

COMPARATIVE ANALYSIS OF DIALYTIC THERAPY IN THE AUTONOMOUS PROVINCE OF TRENTO (ITALY)

G. Brunori¹, A. Laudon¹, L. Sottini¹, D. Zarantonello¹, M. Rigoni^{2,3}, E. Torri^{2,4}, G. Nollo^{2,5}

¹Local Healthcare Trust, Trento, Italy, ²Healthcare Research and Implementation program IRCS-PAT-FBK, Trento, Italy, ³University of Modena and Reggio Emilia, Modena, Italy, ⁴Department of Health and Social Solidarity, Trento, Italy, ⁵University of Trento, Italy

Background:

Aim of the work was to **compare hemodialysis (HD) and peritoneal dialysis (PD) outcomes** in patients affected by end stage renal disease in the Autonomous Province of Trento, a north-east area of Italy of 520,000 inhabitants, organized in one nephrology unit that manages seven satellite HD centers and one centralized PD service. Since 2008, a key governance strategy was the increase of PD. After this decision, the rate of PD moved from 4% to 21% in 5 years (incidence patient rate rose from 7% to 48%). **The choice of PD treatment was on voluntary base** after a deep informative discussion with physicians and nurses.

Methods:

We analyzed data from January 1st 2008 to 31th December 2013, for a total of 290 HD patients and 132 PD patients.

In order to have two comparable populations the following exclusion criteria were applied:

1. patients that for established clinical reasons could afford only one dialytic method and not the other;
2. patients who died within 30 days from the start of dialysis;
3. patients who underwent kidney transplant, since the percentage of such patients is statistically different in the two groups (8% HD and 29% PD).

Data from **168 patients HD and 70 PD (Table 1)** were analyzed and compared for a **survival** study. Descriptive statistics compared the therapies for survival (Kaplan-Meier analysis, log-rank test).

We also analyzed the **distributions of the length of stay** of the hospital admissions (U Mann-Whitney test) in HD and PD patients.

We assessed **efficiency to transplant**, and we analyzed patients registered in transplant waiting list: 25 HD patients and 30 PD patients. Efficiency to transplant and waiting time for placement in transplant waiting list were compared by Kaplan-Meier analysis, log-rank test and Cox regression.

Results:

The analysis of the crude survival rate of the populations showed **no significant differences between HD and PD** neither for the two age's groups considered (Figure 1).

Clinical risk factors associated with **reduced survival for PD patients** compared to HD were: **cardiovascular disease and diabetes** (Figure 2).

The difference of the distributions of the hospital admissions was not statistically significant (Table 2).

Regarding the **efficacy to transplant** the **HD had significantly lower efficiency than the PD** on time to transplant, with significant difference on the time necessary to HD patients to be put on waiting list (Figure 2).

Cox regression indicates that PD patients have a hazard ratio of receiving a transplant 6 times higher than HD patients (Table 3), and that PD patients have a hazard ratio of being included in the transplant list of 4 times higher than HD patients (Table 4).

Conclusions:

PD versus HD shows similar mortality risk (except for patients with cardiovascular disease and diabetes), higher efficiency to transplant, and a more timely inclusion on the transplant waiting list. This diversity seems due to organizational issues and patient's motivation. HD patients were managed in seven centers, PD patients in a single center with a specific reference physician: the information for inclusion in the list transplantation and the necessary examinations are timely communicated and more easily managed by a single physician than by different physicians and nurses in the seven centers. The patient who performs peritoneal dialysis is often more autonomous, more determined and more involved in his care process.

