

# 4ème Symposium de Dialyse Extra-Hospitalière

Les 6 et 7 juin 2018

Square-Brussels Meeting Centre

## Revue de bibliographie du comité de lecture du RDPLF

Dr Guillaume SERET

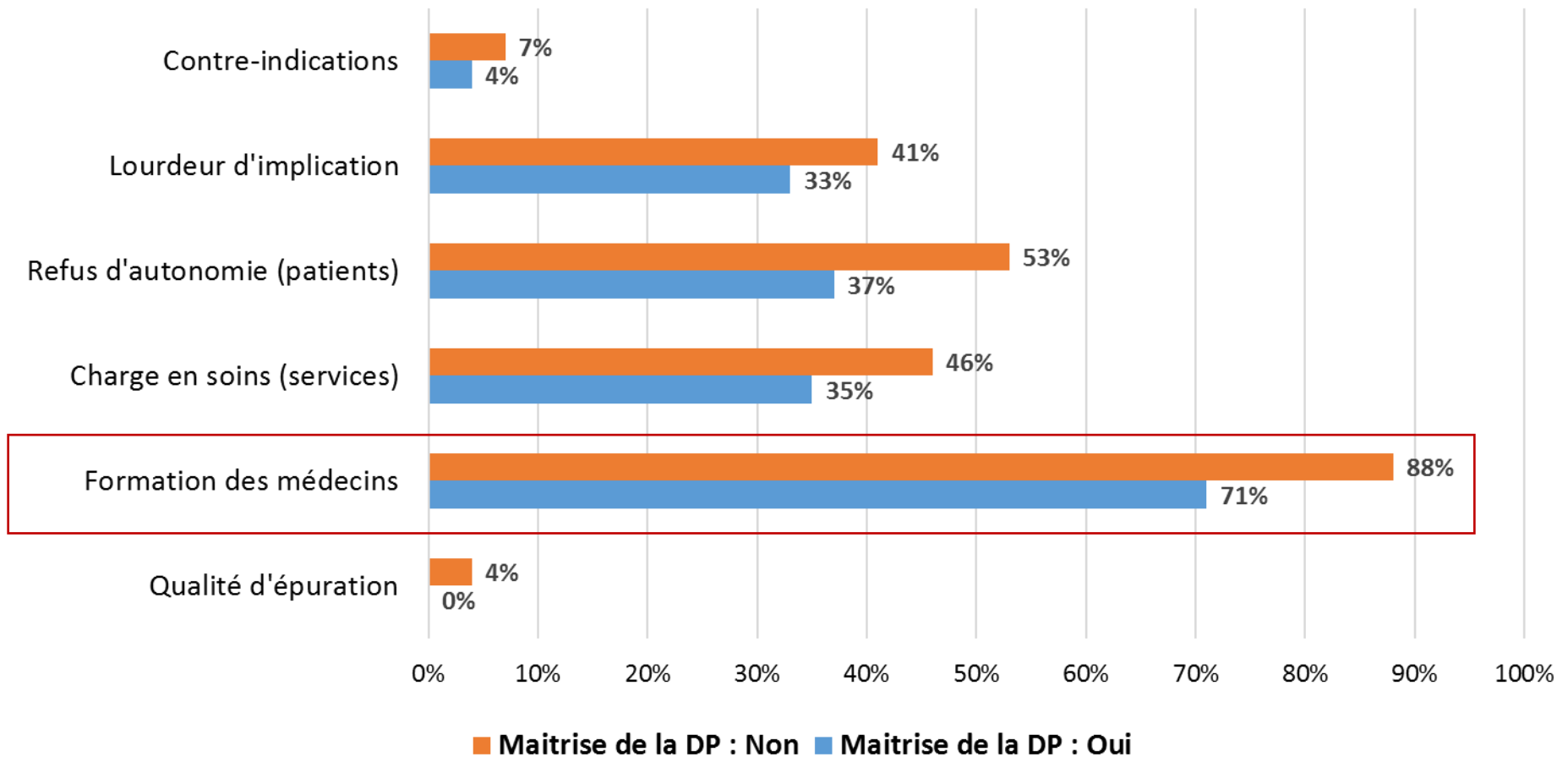
Centre ECHO, le Mans

(au nom du comité de lecture)



# Pourquoi une veille bibliographique?

## Limites au développement de la dialyse péritonéale



## PERITONEAL DIALYSIS FOR PATIENTS WITH AUTOSOMAL DOMINANT POLYCYSTIC KIDNEY DISEASE

Sana Khan,<sup>1</sup> Anna Giuliani,<sup>2</sup> Carlo Crepaldi,<sup>2</sup> Claudio Ronco,<sup>2</sup> and Mitchell H. Rosner<sup>1</sup>

### Revue de la littérature: devenir des patients atteints de polykystose autosomique dominante et traités par dialyse péritonéale.

Studies Comparing Peritoneal Dialysis Outcomes for Patients With and Without ADPKD

Study and setting	Study design	Year	Method	Outcomes
Hadimeri <i>et al.</i> (12) Sweden	Retrospective	1998	26 cases, 26 controls	Similar survival, peritonitis rates, hernia incidence
Pandya <i>et al.</i> (13) United Kingdom	Retrospective	2004	30 cases, 510 controls	Lower overall and gram-negative peritonitis in ADPKD patients
Kumar <i>et al.</i> (14) United Kingdom	Retrospective	2008	56 cases, 56 nondiabetic controls	Similar patient and technique survival, peritonitis
Li <i>et al.</i> (15) Hong Kong	Retrospective	2011	42 cases, 84 nondiabetic controls	Similar survival, peritonitis rates. Increased hernia rates in ADPKD group
Lobbedez <i>et al.</i> (16) France	Retrospective registry-based	2011	344 cases, 3,818 controls	Similar survival, peritonitis. Younger patients in ADPKD group
Spithoven <i>et al.</i> (2) 12 European countries	Epidemiological registry-based	2014	ADPKD patients studied over 4 5-year periods (1991–2010)	PD used less frequently in ADPKD patients. Improved survival over time in ADPKD patients on PD
Courivaud <i>et al.</i> (17) France	Retrospective	2014	24 PD cases, 34 HD controls	Similar cystic and mechanical complications
Janeiro <i>et al.</i> (18) Spain	Prospective	2015	106 cases, 212 controls	Lower comorbidity and mortality rate in ADPKD patients. Similar technique survival
Yang <i>et al.</i> (19) Taiwan	Population-based	2015	139 cases, 7,739 controls	Similar overall and technique survival. ADPKD groups less comorbid, more often treated with APD
Yang <i>et al.</i> (19) Taiwan	Database cohort	2015	125 PD cases, 1,292 HD controls	Similar overall survival. Younger age, lower comorbidity index, decreased medical expense in PD group

ADPKD = autosomal dominant polycystic kidney disease; PD = peritoneal dialysis; APD = automated PD; HD = hemodialysis.

