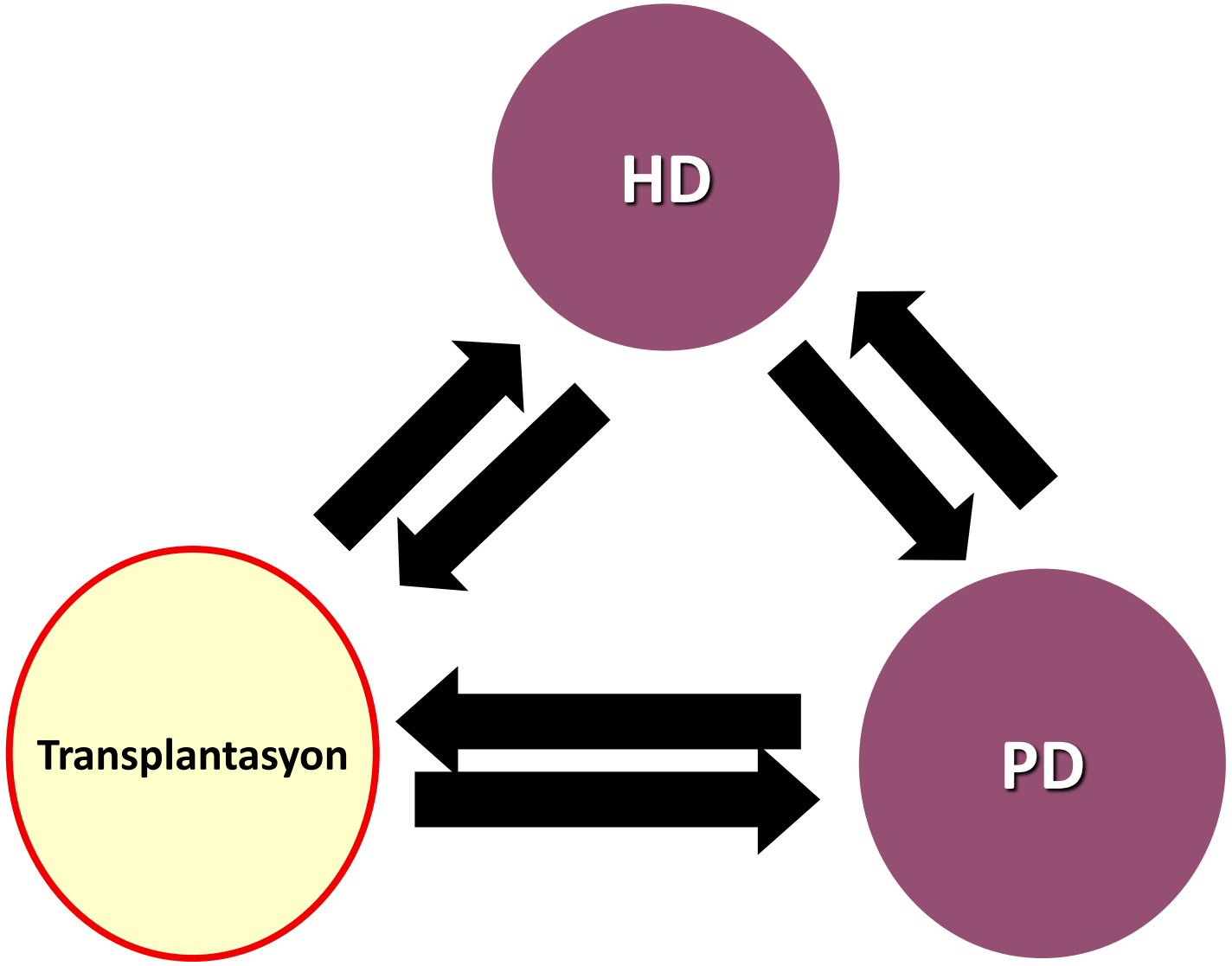
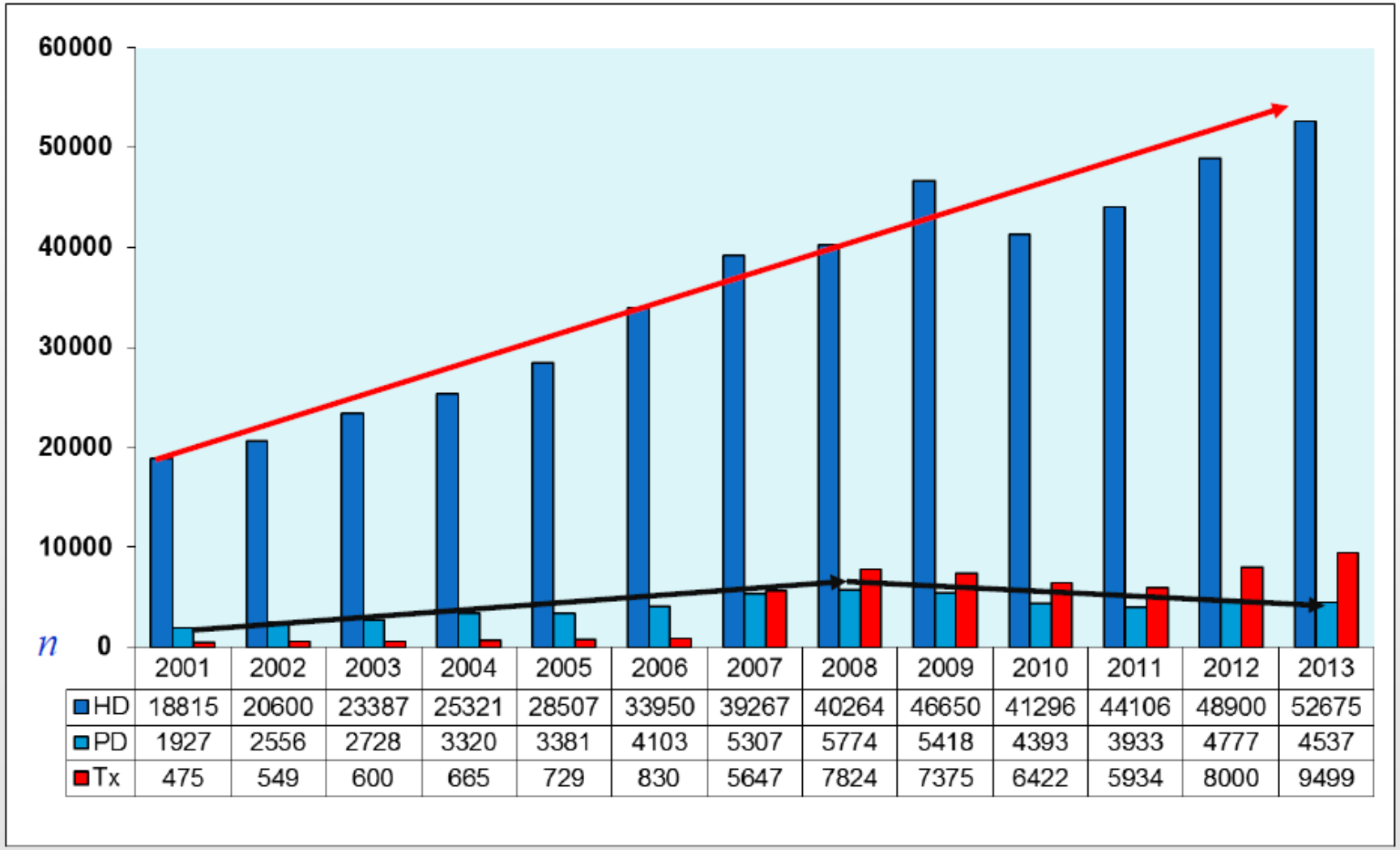
PERİTON DİYALİZİNDEN HEMODİYALİZE GEÇİŞ KARAR AŞAMASI

