

Bulletin de la Dialyse à Domicile

COVID-19 EPIDEMIC IN THE DIALYSIS UNITS OF THE FRENCH SPEAKING PART OF BELGIUM : Special insight into patients on home dialysis

EPIDEMIE DU COVID-19 EN BELGIQUE FRANCOPHONE : Regard sur les patients dialysés en techniques ambulatoires

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Résumé

En Belgique francophone, pendant la période mars à fin mai 2020, 284 patients en dialyse ont contracté le Covid-19, soit 7,9% de la population prévalente, qu'ils aient été diagnostiqués par rt-PCT parce qu'ils étaient symptomatiques ou dépistés par culture virale systématique alors qu'ils étaient asymptomatiques. Cinquante-deux décès ont été observés soit 18% de la population atteinte. La toute grande majorité de ces patients (274) étaient traités par hémodialyse en centre, seuls 10 patients étaient en traitement à domicile. Leurs maladies rénales primitives étaient à plus de 50% des diabète et pathologies vasculaires hypertensives et leurs comorbidités essentielles, les pathologies cardiovasculaires ischémiques et congestives, les problèmes d'autonomie, les néoplasies et le tabagisme

Mots clés : Covid-19, SARS-Cov2, Dialyse, épidémiologie, Belgique

Summary

In the French-speaking part of Belgium, between march and end of may 2020, 284 patients have suffered a Covid-19 infection, 7,9% of the prevalent dialysis population. Some of them have been diagnosed through rt-PCT as they were symptomatic, others, asymptomatic, being diagnosed by swab viral culture. Fifty two patients died (18% of the positive patients). The vast majority of them were patients on hemodialysis, only ten cases have been observed in patients on home dialysis techniques. Primary renal disease were diabetes or renal hypertensive disease in more than 50% of the patients and the most important comorbidities were cardiac ischemic or congestive disease, autonomy problems, cancer and smoking habits.

Key words : Covid-19, SARS-Cov2, Dialysis, epidemiology, Belgium

INTRODUCTION

On february 27th 2020, the American society of nephrology was the first to publish guidelines for the management of dialysis units during the Covid-19 epidemic [1]. The key elements were the rapid detection of positive patients and their isolation. It appeared immediately that the measures that had to be taken were quite heavy as opposed to those concerning patients on home dialysis for whom the simple precaution of holding them at home was evident. Everyone immediately suspected that the epidemic would probably concern much more patients on hospital dialysis that had still to move trice a week between their homes and hospital and that had to be managed in units where isolation and or distance was difficult to obtain. We have decided after the first wave of the epidemic to verify that hypothesis and to present the epidemiology of the Covid-19 epidemic in the dialysis units of the French speaking part of Belgium during the period between march and may 2020.

MATERIALS AND METHODS

The guidelines published by the ASN have been circulated between the nephrologists of the dialysis centers of the French speaking part of Belgium. A webconference to discuss the attitudes and the evolution of the epidemic was held every week. A questionnaire was sent to the centers to ask them the preventive measures that were taken. It was decided to collect data on positive patients, first on a simple sheet of paper and afterwards, since april 1st 2020, as a supplementary page on the patient data within our regional registry from the “Groupement des Néphrologues francophones de Belgique” GNFB). These were questions about the date of the first symptoms, date of testing, date of a possible hospitalization and end of hospitalization, the possible date of death, the type of testing (rt-PCR or viral culture), the type of symptoms, the existence at presentation of lymphopenia et the result of radiological lung investigation (standard Xray of Ct-Scan);

By mid of march it appeared in belgium that there was a risk for a shortage on rt-PCR tests, so that very restrictive conditions for its use were decided by the Belgian authorities. Several centers have then decided to replace the testing of symptomatic patients using rt-PCR by a general testing of the whole hemodialysis population on a weekly basis using viral culture of nasal swab. In other centers where the number of cases had been important it was also decided to screen the whole dialysis population using rt-PCR or viral culture.

A weekly epidemiological report was published between march 30th and may 25th (eight reports) [2].

Reported comorbidities of patients were as follows : chronic cardiac ischemic disease (angina pectoris, PTCA, myocardial infarction), chronic cardiac congestive disease (NYHA 1-4 class), smoking habits (active or stopped <5 years), autonomy problems (external help for the daily activities, amputation, CVA sequelae), COPD and cancer (active or <5 years)

Percentages are expressed based on the point prevalence of December 31st, 2019.