## PERITONEAL DIALYSIS FOR PATIENTS WITH AUTOSOMAL DOMINANT POLYCYSTIC KIDNEY DISEASE

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Sana Khan,<sup>1</sup> Anna Giuliani,<sup>2</sup> Carlo Crepaldi,<sup>2</sup> Claudio Ronco,<sup>2</sup> and Mitchell H. Rosner<sup>1</sup>

**Revue de la littérature: devenir des patients atteints de polykystose autosomique dominante et traités par dialyse péritonéale.**

- Survie technique et patient: comparables pour les patients en DP (ADPKD vs non)
- Fonction péritonéale : pas de différence significative
- Taux de péritonites: pas de différence (malgré l'association ADPKD-diverticulose colique)
- Complications mécaniques:
  - Risque potentiel d'augmentation de la pression intra-péritonéale
  - Surveillance de la PIP (< 18 cmH<sub>2</sub>O) et adaptation des volumes
  - Utilisation privilégiée de la DPA en cas de PIP élevée?

### **Conclusion:**

La polykystose n'est pas une contre-indication à la DP  
Survie équivalente (voire meilleure)

## Outcome of autosomal dominant polycystic kidney disease patients on peritoneal dialysis: a national retrospective study based on two French registries (the French Language Peritoneal Dialysis Registry and the French Renal Epidemiology and Information Network)

- Etude rétrospective a partir des bases de données du registre REIN et du RDPLF
- 5291 patients ADPKD
- Patients ADPKD versus non ADPKD:
  - plus jeunes
  - moins comorbides

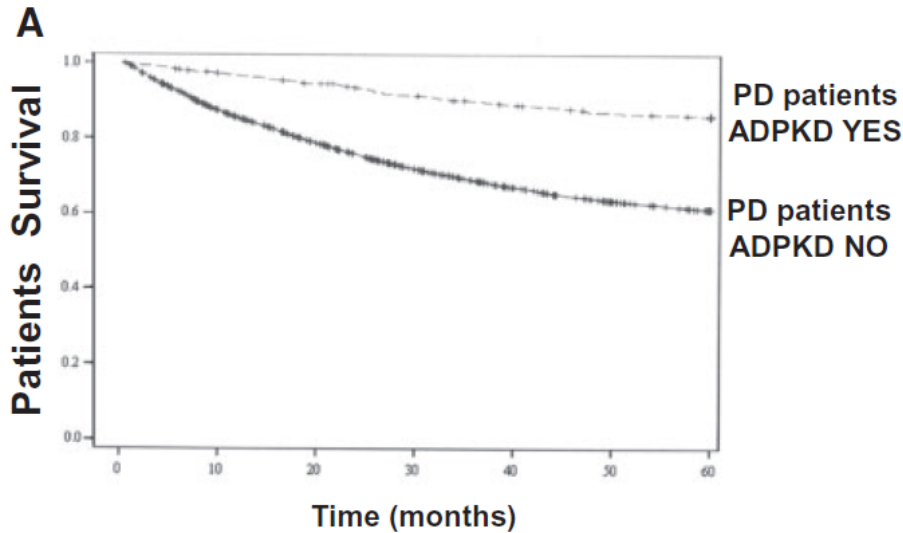
Clinical or Biological Parameter	RDPLF registry—PD patients			REIN registry		
	PD yes, ADPKD no (n = 12 059)	PD yes, ADPKD yes (n = 797)	P-value	APKD yes, HD yes (n = 4353)	ADPKD yes, PD yes (n = 638)	P-value
Gender (male), %	57.6	50.6	0.0001	55.8	51.9	0.002
Age (years), mean ± SD	63.6 ± 19.1	57.7 ± 14.1	<0.0001	59.5 ± 12.9	58.3 ± 13.2	0.02
MCCI, mean ± SD	4.0 ± 2.0	2.7 ± 1.2	<0.0001			
Albumin (g/dL), mean ± SD				36.8 ± 5.7	38.8 ± 5.4	<0.0001
BMI (kg/m <sup>2</sup> ), mean ± SD				25.2 ± 4.8	25.0 ± 4.0	NS
Diabetes, %				7.7	5.3	0.03
History of hypertension, %				77.1	74.8	0.20
Heart failure, %				9.2	8.0	0.32
Coronary heart disease, %				10.4	7.7	0.04
Stroke, %				5.6	4.6	0.312

MCCI, modified CCI.

