Seasonal morbidity variations on PD
Data of French Language PD Registry (RDPLF)

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4th self-care dialysis symposium
6th & 7th June 2018
Background

Few studies on seasonal PD variations

- Only dealing with peritonitis risk

- More general recent studies
  - Seasonal influenza vaccination is associated with reduced morbidity and mortality in peritoneal dialysis patients. I-Kuan Wang et al. Nephrol Dial Transplant (2016) 31: 269-274
6610 patients de 2003 à 31/12/2008

No variation in peritonitis rates
No variation in peritonitis outcomes
But trends to :
  - summer and spring peak for coag neg Staph
  - summer peak for pseudomonas
  - summer and autumn peak for fungus, gram neg
  - Winter peak for coynebacteria

Note : seasons in Australia are the reverse !
Overall, the rates of peritoneal infection are similar in all four seasons. The higher the temperature, the higher the risk that a peritoneal infection will be the result of a gram-negative bacterium.
Conflicting results

- Most studies are single center studies
- different climates can explain different results
- Seasonal variations in
  - Brazil (Alves et al. Catheters infection, Adv Perit Dial 1993;9:244-247
- No seasonal variation in Denver
  - Dry and relatively cool Climate (Quinn et al. PDI 1994; 14:172-174
Seasonal influenza vaccination is associated with reduced morbidity and mortality in peritoneal dialysis patients. I-Kuan Wang et al. NDT (2016) 31:269-274

Taiwan: 2089 vaccinated patients matched with 2089 no vaccinated patients (propensity score)

1998 – 2010: Vaccinated patients had decreased mortality and morbidity of all etiology.

Single center
122 patients
2003/01/01 – 2004/12/31
Blood pressure higher in winter, lower in summer
Blood pressure negatively correlated with temperature
No seasonal variation of weight and ECW (bioimpedance)
Rational for seasonal study in France

Climate different from those of previous authors

In the littérature:
- few reports on peritonitis
- mostly data from single centers and small series
- often short periods of time
- no study available on seasonal dropout

In the RDPLF
- Data available since 1986
- 40,000 patients included (32,500 in metropolitan France)
Total monthly transfers to HD for peritonitis (France 1986-2018)

Nb transfers for peritonitis

months
Total number of peritonitis and Gram negative percentages per month.
Period 1986 -2017, France metropolitan
32652 patients included, 26430 peritonitis

September/January : +30 %
Robert Vautard, director of research at the CNRS at the Pierre-Simon Laplace Institute and climate specialist in Europe, explained on franceinfo 2017, June 22, that "these episodes of heat are more common today around the world. but especially in our latitudes and in Europe ". "The probability of a heat wave" like that of 2003 today "is ten times greater than it could have been at the end of the twentieth century,"

⇒ does it change the seasonal effect ?
France monthly PD dropout in 2003

Total dropout

Canicule
1/08-8/08
14 000 death in general population

Transfer to HD

Death
Peritonitis occurrence in 2003 in France and gram negative percentages

% gram negative

Canicule
1/08-8/08
14 000 death in general population

Nb

months

months
France monthly PD dropout in 2017

Total dropout

Heat wave
18/06-22/06
Peak 36 Celcius

Transfer to HD

Death
Peritonitis occurrence in 2017 in France and gram negative percentages

% gram negative

Heat wave
18/06-22/06
Peak 36 Celcius

Nb
Gastro enteritis in north in 2016 and months

%-gram -

Max % G-

Nb Peritonitis

Max nb perit.
Conclusion 1

Seasonal variations available only two large registries

ANZDATA : 6610 patients, 2003 -2008
RDPLF : 40000 patients 1986 – 2018

Over a 30 years period:
- No seasonal variation of dropout towards HD
- more transfers to HD for peritonitis in September
- Deaths
  more numerous in January and December
  less in August and September
- Peritonitis
  number does change
  30 % Gram neg percentage increase from Jan. to Sept.
Conclusion 2

Role of heatwaves (2003 and 2017)
No influence on general dropout
No influence on transfers to HD
No influence on deaths
No more than usual on peritonitis (except number?).
Conclusion 3

Variation in environmental infectious disease might have predominant influence over seasonal period

In case of epidemic such as influenza, vaccination is important to prevent all causes of morbidity and mortality.
Take care in case of heat wave, but...
Save time to publish in the new journal of RDPLF
Bulletin de la Dialyse à domicile

Devoted only to home dialysis, Write in english and we translate in French, leaving abstract in English

Réservé à la dialyse à domicile uniquement, Ecrivez aussi en Français, Molière au ciel sera heureux

http://www.bdd.rdplf.org