RESULTS

Preventive measures and management of the epidemic in the dialysis units :

- For patients on in center hemodialysis or low care facilities

According to the centers, all or part of the following measures have gradually been adopted :

- Use of masks for patients and ambulance or private car drivers during their trip between home and the dialysis unit, creation of different accesses to the dialysis unit so that entering patients would not cross those exiting, short medical questionnaire measurement of body temperature and isolation of suspected cases, washing ends, banning of eating or drinking during the dialysis sessions, reduced dialysis hours (mainly from 4 to 3h30), rarely decreased frequency of dialysis sessions to 2 per week, proposing high permeability dialysis filters for positive patients with the hope of a better clearance of inflammatory molecules
- In case of patient isolation : isolation in a dedicated room for patient examination, nasal swab and dialysis
- Due to the increase in positive patients, several centers had to create a dedicated dialysis shift for Covid-19 patients generally functioning by the end of the day, between (5pm and 10pm). Isolation for these patients was maintained for 21 or 28 days or until two rt-PCR were negative.
- For the vast majority of cases, hospitalization was only allowed for very symptomatic patients, the other patients being maintained at home with reinforced isolation measures.
- In general the centers complained of lack or a late delivery of individual protection materials for nurses and doctors.
- For the patients on home dialysis :
 - the centers have recommended to the patients to stay home but in case of emergency situations, planned visits have been suspended, and phone calls have regularly been given to the patients to discuss their medical situation

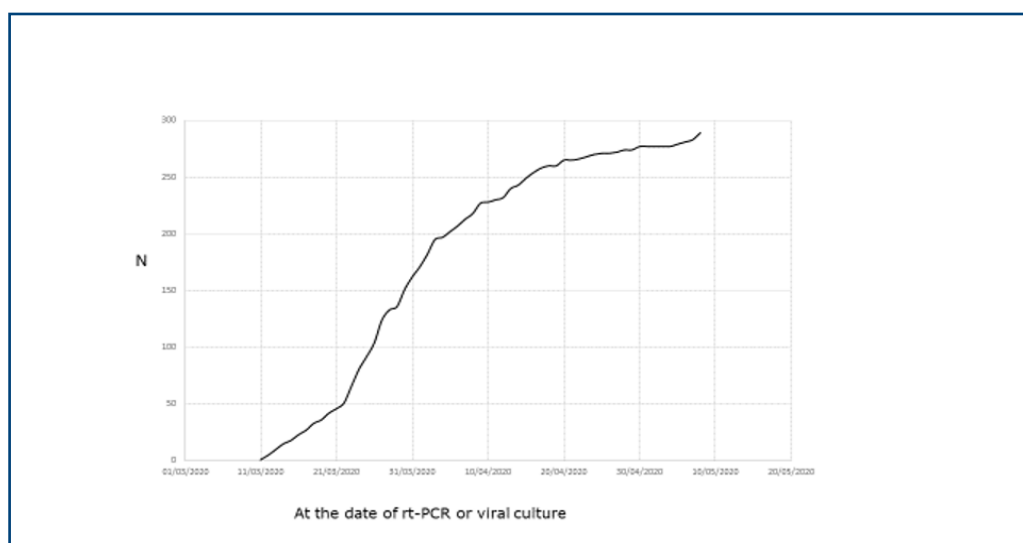
Epidemiology of epidemic between march 1st and may 30th

Two hundred and eighty four cases have been observed during that period among which 52 deaths (18% of cases); 274 cases were observed in hemodialysis patients and 10 cases in home dialysis patients (table 1) two patients on home dialysis deceased, one from Covid-19, one from a hemorrhagic complication on a vascular access placed for a technical failure of peritoneal dialysis.

↓ Table 1. Reports the number of cases, the primary renal diseases of the patients , their comorbidities and the timeline of the infection

Nombre de cas observés :	N	Population à risque	%	
Hémodialyse (toutes techniques)	274	3187	8,6	
Dialyse péritonéale (toutes techniques)	9	306	2,9	
Hémodialyse à domicile	1	85	1,2	
Total	284	3578	7,9	
Maladies rénales primitives des patients atteints :	N	%		
Diabète	50	33,3		
HTA	36	24,0		
Incertaine	18	12,0		
GN	16	10,7		
Divers	16	10,7		
Polykystose	11	7,3		
Comorbidités principales :	%			
Insuffisance coronaire	38			
Tabagisme	32			
Problèmes d'autonomie	28			
NYHA 1-4	26			
Néoplasies	22			
BPCO	15			
Durée en jours entre :	N	mediane	min	max
1ers symptômes et testing	202	1	0	22
testing et hospitalisation	145	0	0	15
Hospitalisation et décès éventuel	49	8	1	55
Hospitalisation et sortie éventuelle	45	14	1	62