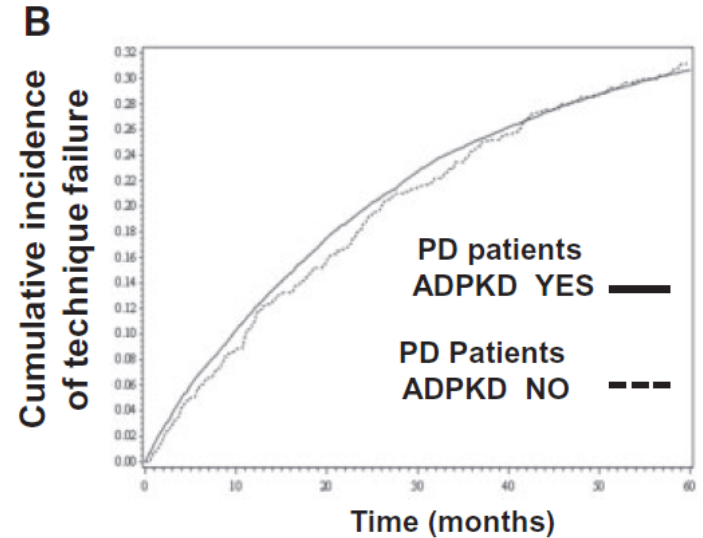
Outcome of autosomal dominant polycystic kidney disease patients on peritoneal dialysis: a national retrospective study based on two French registries (the French Language Peritoneal Dialysis Registry and the French Renal Epidemiology and Information Network)

### Dialyse péritonéale: ADPKD versus non-ADPKD

#### Survie patient

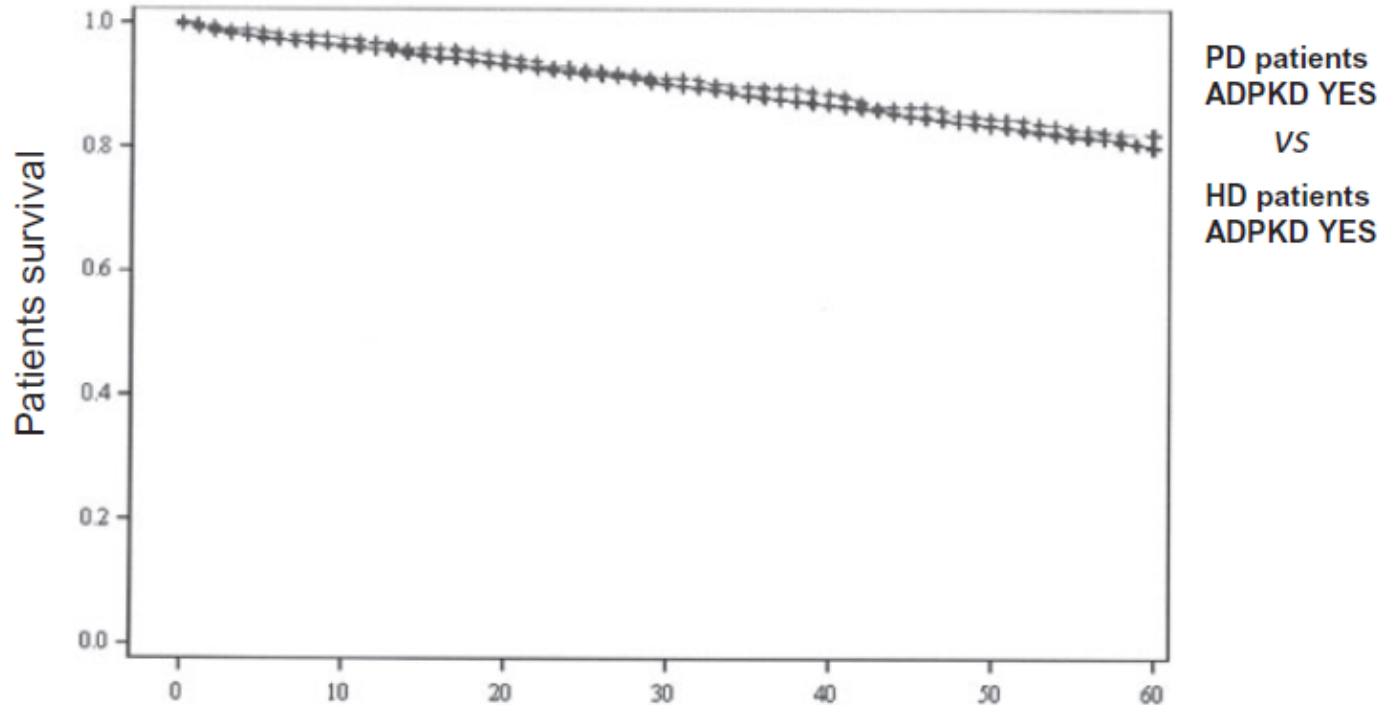


#### Survie technique



Outcome of autosomal dominant polycystic kidney disease patients on peritoneal dialysis: a national retrospective study based on two French registries (the French Language Peritoneal Dialysis Registry and the French Renal Epidemiology and Information Network)

**Survie en dialyse des patients ADPKD: DP vs HD**



## CENTER-SPECIFIC FACTORS ASSOCIATED WITH PERITONITIS RISK—A MULTI-CENTER REGISTRY ANALYSIS

Annie-Claire Nadeau-Fredette,<sup>1,2,3</sup> David W. Johnson,<sup>1,2,4</sup> Carmel M. Hawley,<sup>1,2,4</sup> Elaine M. Pascoe,<sup>5</sup>  
Yeoungjee Cho,<sup>1,2,4</sup> Philip A. Clayton,<sup>2,6,7</sup> Monique Borlace,<sup>8</sup> Sunil V. Badve,<sup>1,2</sup> Kamal Sud,<sup>7,9</sup>  
Neil Boudville,<sup>10</sup> and Stephen P. McDonald<sup>2,8,11</sup>

- Effet centre / taux de péritonite
- ANZDATA (2003-2013): 51 centres, 8711 patients