Dr. Aykut SİFİL

Dokuz Eylül Üniversitesi


HD
Transplantasyon
PD

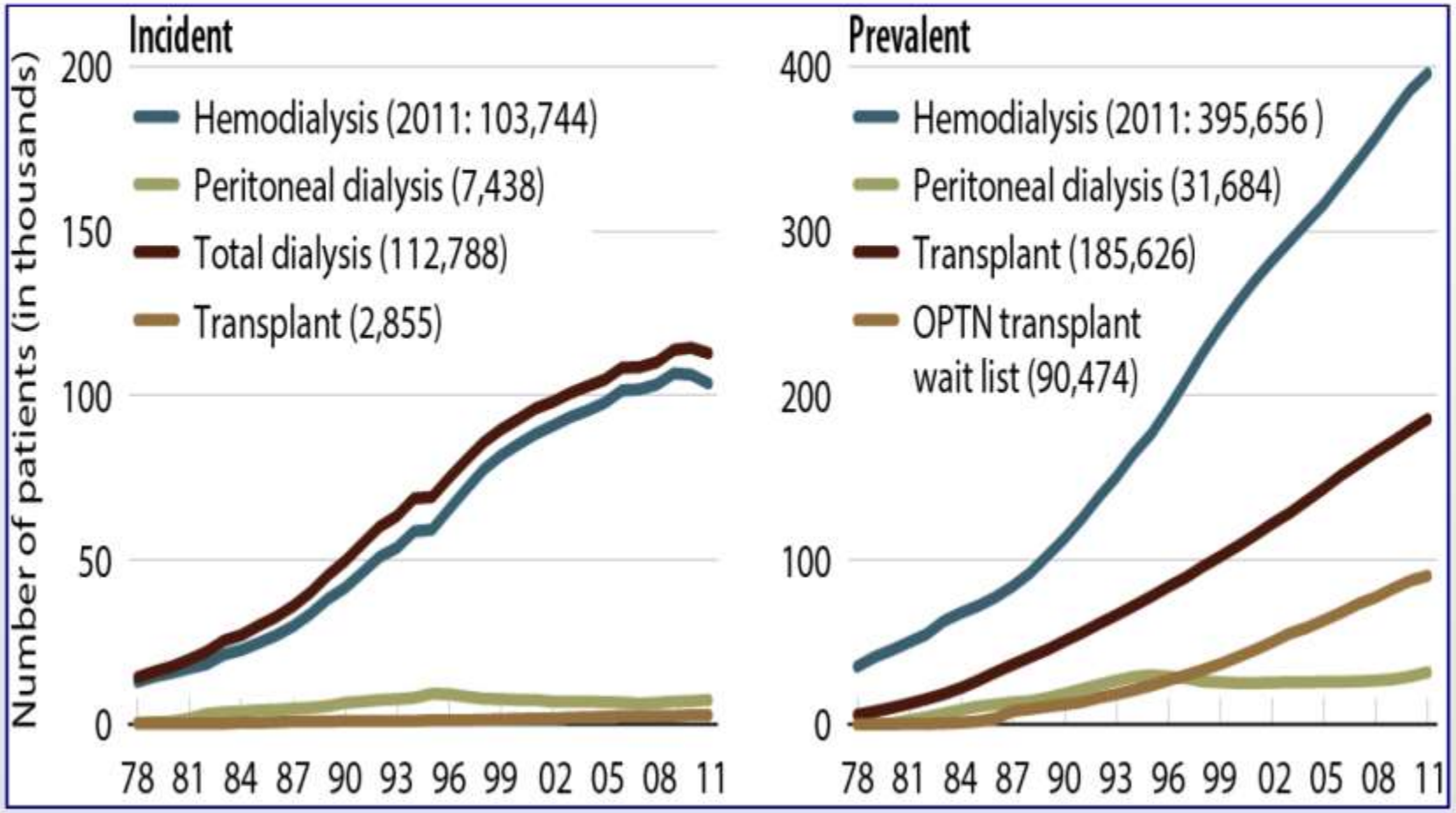
RRT tiplerinin yıllara bağlı değişimi



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
HD	18815	20600	23387	25321	28507	33950	39267	40264	46650	41296	44106	48900	52675
PD	1927	2556	2728	3320	3381	4103	5307	5774	5418	4393	3933	4777	4537
Tx	475	549	600	665	729	830	5647	7824	7375	6422	5934	8000	9499

Türkiye 2013 yılı Ulusal Hemodiyaliz, Transplantasyon ve Nefroloji Kayıt Sistemi Raporu

RRT tiplerinin yıllara bağlı değişimi
ABD



USRDS 2013 ADR

J Am Soc Nephrol 14: 2851–2860, 2003

Hemodialysis and Peritoneal Dialysis: Comparison of Adjusted Mortality Rates According to the Duration of Dialysis: Analysis of the Netherlands Cooperative Study on the Adequacy of Dialysis 2

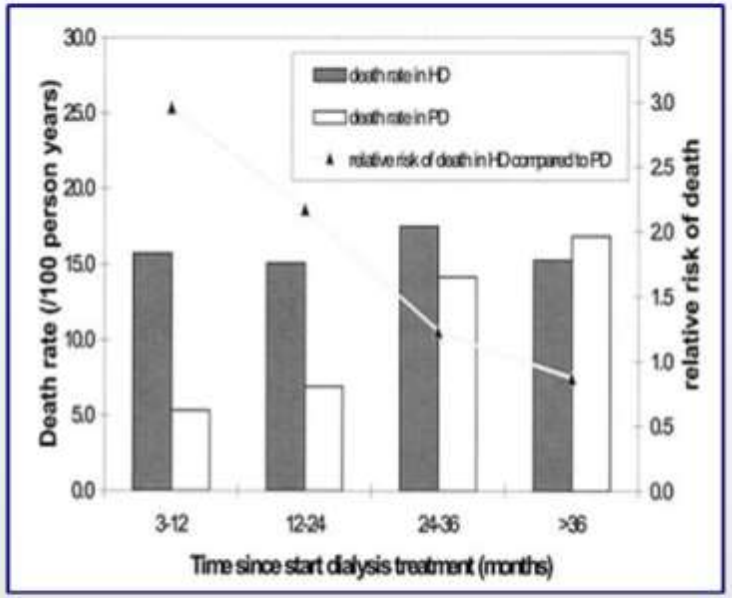
- NECOSAD 2; çok merkezli, prospektif, gözlemsel çalışma
- HD (n=742) ⇔ PD (n=480) mortalite çalışması (yeni RRT hastaları)
- Yeni RRT hastaları (>3 ay)
- 30 (%4) HD hastası ⇨ PD'ne geçiş
- 111 (%23.1) PD hastası ⇨ HD'e geçiş
- **2-yıl teknik sağkalım**

HD (%96) ⇔ PD (%74)

Termorshuizen F et al. *JASN* 2003; 14: 2851-60

Hemodialysis and Peritoneal Dialysis: Comparison of Adjusted Mortality Rates According to the Duration of Dialysis: Analysis of the Netherlands Cooperative Study on the Adequacy of Dialysis 2

- İlk 2 yıl PD sonrası HD başlanan grupta mortalite daha iyi !
- PD ⇨Yaşlı hastada uzun dönemde mortalite ⇧



HD ⇔ PD (Mortalite)

Time Period (mo)	AT Censoring[a]		ITT Censoring[b]	
	Adjusted RR	95% CI	Adjusted RR	95% CI
3 to 12	1.44	0.83 to 2.50	1.32	0.80 to 2.18
12 to 24	1.04	0.61 to 1.77	1.06	0.66 to 1.72
24 to 36	0.53	0.31 to 0.91	0.55	0.34 to 0.87
36 to 48	0.29	0.16 to 0.57	0.42	0.24 to 0.73

Termorshuizen F et al. *JASN* 2003; 14: 2851-60

Sağkalım
HD ⇔ PD

CLINICAL EPIDEMIOLOGY www.jasn.org

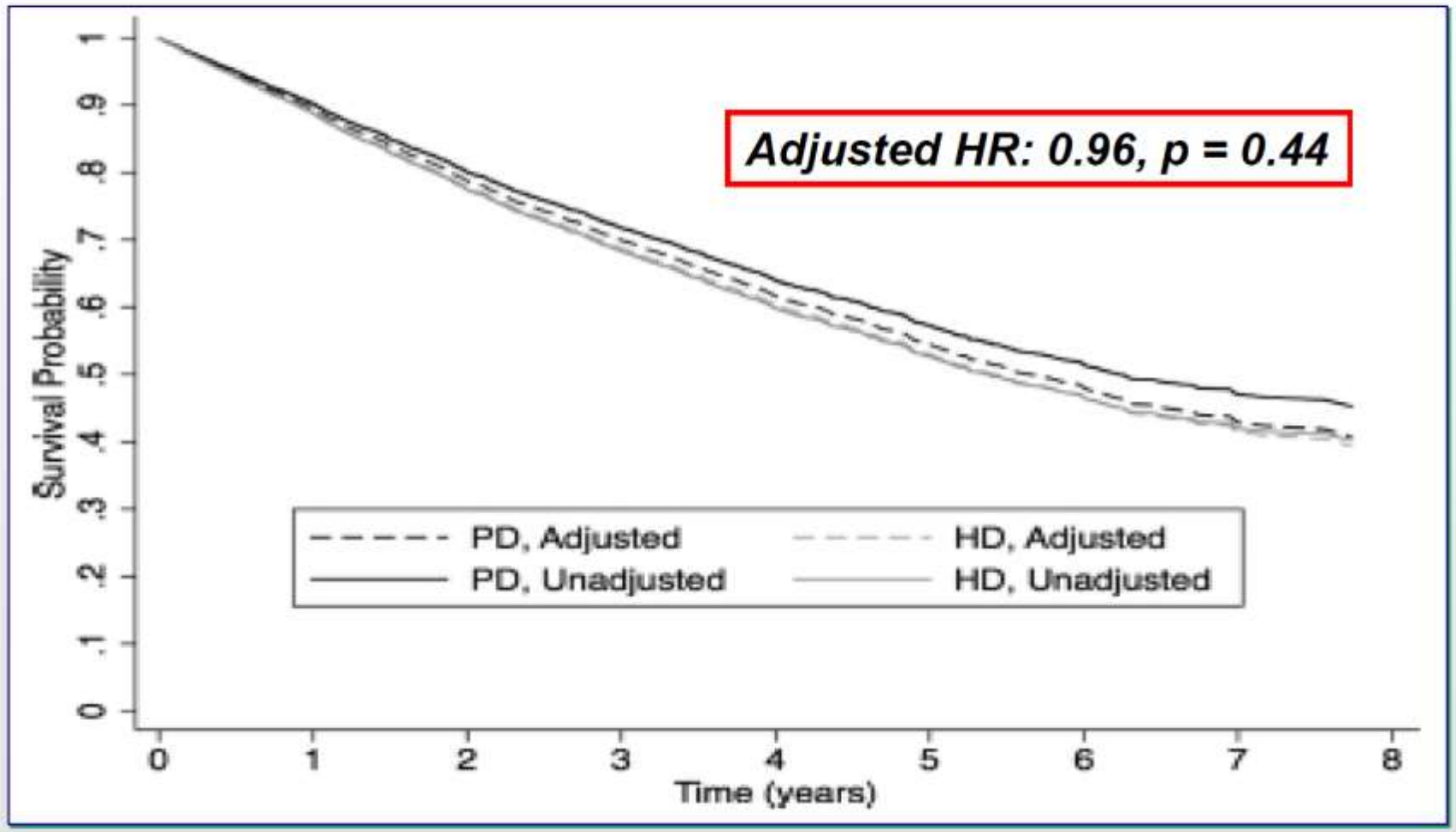
Selection Bias Explains Apparent Differential Mortality between Dialysis Modalities

