopsy was performed more frequently in patients from the pre-dialysis clinic, although there was no significant difference (Table 3).

Patients from the multidisciplinary pre-dialysis clinic needed significantly less urgent start of dialysis (Table 3). More frequently an AV fistula was present at start (Figure 1). At the start of renal replacement therapy, there was a trend to shorter hospitalization in this population (Table 3). The advantage of the pre-dialysis care became more apparent after one year of dialysis. At that time there was a highly significant difference in use of AV fistulas in favor of the patients followed in the organized pre-dialysis care (Table 3 and Figure 1). There was a trend to lower mortality at one year of dialysis in the latter group. Quality of life did not differ significantly between the groups (Figure 2).

Conclusion

We conclude that follow up in a multidisciplinary pre-dialysis clinic, with protocol-driven healthcare, offers advantages for the patients compared to standard renal care.

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Figure 1: HD Vascular access at start dialysis
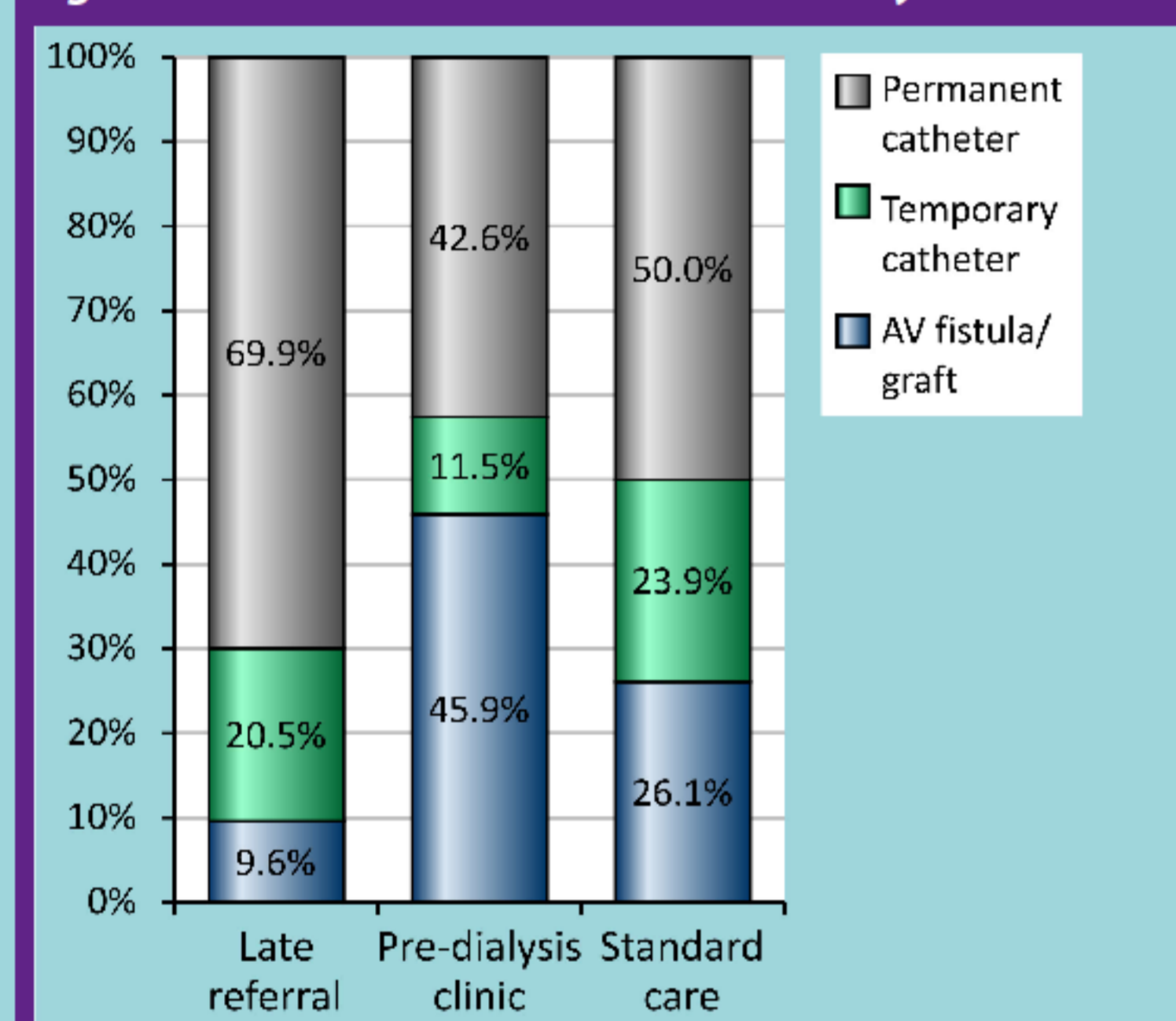
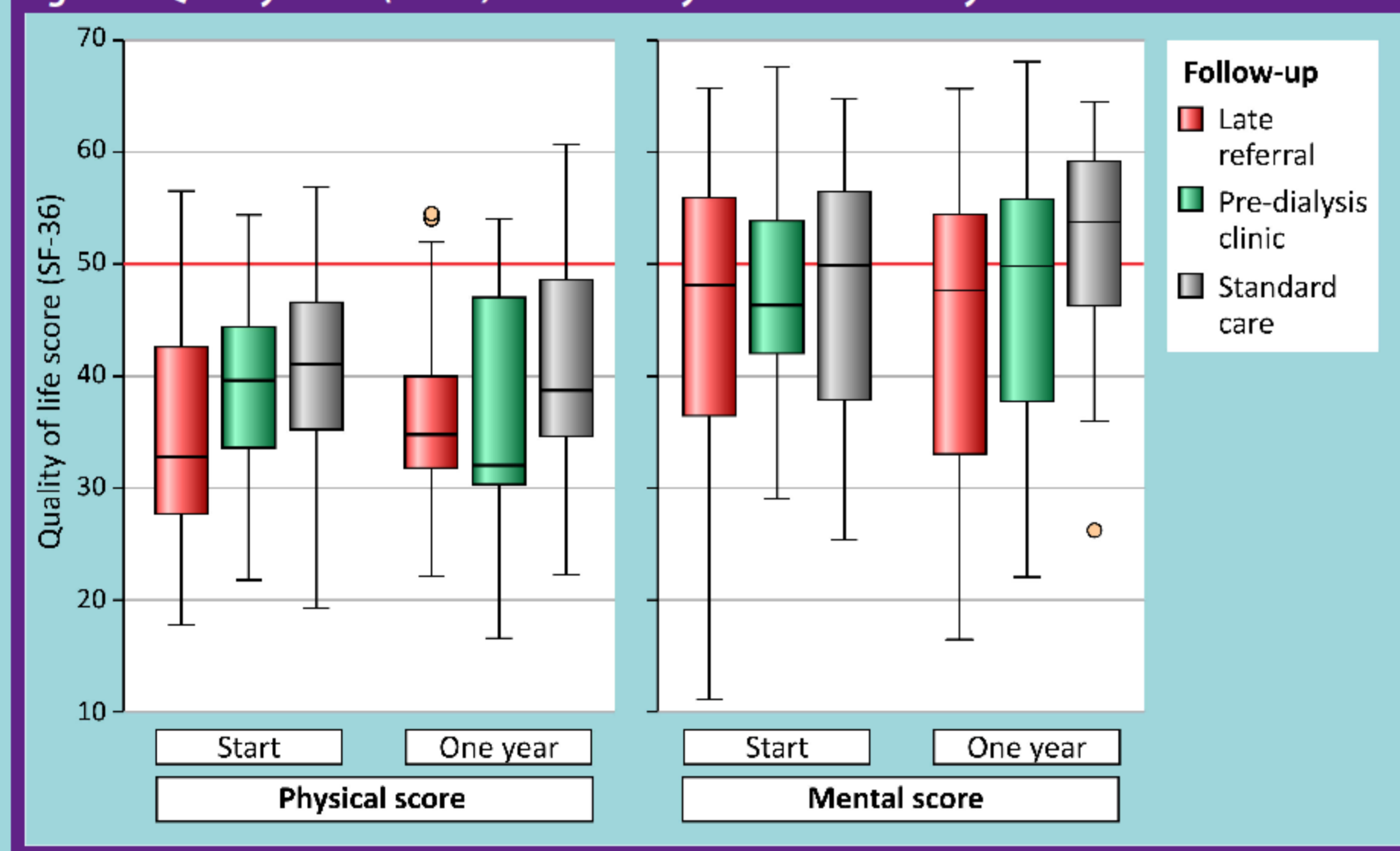Figure 2: Quality of life (SF-36) at start dialysis and after one year