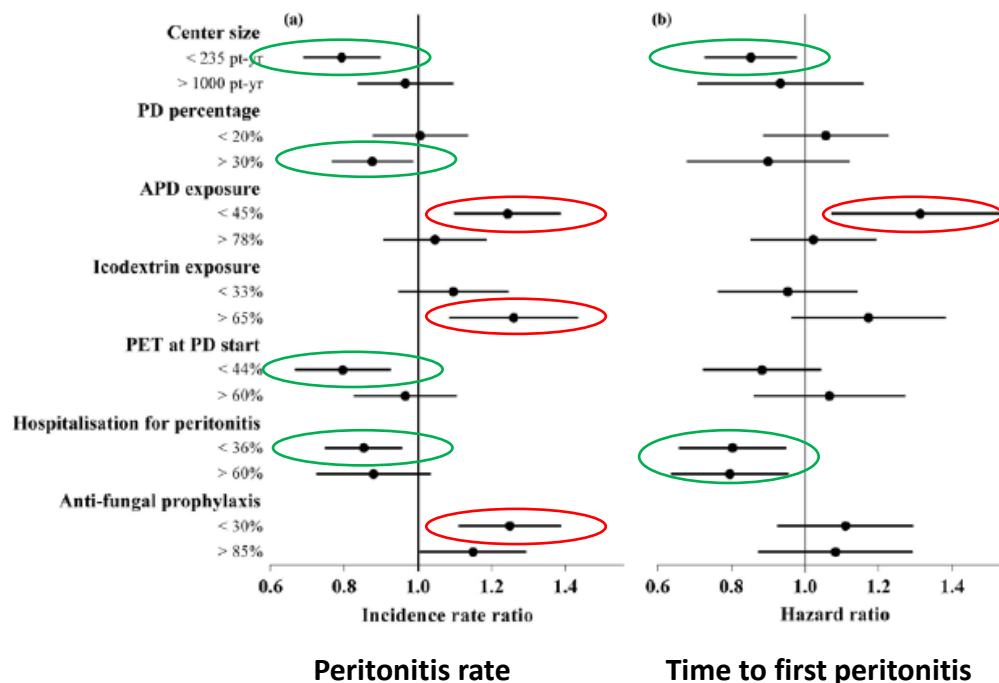
### Facteurs protecteurs:

Taille du centre ↘  
Proportion DP ↗  
↘ Hospitalisations

### Augmentation du risque:

Proportion DPA: ↘  
Utilisation Icodextrine ↗  
Prophylaxie anti-fongique

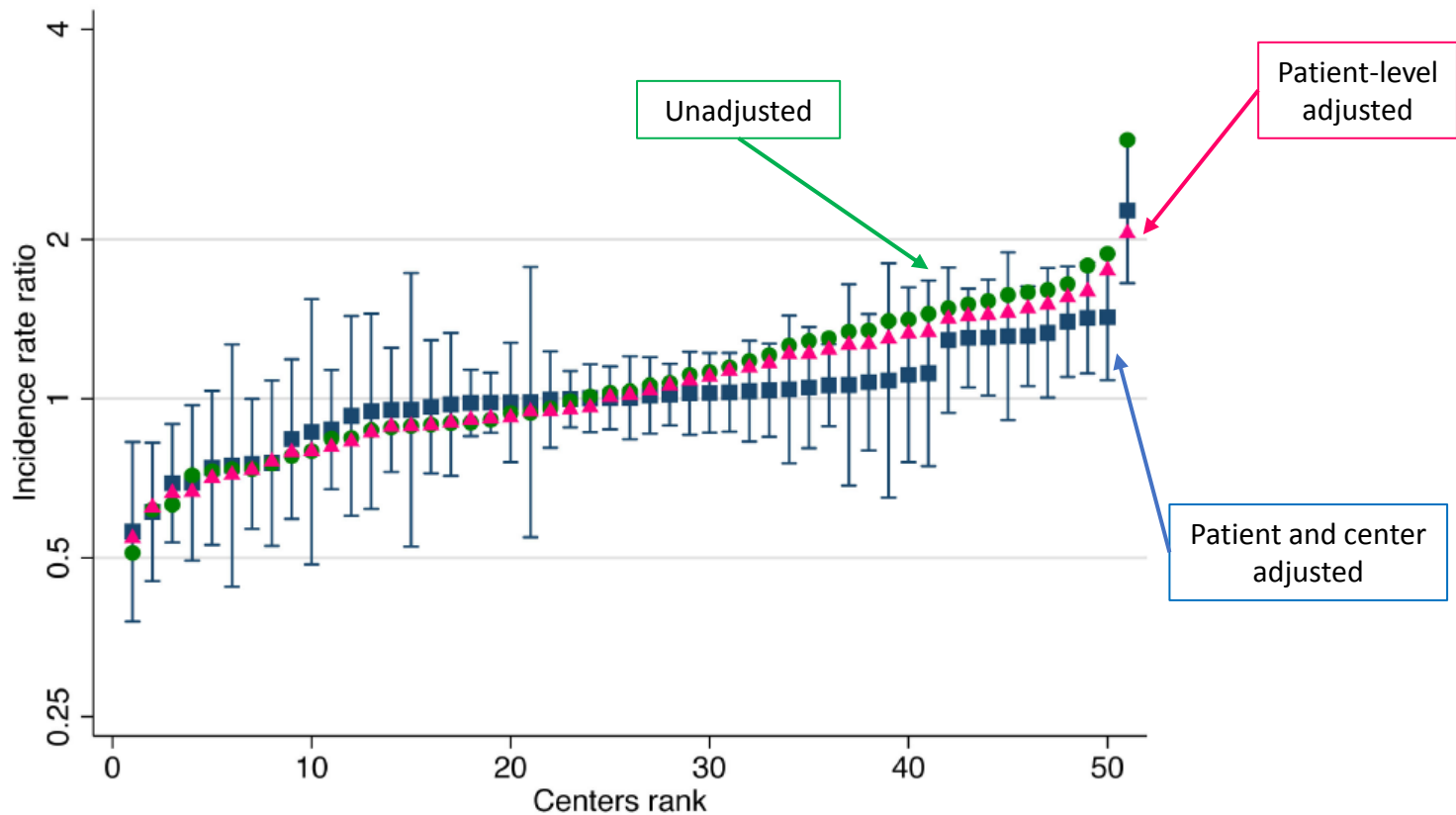
Center-level adjustment resulted in a significant reduction in peritonitis variation between centers ( $p = 0.02$ ). The mean





## CENTER-SPECIFIC FACTORS ASSOCIATED WITH PERITONITIS RISK—A MULTI-CENTER REGISTRY ANALYSIS

### Variation of peritonitis incidence rate ratios (51 Centers)



## CENTER-SPECIFIC FACTORS ASSOCIATED WITH PERITONITIS RISK—A MULTI-CENTER REGISTRY ANALYSIS

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### **Taille des centres ou...**

- Ratio patient/infirmière?
- Sélection plus drastique des patients?
- Expertise?