Robert R. Quinn,*† Janet E. Hux,‡§‖¶ Matthew J. Oliver,§‖¶ Peter C. Austin,‡‖** Marcello Tonelli,†††‡‡ and Andreas Laupacis‡§ §§

- Kanada, 1998 - 2006
- Yeni RRT hastaları (≥ 4 ay prediyaliz bakım)
- Elektif RRT başlangıç
- HD (n=4538) ⇔ PD (n=2035) mortalite çalışması

Quinn RR et al. *J Am Soc Nephrol* 2011; 22: 1534-1542

HD ⇔ PD
Sağkalım



Quinn RR et al. J Am Soc Nephrol 2011; 22: 1534-1542

HD ⇔ PD (Sağkalım)

HD

- ✓ Uzun dönemde HD tedavisi ile sağ kalım daha ⇧
- ✓ > 45 y ve DM hastalarda HD tedavisi ile sağ kalım daha ⇧
- ✓ KKY olan hastalarda HD tedavisi ile sağ kalım daha ⇧

PD

- ✓ İlk PD başlanması ve ≤ 2 yıl uygulanması ile sağ kalım daha ⇧
- ✓ < 60 y hastalarda PD tedavisi ile sağ kalım daha ⇧
- ✓ Uygun zamanda HD tdvne geçen hastalarda sağ kalım daha ⇧

Korevaar JC et al. *Kidney Int.* 2003; 64:2222-8
Termorshuizen F et al. *J Am Soc Nephrol* 2003; 14: 2851-60

BMC Nephrology

BioMed Central

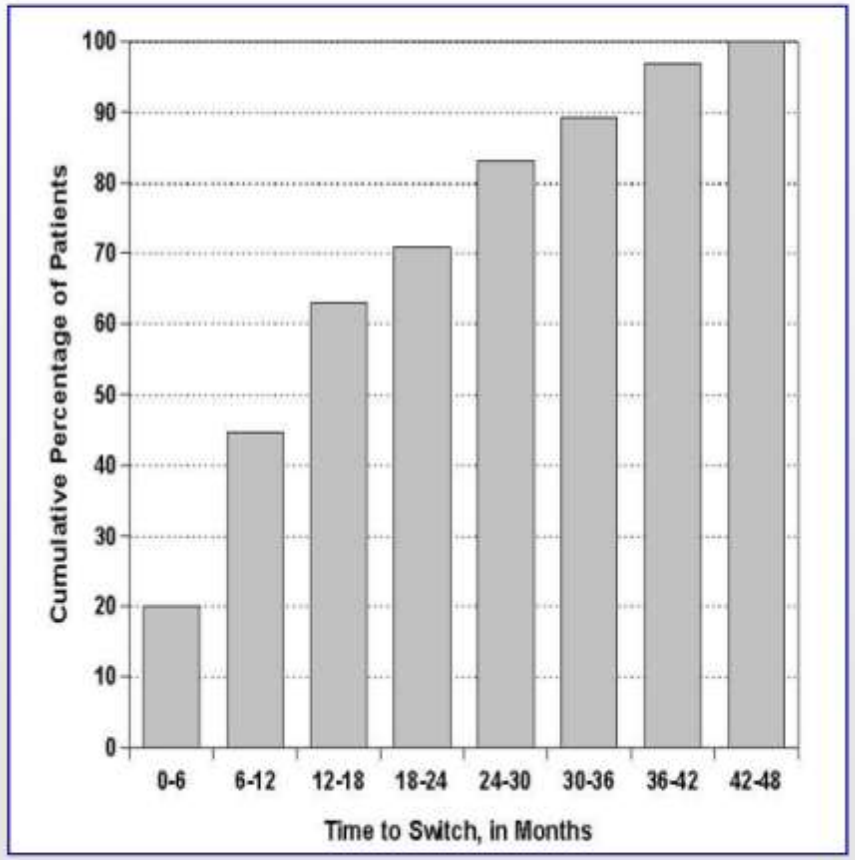
Research article

Open Access

Timing, causes, predictors and prognosis of switching from peritoneal dialysis to hemodialysis: a prospective study

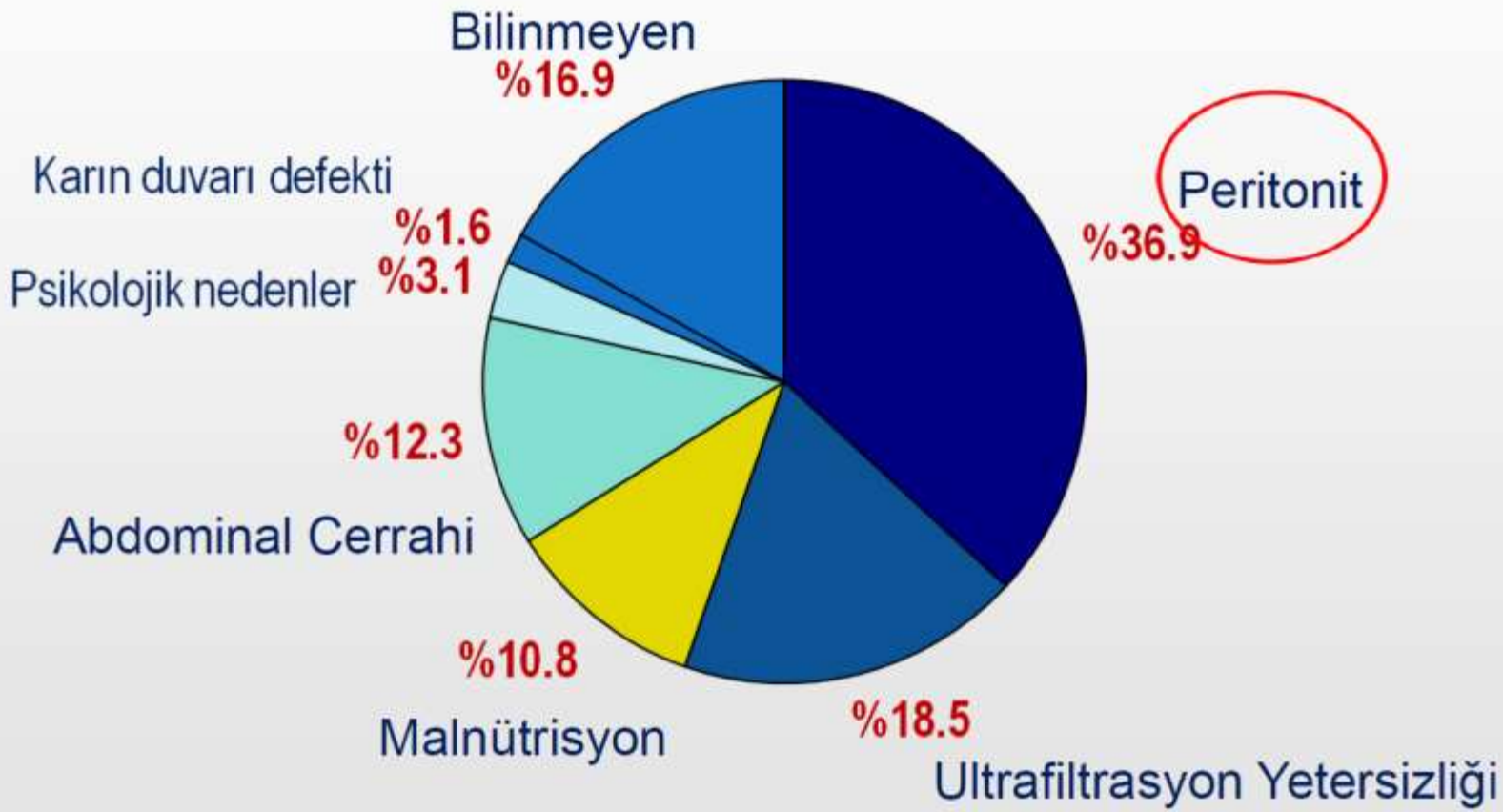
Bernard G Jaar*[1,2,3], Laura C Plantinga[2], Deidra C Crews[1,2], Nancy E Fink[1,2], Nasser Hebah[4], Josef Coresh[1,2], Alan S Kliger[5] and Neil R Powe[1,2,6]

- CHOICE kohortu
- 262 PD hastası, 13 ABD eyaleti
- PD ⇨ HD geçişe etkili faktörler değerlendirilmiş.
- **PD hastalarının %25'i 5-7 yıl içinde HD'e geçiş yapmış.**