Table 1: Demographic characteristics

	Pre-dialysis clinic n=69	Standard care n=62	p-value of difference
Age (mean, range)	67.7 (31-87)	69.6 (31-93)	0.394
Gender (% male)	63.9%	58.1%	0.490
Living conditions			
at home, in family	70.0%	73.4%	
at home, alone	24.3%	15.0%	
service appartment	4.3%	5.0%	
nursing home	1.4%	6.7%	0.296
Caregivers			
no care needed	48.6%	36.2%	
care from partner	22.9%	34.5%	
care from children	10.0%	10.3%	
professional care	18.6%	19.0%	0.337
Professionally active	8.6%	10.2%	0.756
Education			
no	3.0%	5.8%	
primary	26.9%	15.4%	
lower secundary	37.3%	32.7%	
higher secundary	23.9%	32.7%	
higher	9.0%	13.5%	0.427

Table 2: Clinical characteristics at baseline

	Pre-dialysis clinic n=69	Standard care n=62	p-value of difference
Smoking	72.1%	37.3%	<0.001
Abuse of alcohol	22.0%	10.2%	0.167
Abuse of drugs	5.8%	3.4%	0.411
Renal diagnosis			
glomerulonephritis	11.6%	9.7%	
tubulo interstitial nephritis	8.7%	9.7%	
diabetic nephropathy	26.1%	25.8%	
other systemic disease	23.2%	27.4%	
hereditary disease	11.6%	9.7%	
miscellaneous	18.8%	17.7%	0.992
Diabetes type 1	1.5%	0.0%	0.350
Diabetes type 2	44.1%	37.3%	0.435
Coronary disease	44.4%	33.3%	0.213
Hypertension	83.1%	89.8%	0.275

Table 3: Follow-up

	Pre-dialysis clinic n=69	Standard care n=62	p-value of difference
Follow-up pre-dialysis			
months of follow-up (mean-SD)	21.9 (19.8)	30.3 (30.1)	0.067
renal biopsy	26.1%	15.1%	0.174
hepatitis B vaccination	18.2%	21.4%	0.840
Start dialysis			
start dialysis urgently	23.5%	43.5%	0.015
PD at start dialysis	17.6%	32.3%	0.053
AV fistula at start	38.2%	19.4%	0.018
hospitalisation at start (mean days-SD)	13.4 (21.3)	17.3 (27.6)	0.349
1-year outcome	n=47	n=34	
PD as dialysis modality	34.4%	21.6%	0.134
AV fistula as vascular access	58.8%	23.8%	0.002
hospitalisation during year 1 (mean days-SD)	33.0 (50.7)	30.5 (37.2)	0.790
transplantation	2.7%	8.1%	0.164
mortality	30.6%	41.9%	0.171

Table 4: Clinical parameters at start and after 12 months dialysis

	Start dialysis			12 months dialysis		
	Pre-dialysis clinic n=69 mean (SD)	Standard care n=62 mean (SD)	p-value of difference	Pre-dialysis clinic n=47 mean (SD)	Standard care n=34 mean (SD)	p-value of difference
Fats	36.4 (7.1)	33.4 (4.7)	0.015	34.1 (6.7)	34.6 (5.2)	0.791
Proteins	69.0 (16.7)	76.5 (16.4)	0.024	72.4 (19.6)	78.2 (21.7)	0.299
Vitamin D	19.7 (9.8)	19.3 (10.6)	0.816	33.4 (17.7)	23.8 (9.7)	0.007
Hemoglobin	10.3 (1.4)	9.7 (1.7)	0.027	11.5 (1.5)	11.5 (1.3)	0.993
Hematocrit	0.32 (.05)	0.30 (.05)	0.060	0.35 (.05)	0.36 (.04)	0.742

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H) Clinical Nephrology, CKD. H5) Pathophysiology and clinical studies in CKD 1-5.

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