### **Forte proportion de patient en DP ou...**

- Différence de moyens alloués à la DP?
- « Culture DP » / Implication d'équipe
- Organisation du centre?

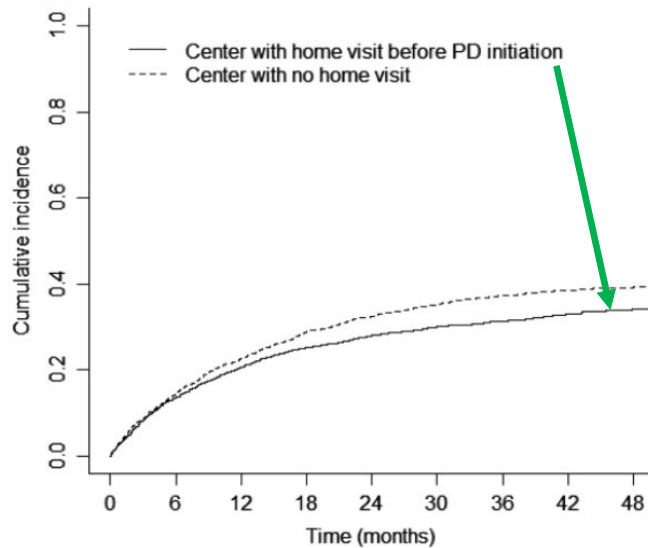
### **Faible recours à l'hospitalisation...**

- Ressources/organisation pour prise en charge extra-hospitalière?
- Visites à domicile?
- Sous-déclaration des péritonites dans les centres n'hospitalisant pas?

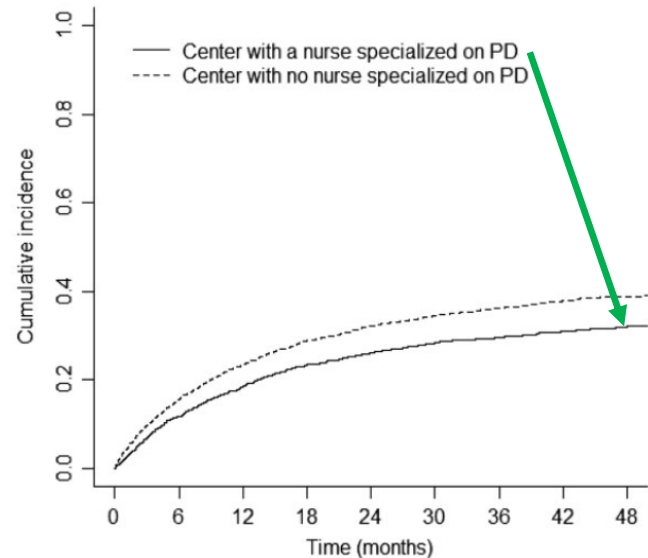
## Centre characteristics associated with the risk of peritonitis in peritoneal dialysis: a hierarchical modelling approach based on the data of the French Language Peritoneal Dialysis Registry

- Effet du centre sur le risque de péritonite des patients en dialyse péritonéale
- Etude rétrospective sur la cohorte du RDPLF
- 2008-2012: 127 Centres, 5017 patients
- 3190 épisodes de péritonite chez 1796 patients
- Pas d'influence sur le taux de péritonite:
  - Néphrologue spécialisé en DP
  - Type de centre (CHU, privé, associatif)
  - Taille du centre
  - DPA/DPCA

# Centre characteristics associated with the risk of peritonitis in peritoneal dialysis: a hierarchical modelling approach based on the data of the French Language Peritoneal Dialysis Registry



**FIGURE 1:** Cumulative incidence of peritonitis by centre organization (home visits). Dashed line: centre without home visits by PD nurses before PD initiation; solid line: centre with home visits before peritoneal initiation. Gray test:  $P < 0.05$ .



**FIGURE 2:** Cumulative incidence of peritonitis by centre organization (nurse specialization). Dashed line: centre without a nurse specialized in PD; solid line: centre with a nurse specialized in peritoneal initiation. Gray test:  $P < 0.05$ .

## Baisse du risque de péritonite:

Visites a domicile avant le démarrage de la dialyse

Infirmière spécialisée en DP

Karthik K. Tennankore<sup>1,2</sup>, Yingbo Na<sup>3</sup>, Ron Wald<sup>3</sup>, Christopher T. Chan<sup>4</sup> and Jeffrey Perl<sup>3,4</sup>

## Etude observationnelle (1996-2012)

1310 patients canadiens en hémodialyse a domicile

- HD conventionnelle : 600 patients
- HD nocturne : 508 patients
- HD quotidienne courte : 202 patients

⇒ Survie comparable

⇒ Pas de différence sur le critère composite survie patient + technique

⇒ Moins d'échec de traitement en HD nocturne (?). Différence non visible dans l'analyse « en intention de traiter ».

**Table 4 | Relative risk of death/treatment failure for the entire cohort (intention-to-treat model and as treated analysis)**

Model	Death or treatment failure HR (95% CI)	Treatment failure HR (95% CI)	Death HR (95% CI)
<b>Intention-to-treat</b>			
Conventional home hemodialysis	Ref.	Ref.	Ref.
Short daily hemodialysis	0.84 (0.67–1.06)	0.88 (0.67–1.16)	0.71 (0.47–1.07)
Nocturnal hemodialysis	0.99 (0.83–1.18)	0.89 (0.71–1.11)	1.23 (0.91–1.67)
<b>As-treated</b>			
Conventional home hemodialysis	Ref.	Ref.	Ref.
Short daily hemodialysis	0.87 (0.70–1.08)	0.82 (0.63–1.08)	0.93 (0.63–1.37)
Nocturnal hemodialysis	0.84 (0.71–1.00)	0.71 (0.58–0.89)	1.19 (0.88–1.61)