Jaar BG et al. *BMC Nephrology* 2009, 10:3

PD ⇨ HD Geçiş Nedenleri



Jaar BG et al. *BMC Nephrology* 2009, 10:3

BMC Nephrology

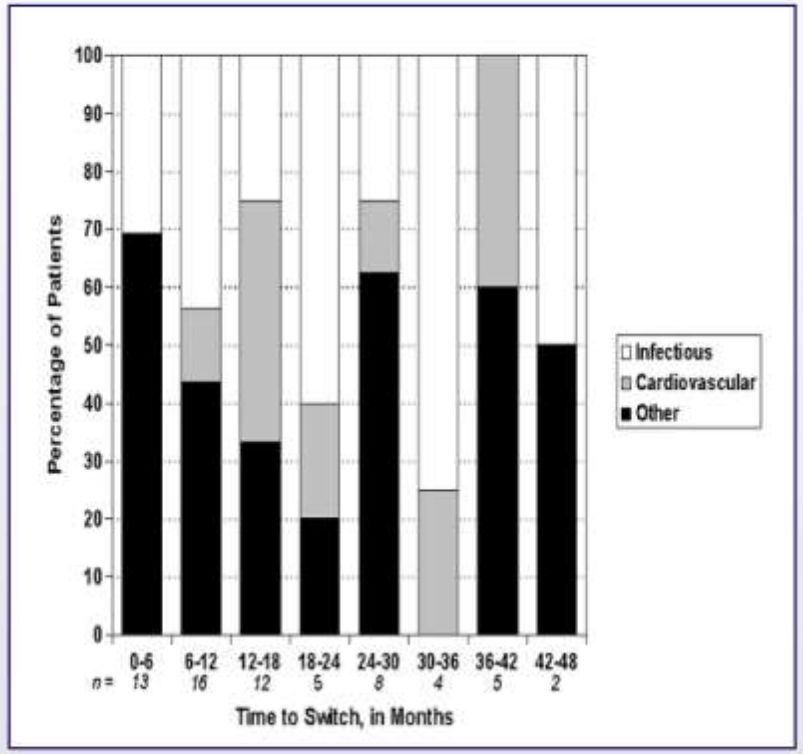
BioMed Central

Research article

Open Access

Timing, causes, predictors and prognosis of switching from peritoneal dialysis to hemodialysis: a prospective study

Bernard G Jaar*[1,2,3], Laura C Plantinga[2], Deidra C Crews[1,2], Nancy E Fink[1,2], Nasser Hebah[4], Josef Coresh[1,2], Alan S Kliger[5] and Neil R Powe[1,2,6]



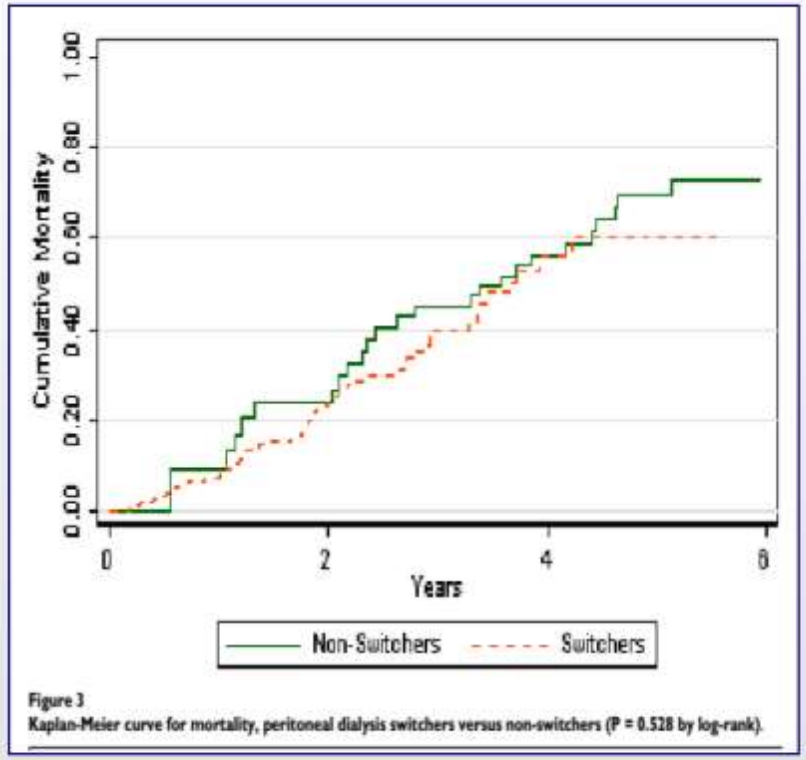
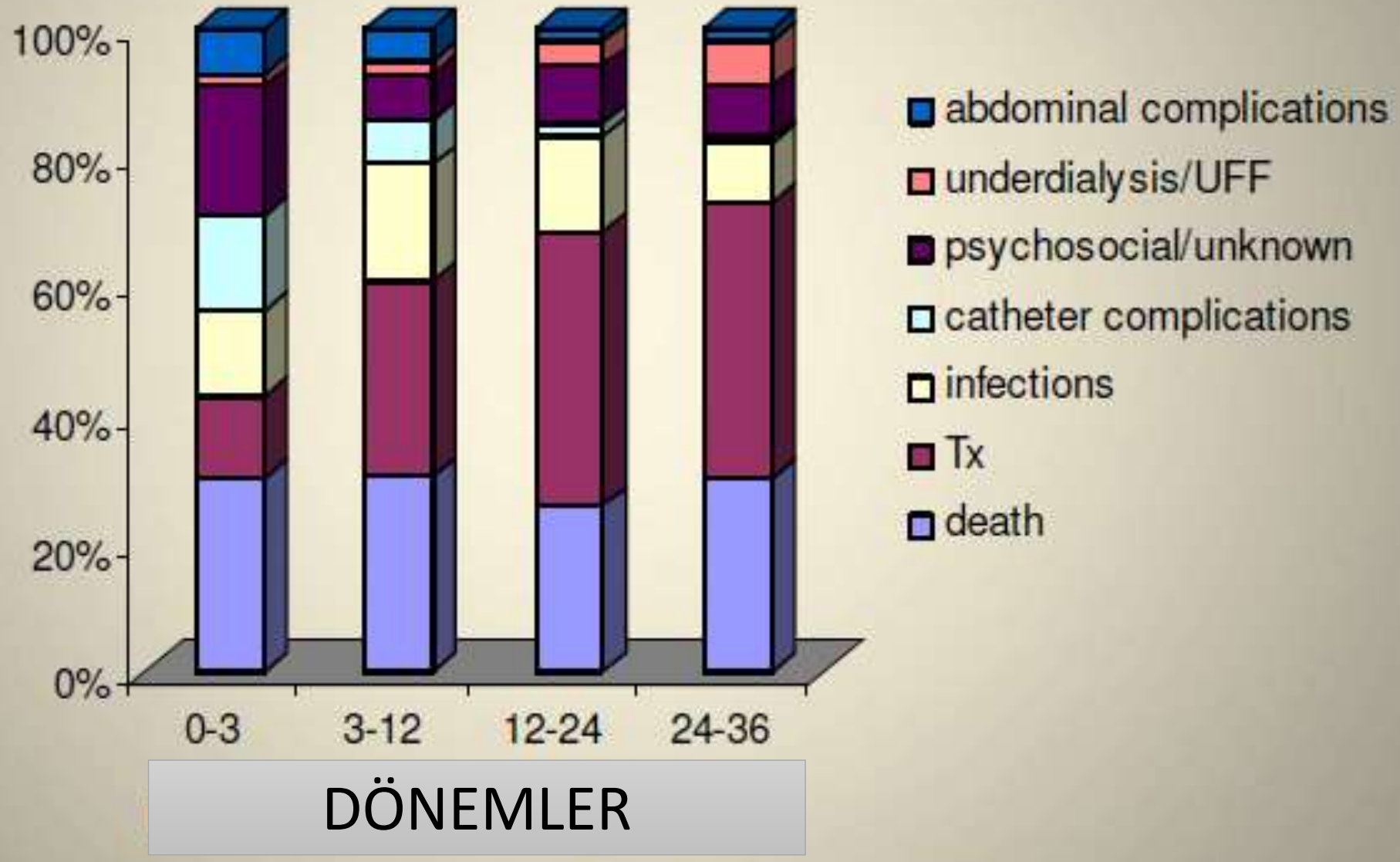


Figure 3
Kaplan-Meier curve for mortality, peritoneal dialysis switchers versus non-switchers (P = 0.528 by log-rank).

GEÇİŞ SEBEPLERİ



From: Kolesnyk et al. Perit Dial Int, 2010

Peritoneal Dialysis International, Vol. 34, pp. 289–298
doi: 10.3747/pdi.2012.00248

0896-8608/14 $3.00 + .00
Copyright © 2014 International Society for Peritoneal Dialysis

OUTCOMES OF PERITONEAL DIALYSIS PATIENTS AND SWITCHING TO HEMODIALYSIS: A COMPETING RISKS ANALYSIS

Jernej Pajek,[1] Alastair J. Hutchison,[2] Shiv Bhutani,[2] Paul E.C. Brenchley,[3] Helen Hurst,[2] Maja Pohar Perme,[4] Angela M. Summers,[3] and Anand Vardhan[2]

- 2004 – 2010, 286 hasta ⇨ 95 hasta PD ⇨ HD (teknik yetersizlik)

  Peritonit ! (en sık teknik yet. nedeni)

Causes of PD Technique Failure and Modes of Death in the Study Cohort

PD technique failure cause	Number of patients (%)	Mode of death	Number of patients (%)
Peritonitis	40 (42%)	Sudden death / cardiovascular event	32 (31.4%)
Choice or not coping	15 (15.8%)	Debilitation with(out) dialysis withdrawal	19 (18.6%)
Leak or mechanical problems	14 (14.7%)	Peritonitis	13 (12.7%)
Inadequate solute removal	10 (10.5%)	Infections	10 (9.8%)
Ultrafiltration failure	6 (6.3%)	Malignancy	7 (6.9%)
EPS or EPS suspicion	4 (4.2%)	Mixed	6 (5.9%)
Other	6 (6.3%)	Other	2 (2.0%)
		Not known	13 (12.7%)

PD = peritoneal dialysis; EPS = encapsulating peritoneal sclerosis. Total number of patients – 286, total number of technique failures – 95, total number of deaths – 102.