Table 1

Populations characteristics	HD, n (%)	PD, n (%)	p-value
Total	168	70	
Male	115 (68)	44 (63)	0.40
Female	53 (32)	26 (37)	0.40
Registered for transplant	13 (8)	2 (3)	0.16
Cardiovascular disease (CVD)	79 (47)	32 (46)	0.85
Mellitus diabetes (MD)	55 (33)	20 (29)	0.53
COPD	27 (16)	10 (14)	0.73
Chronic liver disease	22 (13)	5 (7)	0.19
Cancer	26 (15)	12 (17)	0.75
Arterial hypertension	142 (85)	57 (84)	0.56
Median and IQR age at start of dialysis	71 [60 - 78]	72 [62 - 78]	0.80

Figure 1

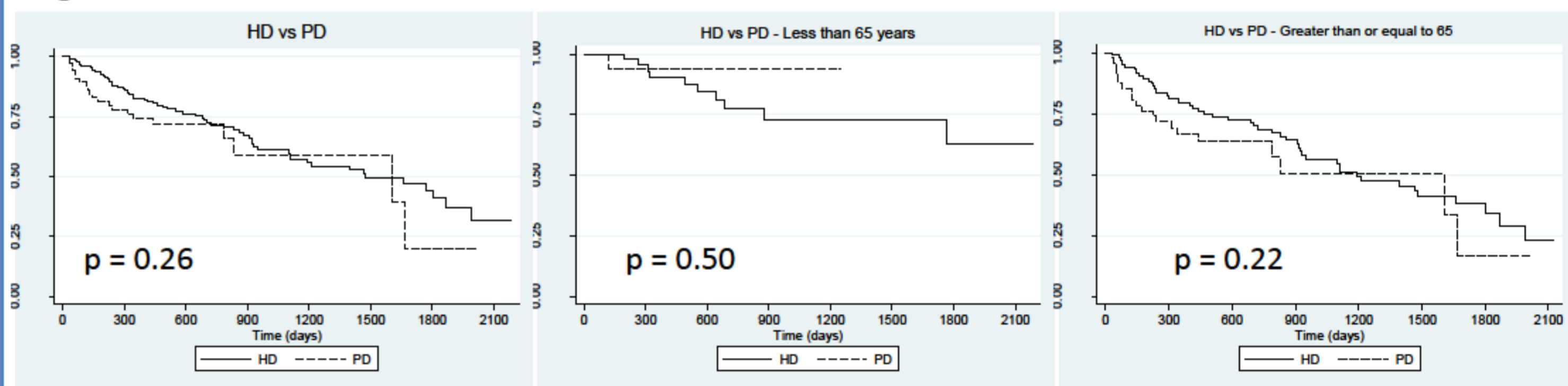


Figure 2

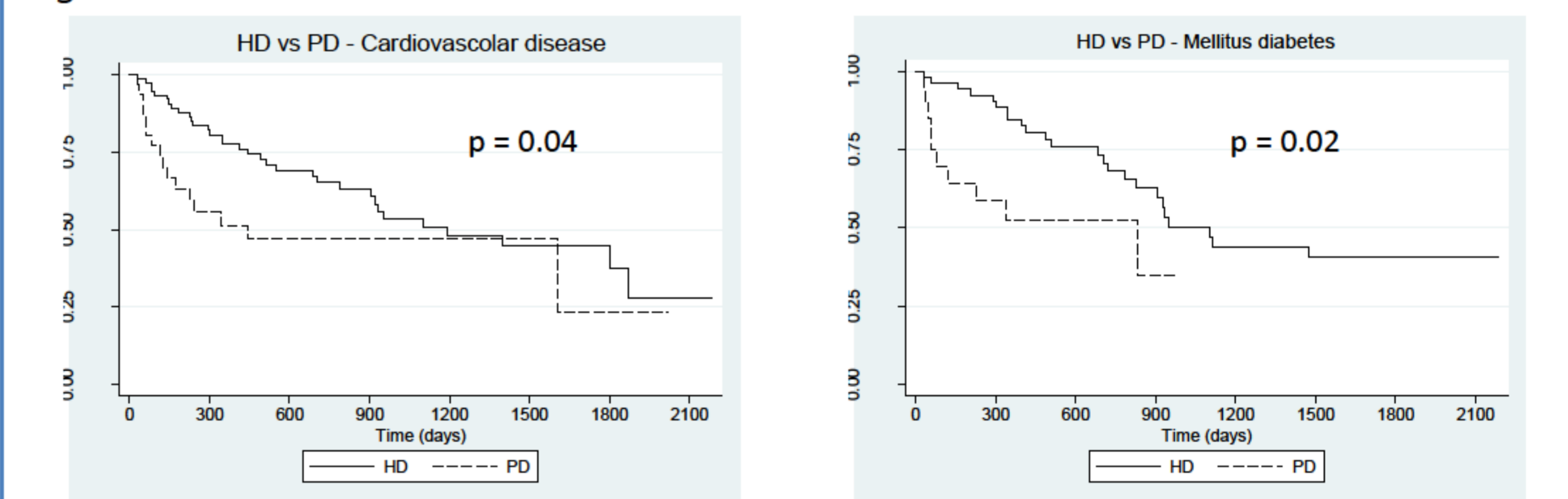