Jeffrey Perl,<sup>\*†</sup> Yingbo Na,<sup>\*</sup> Karthik K. Tennankore,<sup>‡§</sup> and Christopher T. Chan<sup>||</sup>

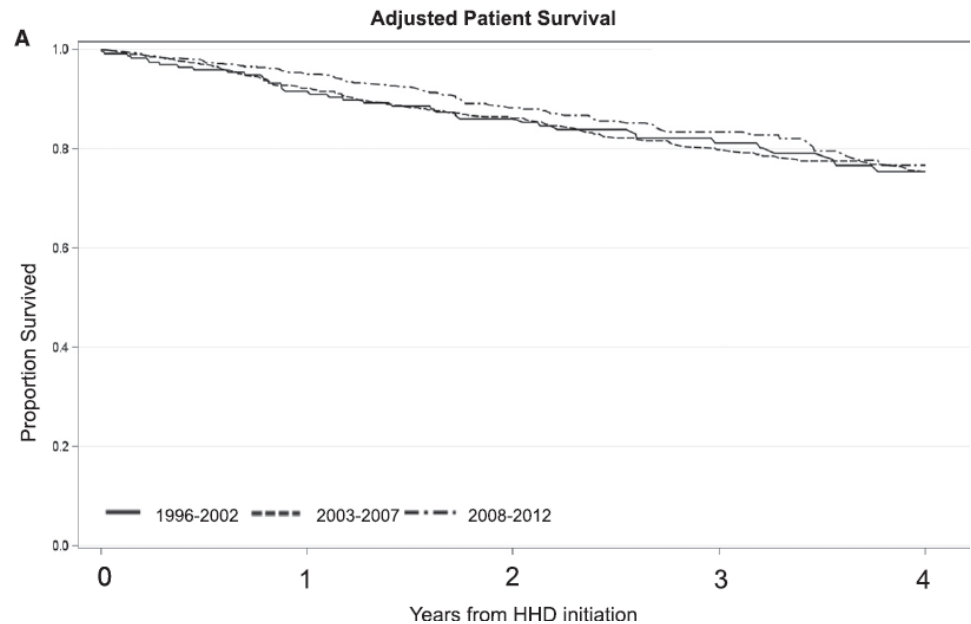
- Etude prospective, observationnelle (1996-2012)
- 1869 patients incidents en HDD
  - ⇒ Registre CORR (Canadian Organ Replacement Registry)
- (99% des patients dialysés ou transplantés du pays)
- 3 Groupes:
  - 1996-2002
  - 2003-2007 (référence)
  - 2008-2012

## Pas de différence:

- mortalité globale
- Survie technique + mortalité

## ↗survie technique:

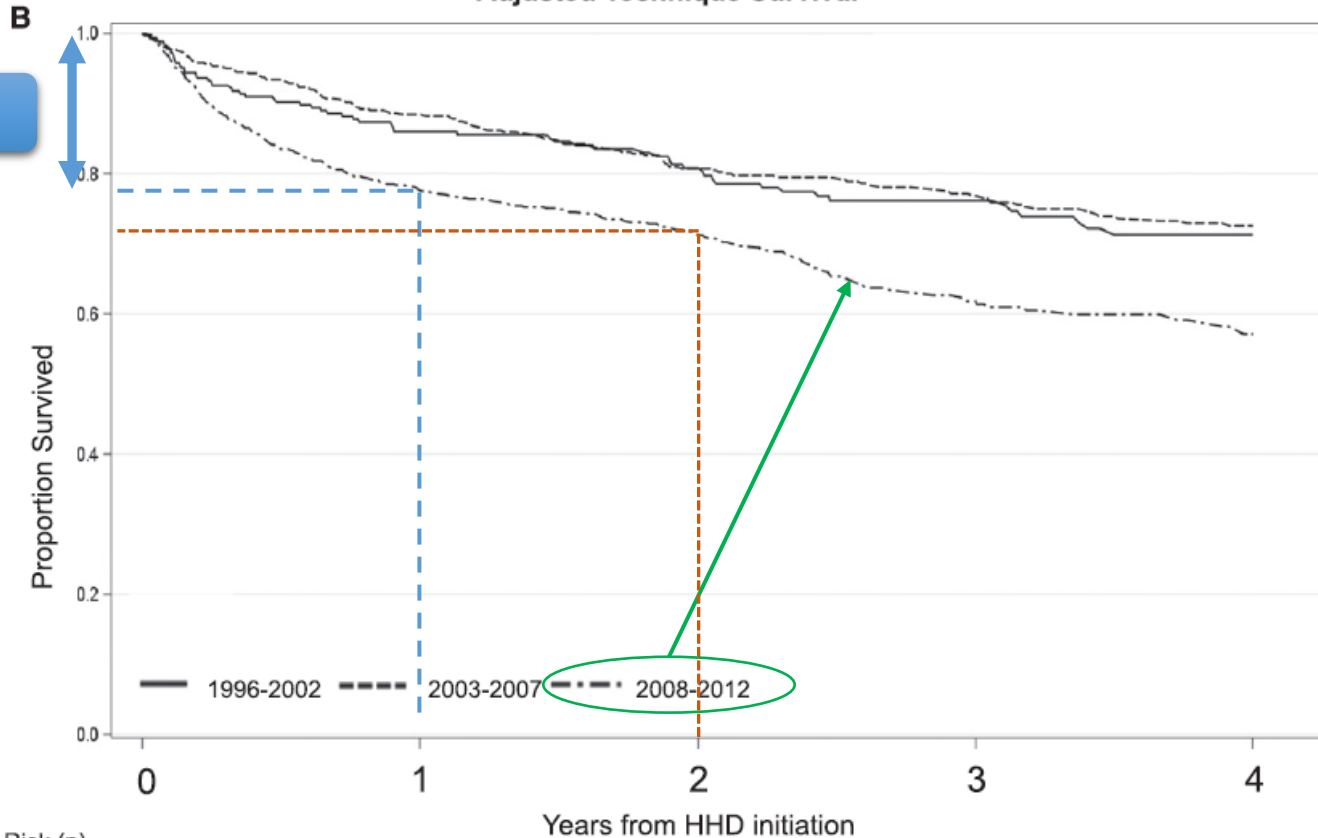
- FAV
- centres de taille moyenne.