Pajek J et al. *Perit Dial Int* 2014; 34: 289-298

OUTCOMES OF PERITONEAL DIALYSIS PATIENTS AND SWITCHING TO HEMODIALYSIS: A COMPETING RISKS ANALYSIS

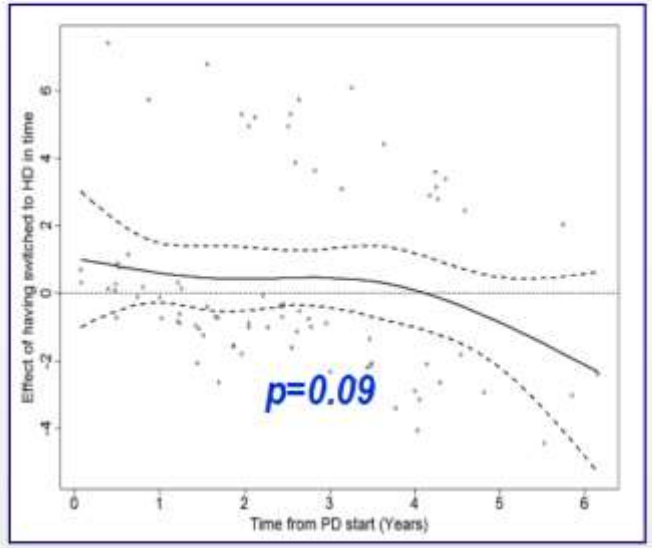
- Teknik yet. ilişkili faktörler (tek değişkenli analiz);
  - BKİ, serum kreatinin, rezidü GFR, HD ile başlayıp PD'na geçiş
- Çok değişkenli analizde ise;
  - Serum kreatinin ve BKİ

Covariate	Unadjusted HR (95% confidence interval)	Adjusted HR (95% confidence interval)	*p* (adjusted)
Age (years)	1 (0.99–1.01)	1.01 (0.99–1.02)	0.53
Female Gender	0.78 (0.49–1.23)	1.27 (0.69–2.32)	0.45
Davies comorbidity grade 1	1.54 (0.94–2.54)	**2.2 (1.23–3.92)**	**0.008**
Davies comorbidity grade 2	2.01 (0.98–4.13)	**3.19 (1.34–7.6)**	**0.009**
GFR (mL/min/1.73m^2)	**0.88 (0.81–0.95)**	0.97 (0.87–1.08)	0.55
Serum creatinine (µmol/L)	**1.002 (1.001–1.003)**	**1.003 (1.001–1.004)**	**0.001**
Serum albumin (g/L)	0.97 (0.92–1.02)	0.97 (0.92–1.03)	0.36
BMI (kg/m^2)	**1.04 (1–1.09)**	**1.06 (1.01–1.11)**	**0.018**
APD (vs CAPD)	0.85 (0.52–1.39)	0.72 (0.43–1.21)	0.21
HD start	**1.94 (1.06–3.56)**	1.73 (0.87–3.45)	0.12

Pajek J et al. *Perit Dial Int* 2014; 34: 289-298

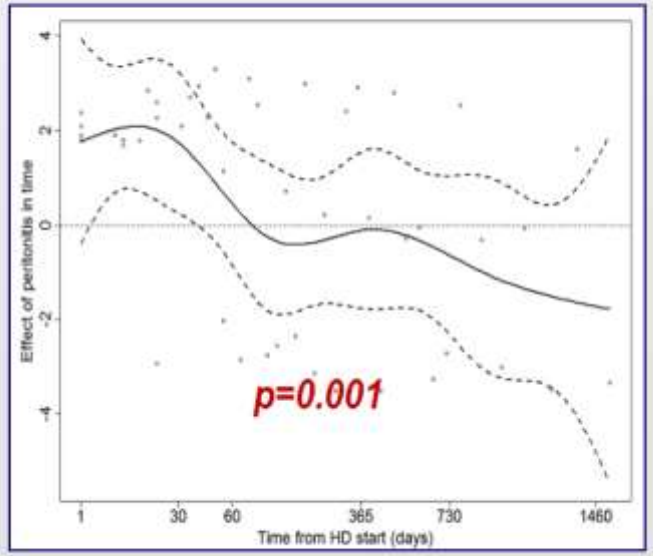
OUTCOMES OF PERITONEAL DIALYSIS PATIENTS AND SWITCHING TO HEMODIALYSIS: A COMPETING RISKS ANALYSIS

- Teknik yet. sonucu (> 60. gün) HD geçen hastalar ile PD'de kalan hastalar arasında sağkalım farkı ∅
- SV katater ile HD mortaliteyi ⇧
- Peritonit özellikle ilk 30 günde mortaliteyi ⇧



Predictors of Patient Death Using Switch to Hemodialysis as a Time-Dependent Covariate

Covariate	Unadjusted HR (95% CI)	Adjusted HR (95%)	*p* (adjusted)
Switch to HD with CVL	**1.95 (1.04-3.66)**	**1.97 (1.02-3.80)**	**0.04**
Switch to HD with fistula/graft	0.69 (0.32-1.47)	0.82 (0.36-1.87)	0.63
Age	**1.06 (1.04-1.08)**	**1.06 (1.04-1.08)**	**<0.01**
Female Gender	0.66 (0.42-1.04)	**0.55 (0.31-0.98)**	**0.04**
Davies comorbidity grade 1	**2.82 (1.53-5.22)**	**2.02 (1.06-3.86)**	**0.03**
Davies comorbidity grade 2	**5.66 (2.81-11.39)**	**3.81 (1.73-8.37)**	**<0.01**
Serum albumin	**0.92 (0.88-0.97)**	0.98 (0.92-1.04)	0.45
Serum creatinine	**0.998 (0.997-1)**	0.999 (0.997-1.001)	0.33
BMI	0.98 (0.94-1.02)	0.98 (0.94-1.03)	0.5
Residual GFR	0.97 (0.90-1.04)	**0.90 (0.81-1)**	**0.04**



Pajek J et al. *Perit Dial Int* 2014; 34: 289-298

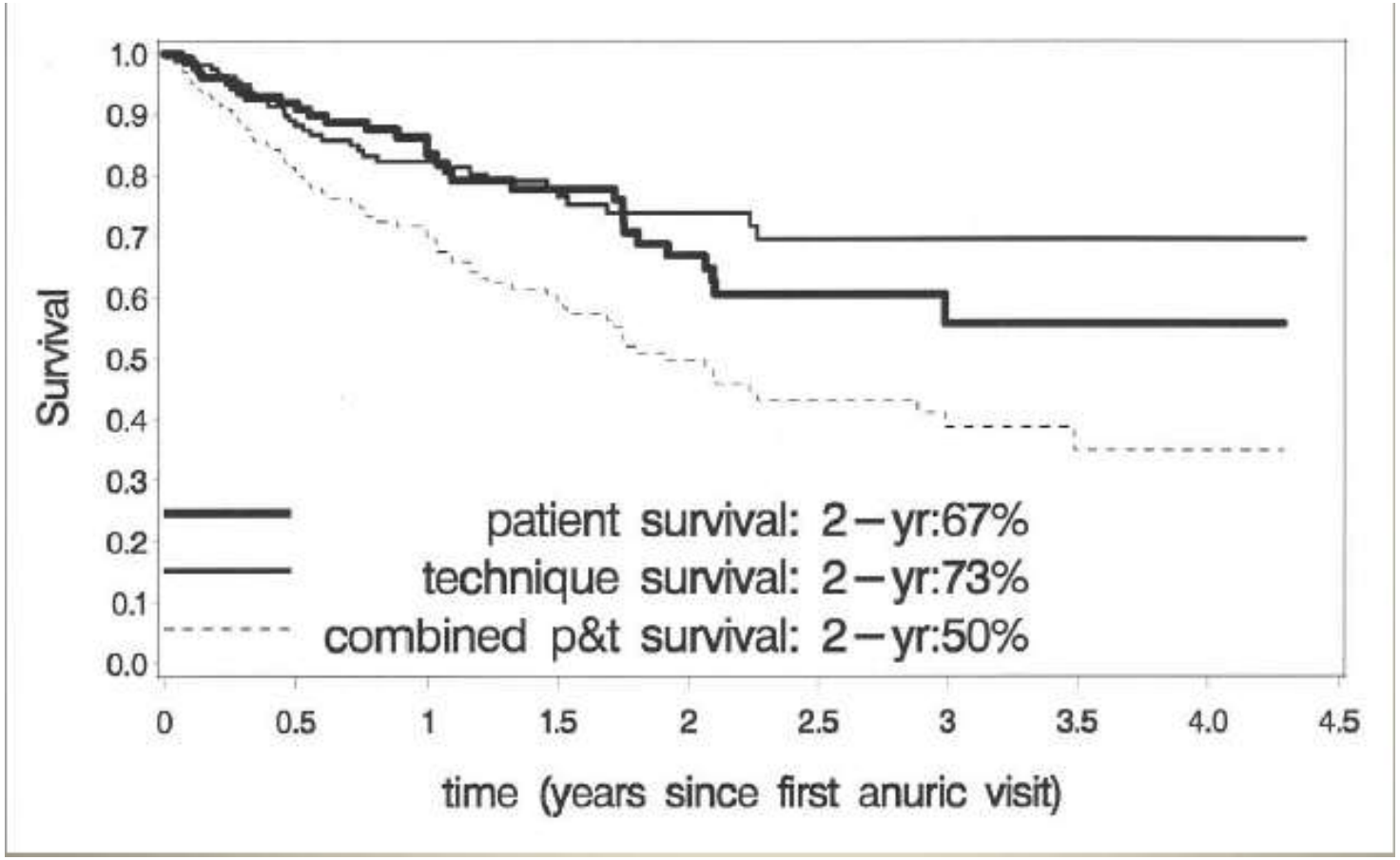
PERİTON DİYALİZİ NE ZAMAN SONLANDIRILMALI?