Table 2

Hospital admissions	HD	PD	
Admissions	485	160	
Length of stay *	10 [5 - 20]	10 [6 - 19]	p = 0.57

* Expressed in days, median and Interquartile Range

Figure 3

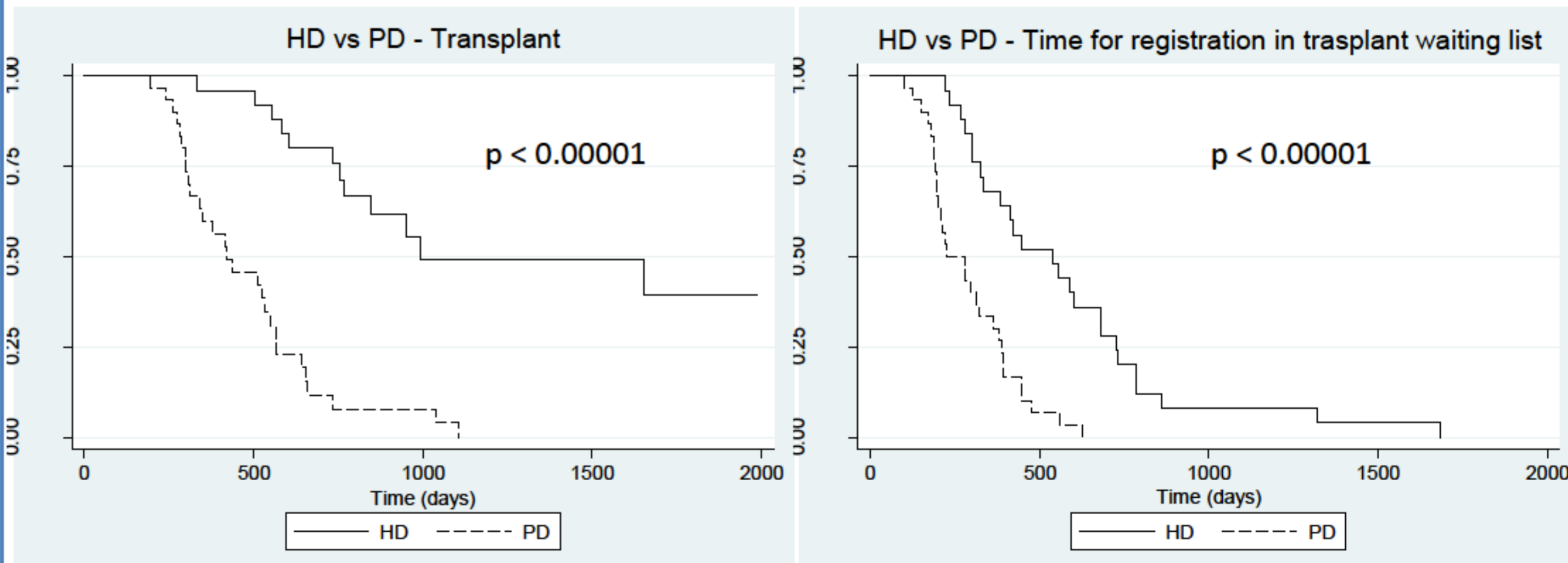


Table 3

	Cox proportional hazard model for 'risk-increase' of receiving a transplant			Cox proportional hazard model for 'risk-increase' for registration on transplant waiting list		
	Crude HR	95% CI	p-value	Crude HR	95% CI	p-value
PD	6.3	3.1-13.2	<0.0001	3.9	2.0-7.3	<0.0001

Acknowledgments:

This work was partially funded by Autonomous Province of Trento by IRCS project at FBK.