## Temporal Trends and Factors Associated with Home Hemodialysis Technique Survival in Canada

Jeffrey Perl,<sup>\*†</sup> Yingbo Na,<sup>\*</sup> Karthik K. Tennankore,<sup>‡§</sup> and Christopher T. Chan<sup>||</sup>

Adjusted Technique Survival



## Temporal Trends and Factors Associated with Home Hemodialysis Technique Survival in Canada

Jeffrey Perl,<sup>\*†</sup> Yingbo Na,<sup>\*</sup> Karthik K. Tennankore,<sup>#§</sup> and Christopher T. Chan<sup>||</sup>

**Table 2. Associations of era of home hemodialysis initiation with all-cause mortality, technique failure, and the composite of death and technique failure**

Incident Cohort Period	Death		Technique Failure		Death and Technique Failure	
	Events	Event Rates/100 Patient-Yr	Events	Event Rates/100 Patient-Yr	Events	Event Rates/100 Patient-Yr
1996–2002	51	7.3	74	12.0	125	19.3
2003–2007 (ref)	127	7.9	158	9.5	285	17.4
2008–2012	91	5.5	271	16.8	362	22.3

Unadjusted Hazard Ratio (95% CI)

**Ajustement sur:**  
*age, sexe, ethnique, IMC, acces vasculaire, ancienneté en dialyse, région, taille de la structure, distance, nephropathie, diabète, coronaropathie, AVC, artériopathie périphérique, tabagisme.*

	Adjusted Hazard Ratio (95% CI)		
<b>Overall<sup>a</sup></b>			
1996–2002	0.67 (0.38 to 1.21)	1.39 (0.78 to 2.46)	1.11 (0.71 to 1.74)
2003–2007 (ref)	1	1	1
2008–2012	0.83 (0.58 to 1.19)	<b>1.51 (1.06 to 2.15)</b>	1.25 (0.98 to 1.61)
<b>Yr 1<sup>a</sup></b>			
1996–2002	0.67 (0.31 to 1.49)	1.49 (0.69 to 3.21)	1.19 (0.62 to 2.26)
2003–2007 (ref)	1	1	1
2008–2012	0.71 (0.43 to 1.20)	<b>2.45 (1.78 to 3.39)</b>	1.84 (1.41 to 2.38)

ref, referent group; 95% CI, 95% confidence interval.  
<sup>a</sup>Adjusted for age, sex, race, body mass, vascular access type, dialysis vintage, home hemodialysis modality, region, facility size, distance, income quintile, primary diagnosis, diabetes, coronary artery disease, stroke, peripheral vascular disease, and smoking status.



Dans la cohorte la plus récente: augmentation du risque d'échec de technique !

## Pourquoi?

- **Accès vasculaire:** 39 % de cathéters contre 26% dans la cohorte de référence
- **Taille des centres :** 73% de « grands centres » (> 9 patients) contre 80% (ref)
- **Modalité:** 50% HD conventionnelle contre 38% (ref)
- **Comorbidités:** Diabète (9% vs 7%), tabagisme (10% vs 8%), IMC (28 vs 26,5), Age (53 vs 52)

Ce sur-risque provient donc potentiellement de:

- Elargissement des critères d'éligibilité (cathéter, âge, comorbidités...)
- Changements de pratique (durée et qualité des programmes de formation...)

## Urgent-Start Peritoneal Dialysis Complications: Prevalence and Risk Factors

Damin Xu, MD,\* Tianjiao Liu, BS,\* and Jie Dong, MD

Etude de cohorte chinoise: démarrage en urgence de la DP et impact sur les complications

- Initiation de la DP dans les 7 jours suivant la pose du KT
- 922 patients inclus entre 2003 et 2013
- Cathéter implanté par un néphrologue
- DPCA double poche

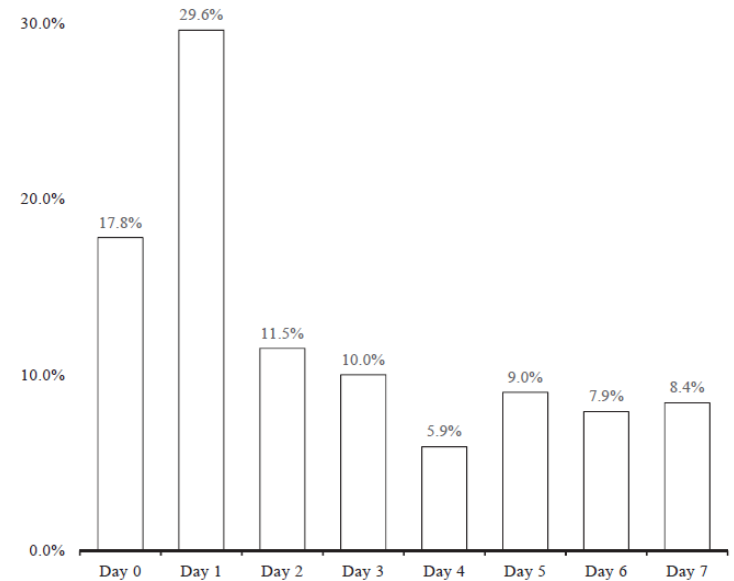


Figure 3. Distribution of break-in periods.