- Ciddi kateter ilişkili sorunlar
- Ciddi karın içi basınç artışı
- Enfeksiyöz komplikasyonlar (peritonit; exit site)
- Sosyal/psikolojik problemler
- Diyaliz yetersizliği
- Enkapsüle sklorozan peritonitten sakınmak

DİYALİZ YETERSİZLİĞİ

- Anuri gelişmesi
- Yetersiz Kt/V
- Malnutrisyon

ANURİK HASTADA PD

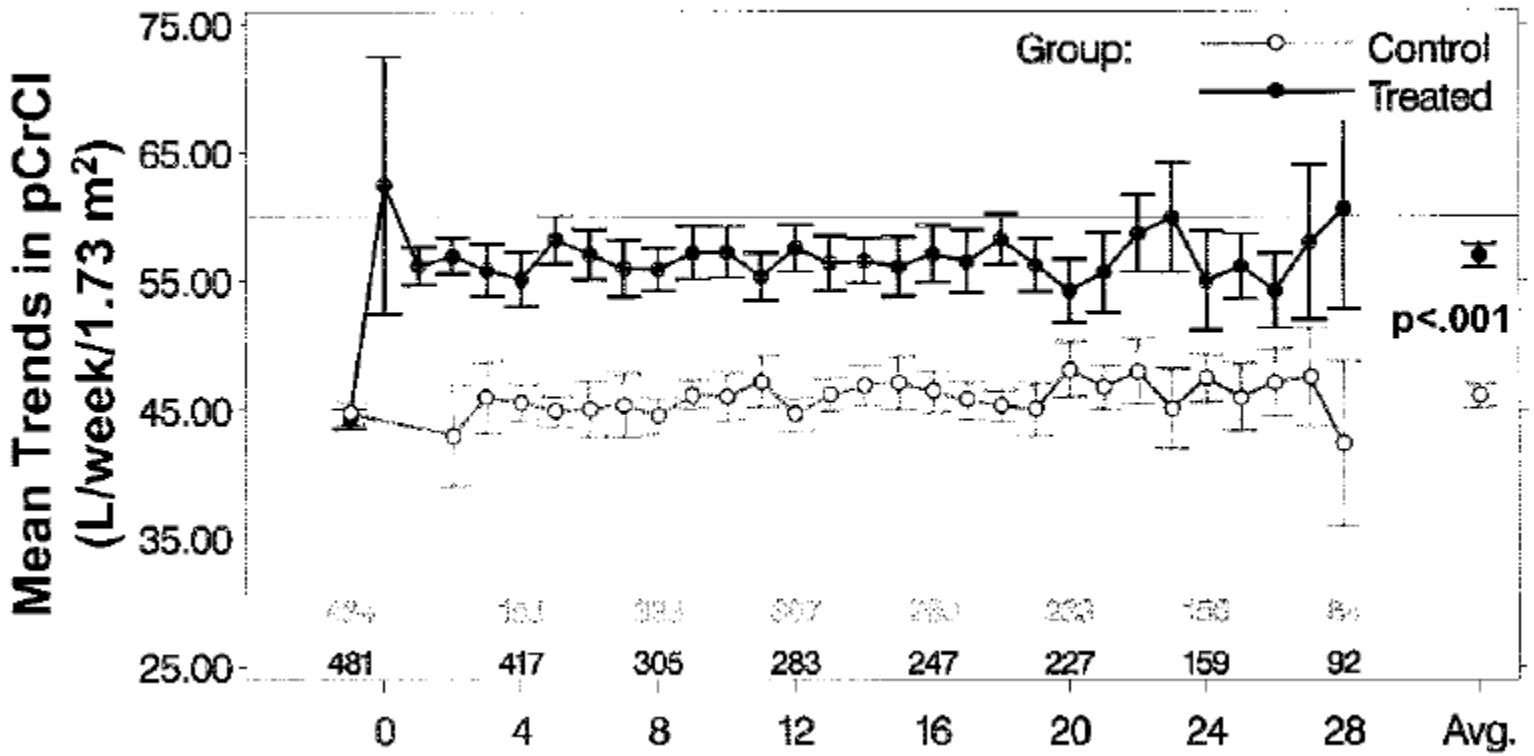


Kidney International, Vol. 68 (2005), pp. 1199–1205

Yetersiz Kt/V

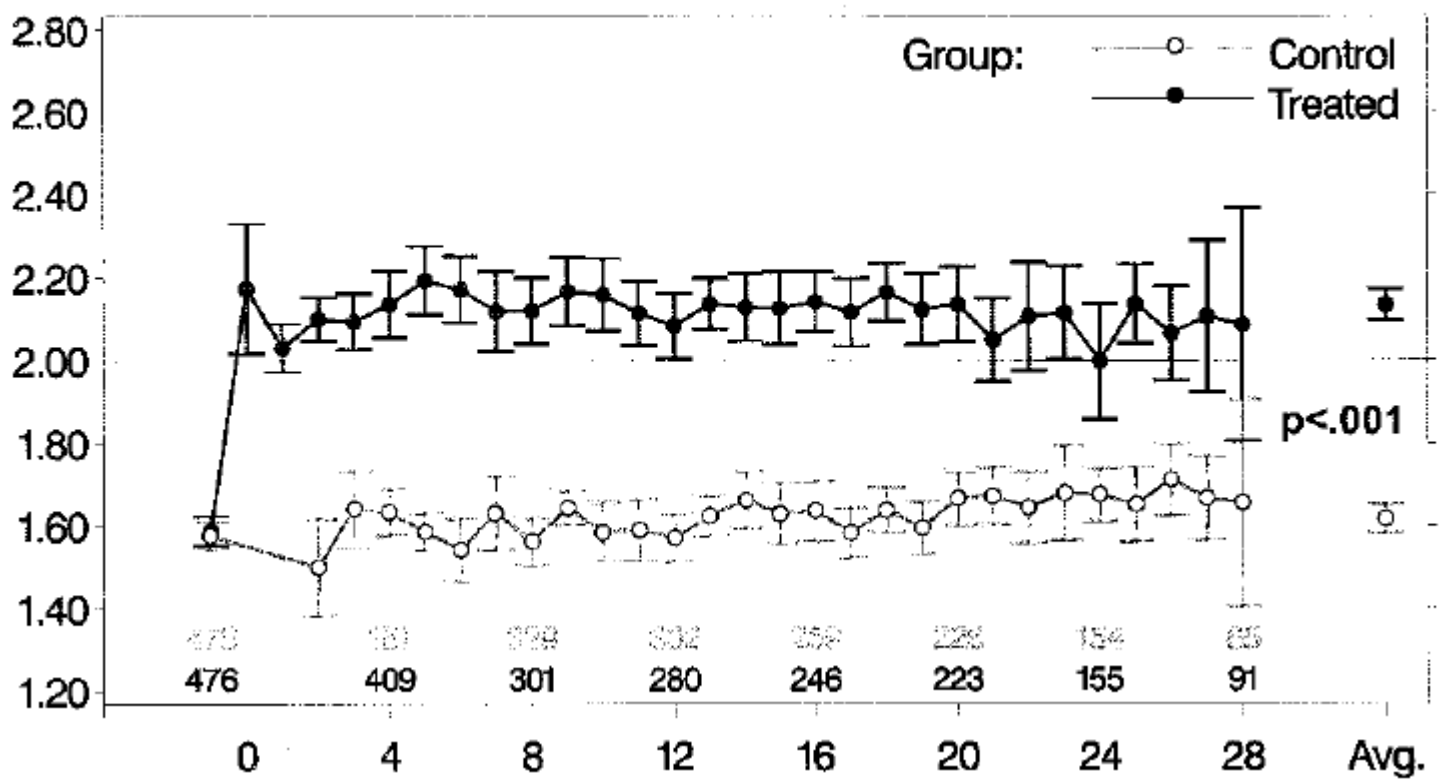
- Tanrı Nefrologları kurtarmak için Kt/V yi yarattı