## Urgent-Start Peritoneal Dialysis Complications: Prevalence and Risk Factors

Damin Xu, MD,\* Tianjiao Liu, BS,\* and Jie Dong, MD

- Complications de paroi
  - Toute la période: 44/922 patients (4.8%)
  - **Pendant le 1<sup>er</sup> mois: 9/922 patients (<1%)**
- Au total:
  - 21 arrêts de DP (transfert HD) (4 hernies, 10 hydrothorax, 6 hydrocèles, 1 fuite SC)
- Complications pendant le 1<sup>er</sup> mois
  - 2 Hernies
  - 3 Hydrotorax
  - 2 Hydrocèles
  - 1 fuite sous-cutanée et 1 fuite péri-cathéter

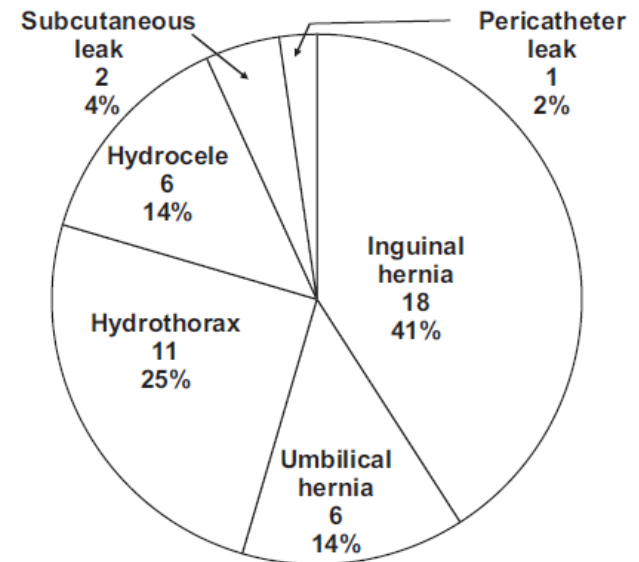


Figure 4. Distribution of abdominal wall complications.

**Table 1.** Characteristics of Patients With and Without Abdominal Wall Complications

	Total (N = 922)	With Complications (n = 44)	Without Complications (n = 878)	P
Age, y	59.1 ± 15.0	61.7 ± 15.0	58.9 ± 15.0	0.2
Male sex	448 (48.6)	34 (77)	414 (47.2)	<0.001
Abdominal surgery history	134 (14.5)	11 (25)	123 (14.0)	0.04
Diabetes	381 (41.3)	18 (41)	363 (41.3)	0.9
Cause of ESRD				0.7
Diabetic nephropathy	308 (33.4)	15 (34)	293 (33.4)	
Glomerulonephritis	218 (23.6)	13 (30)	205 (23.3)	
Hypertensive nephropathy	171 (18.5)	10 (23)	161 (18.3)	
Chronic TIN	81 (8.8)	3 (7)	78 (8.9)	
Polycystic kidney disease	18 (2.0)	0 (0)	18 (2.1)	
Other	126 (13.7)	3 (7)	123 (14.0)	
Systolic blood pressure, mm Hg	136.9 ± 18.9	140.8 ± 18.4	136.7 ± 18.9	0.2
Diastolic blood pressure, mm Hg	79.4 ± 12.0	81.1 ± 11.9	79.3 ± 12.0	0.3
Body mass index, kg/m <sup>2</sup>	23.3 ± 3.8	24.1 ± 3.4	23.3 ± 3.8	0.2
Hemoglobin, g/L	99.8 ± 16.8	98.7 ± 17.9	99.8 ± 16.7	0.7
Albumin, g/L	34.9 ± 4.9	34.5 ± 4.7	34.9 ± 4.9	0.6
Serum creatinine, μmol/L	682.2 ± 246.7	699.8 ± 221.4	681.3 ± 248.0	0.6
Serum urea nitrogen, mmol/L	22.7 ± 6.6	23.6 ± 7.8	22.6 ± 6.6	0.3
Calcium, mmol/L	2.2 ± 0.2	2.2 ± 0.3	2.2 ± 0.2	0.9
Phosphorus, mmol/L	1.6 ± 0.4	1.6 ± 0.5	1.6 ± 0.4	0.4
iPTH, pg/mL	164.0 [74.5-325.0]	167.4 [111.0-371.5]	163.7 [73.6-322.2]	0.5
C-Reactive protein, mg/L	2.4 [0.9-7.4]	2.2 [0.5-5.0]	2.5 [0.9-7.7]	0.3
Triglycerides, mmol/L	1.5 [1.1-2.1]	1.5 [1.1-2.3]	1.5 [1.1-2.1]	0.9
LDL cholesterol, mmol/L	2.5 [2.0-3.1]	2.5 [2.0-2.9]	2.6 [2.0-3.1]	0.5
Break-in period, d	2.6 ± 2.3	2.3 ± 1.6	2.6 ± 2.3	0.3
Exchange volume standardized by BSA, mL	1,670.4 ± 379.5	1,540.6 ± 453.9	1,675.8 ± 375.4	0.04
Dwell overnight <sup>a</sup>	442 (47.9)	19 (43)	423 (48.2)	0.7
Total Kt/V	1.9 [1.6-2.2]	1.8 [1.4-2.1]	1.9 [1.6-2.2]	0.3
Total CL <sub>cr</sub> , L/wk/1.73 m <sup>2</sup>	69.2 [55.5-85.2]	70.3 [55.8-78.3]	69.1 [55.5-85.3]	0.8
Residual kidney function, mL/min	3.7 [2.0-5.5]	3.7 [2.4-4.9]	3.6 [2.0-5.5]	0.8

Note: Values for categorical variables are given as frequency (percentage); values for continuous variables, as mean ± standard deviation or median [interquartile range].

Abbreviations: BSA, body surface area; CL<sub>cr</sub>, creatinine clearance; ESRD, end-stage renal disease; iPTH, intact parathyroid hormone; LDL, low-density lipoprotein; TIN, tubulointerstitial nephropathy.

<sup>a</sup>The patient performs peritoneal dialysis during the day and the dialysate remains in the peritoneal cavity overnight.



# Réalisé avec participation active :

**Christian Verger, président RDPLF**

## **Comité de lecture**

- Bataille Stanislas: Clinique Bouchard, Marseille
- Beaume Julie: AVODD, Toulon
- Carceles Odette: CHT Médipôle, Nouméa
- Gosselin Morgane: CHRU Brest
- Lanot Antoine: CHU Caen
- Lavainne Frédéric, Centre ECHO, Nantes
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