ADAMEX



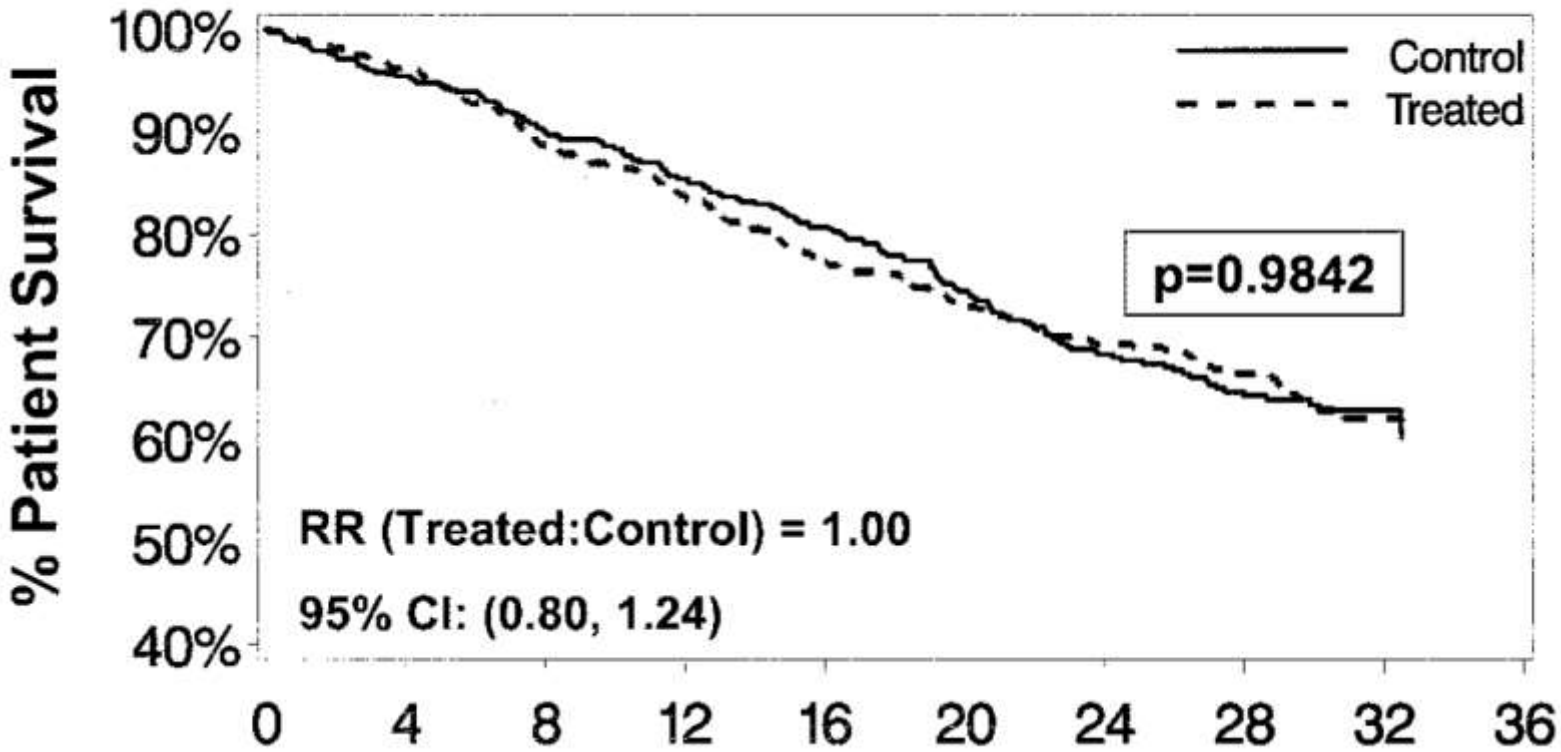
J Am Soc Nephrol 13: 1307–1320, 2002

ADAMEX



J Am Soc Nephrol 13: 1307–1320, 2002

ADAMEX



AYLAR

J Am Soc Nephrol 13: 1307–1320, 2002

ENKAPSÜLE SKLOROZAN PERİTONİTTEN SAKINMAK NE ZAMAN PD SONLANDIRILSIN?

- 3 yıl sonra
- 3 peritonit atağından sonra
- UF yetmezliği geliştikten sonra
- Barsak tıkanıklığı bulguları başladıktan sonra

ENKAPSÜLE SKLOROZAN PERİTONİTTEN SAKINMAK NE ZAMAN PD SONLANDIRILSIN?

- 3 yıl sonra ESP gelişme süresi 5.5 yıl
- 3 peritonit atağından sonra
- UF yetmezliği geliştikten sonra
- Barsak tıkanıklığı bulguları başladıktan sonra

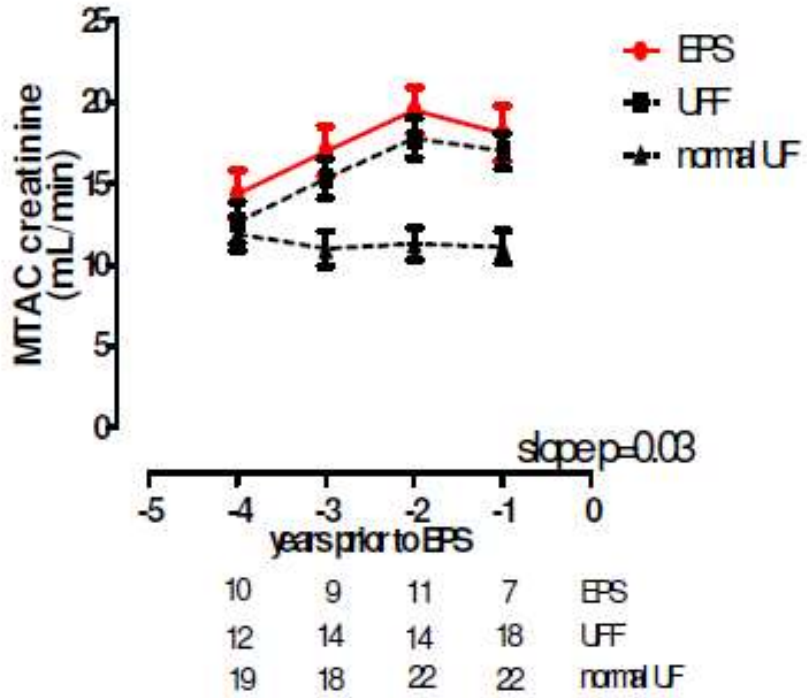
ENKAPSÜLE SKLOROZAN PERİTONİTTEN SAKINMAK NE ZAMAN PD SONLANDIRILSIN?

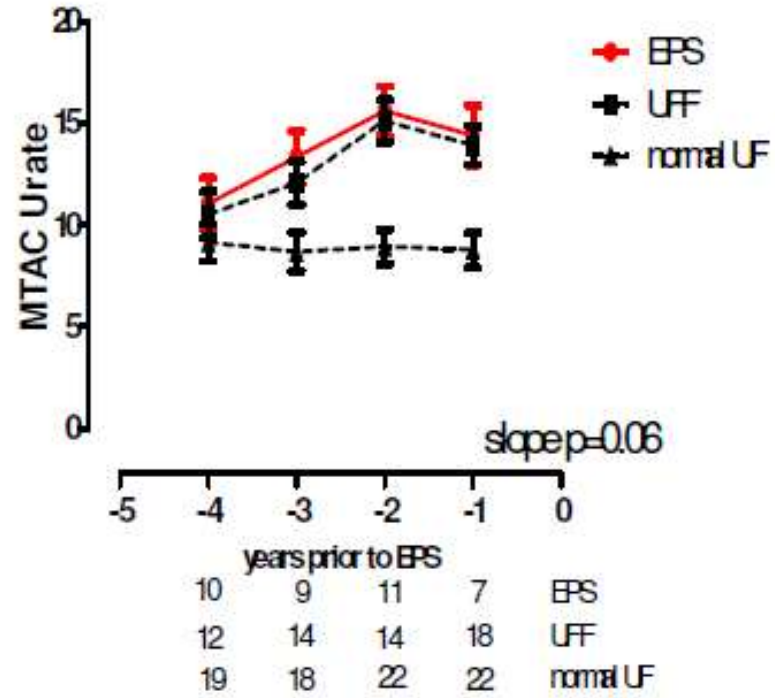
- 3 yıl sonra ESP gelişme süresi 5.5 yıl
- 3 peritonit atağından sonra
- UF yetmezliği geliştikten sonra
- Barsak tıkanıklığı bulguları başladıktan sonra çok geç

PERİTONİT

- Peritonit periton zarının geçirgenlik özelliklerini bozan bağımsız risk faktörü
  - Nephrol Dial Transplant (2005) 20: 1201–1206
- SEP için risk faktörümü?

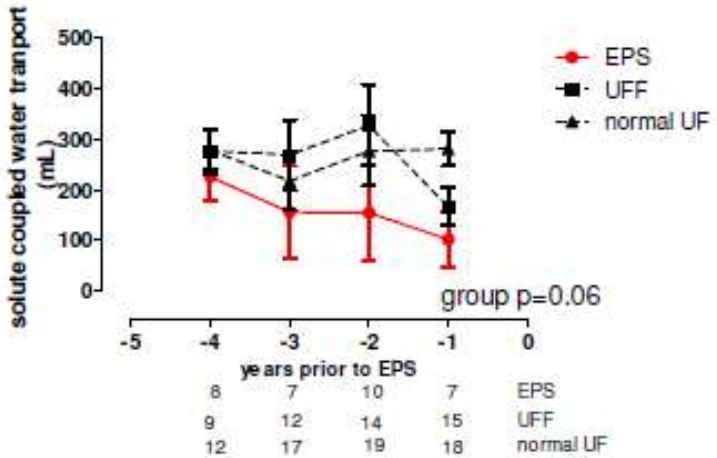
Solute Transport in preEPS

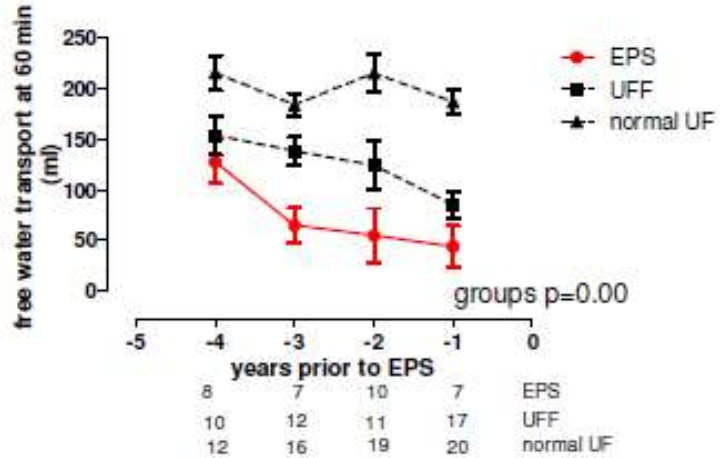




Sampimon et al NDT 2011

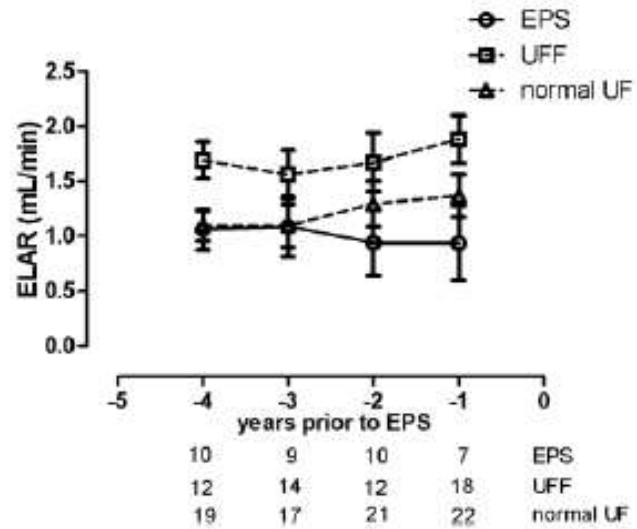
Fluid transport in preEPS





Conclusion

In conclusion, the risk of EPS increases with the continuation of PD while UFF is present. However, EPS patients show similar small transport characteristics compared to UFF patients. Besides, they show a tendency to a decrease in peritoneal protein clearances. A constantly low ELAR may distinguish the EPS patients from the UFF patients. It should be considered to discontinue PD within 1–2 years after the development of UFF or take other preventive measures especially when UFF is accompanied with a low or decreasing ELAR.



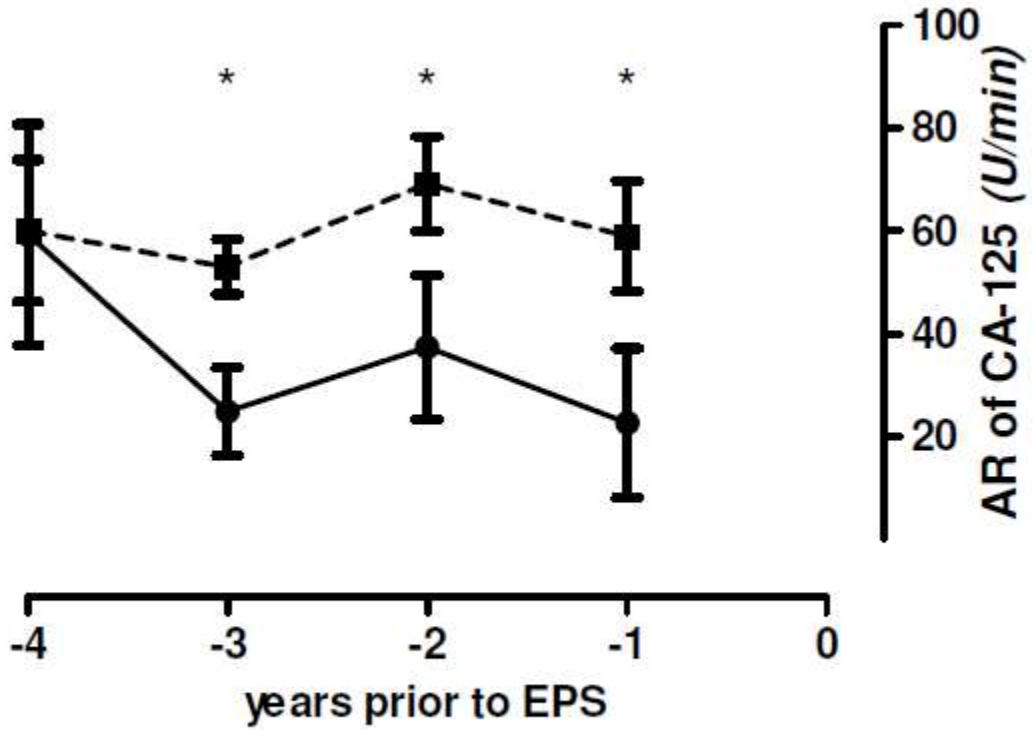
ERKEN BELİRTEÇLER?

- Görüntüleme yöntemleri ile tarama
- CA-125
- IL 6

ERKEN BELİRTEÇLER?

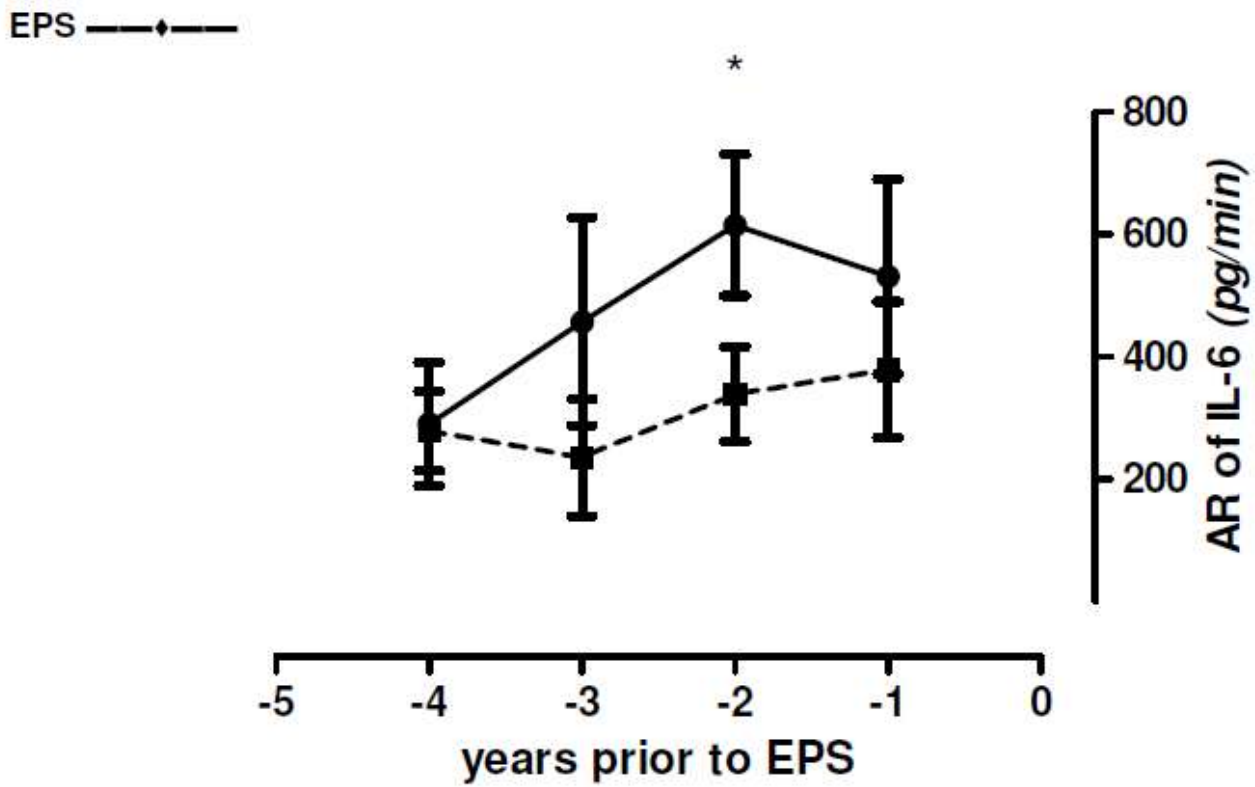
- Görüntüleme yöntemleri ile tarama Erken evrede faydasız
- CA-125
- IL 6

CA-125



*p<0.05, Mann-Whitney-U test

IL 6



* p=0.09, Mann-Whitney-U test

ESP

- **EPS insidensi: % 0,6 – 2**
- **Endokarditten daha düşük**

SONUÇ

- PERİTONİT EN ÖNEMLİ FAKTÖR
- AV FİSTÜL İLE HD'E ÖNEMLİ
- SORUNSUZ HASTANIN PD'İ SONLANDIRILMALI MI?