Figure 1 reports the cumulative incidence curve



↑ Figure 1. Cumulative incidence curve n=284 by 25/05/2020

Figure 2 reports the date of first symptoms or the date of testing in asymptomatic patients

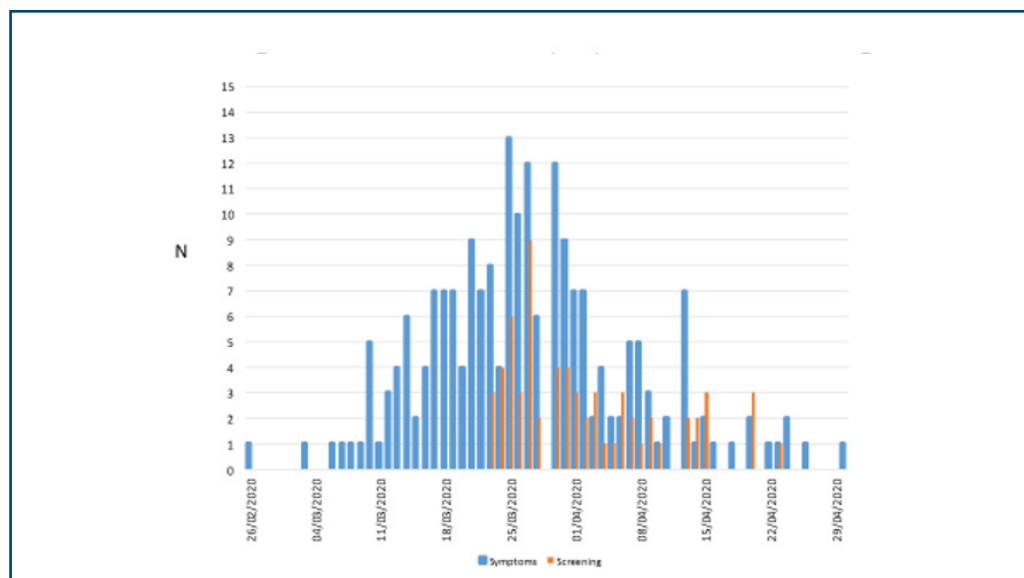


Figure 2. Date of 1st symptoms or screening

DISCUSSION

Approximately 8% of the dialysis population in our region have suffered the Covid-19 between march and end of may 2020 among which 18% deceased. It was not possible to show here the details of the center repartition of cases but very important subregional differences in incidence have been observed. We clearly confirm a lower incidence in the group of patients on home dialysis (peritoneal dialysis or home hemodialysis). It should be stressed that this group of patients has not been systematically tested as compared to in center hemodialysis, so that the number of cases in home dialysis might be underestimated mainly in less symptomatic patients. As expected, half of the patients had diabetes or hypertensive vascular disease as primary kidney disease. Their main comorbidities were cardiac (ischemic or congestive) or problems of autonomy. One might think that the dependency of the patients towards other people for their daily activities has favored the transmission of the disease.

The number of observed cases is too low to allow a real comparison between techniques but such a study would be relevant. Holding the patients at home could have retarded the diagnosis of the infection with the risk of more severe cases and an increased death rate.

Current guidelines [3,4,5,6,7] show how difficult and complicated the management of such an epidemic in hemodialysis units is as compared to the easiness of management of patients on home dialysis. In an era of public health were the hypothesis of an increased number of epidemics whatever their cause, this is a new argument to favor the use of home dialysis techniques [7,8,9,10,11]; lets add, that, as it was observed in Italy, the isolation of patients in specially dedicated dialysis shifts has not always been possible because of a shortage on nurses, as they were also infected by the Covid-19.

All guidelines point out the interested for the follow-up of home dialysis patients in these circumstances, of using telemonitoring or teleconsultations. If telemonitoring is used in Belgium,

for instance for automated peritoneal dialysis machines, it should be stressed that we don't yet have a law organizing telemedicine in Belgium. Several studies under the authority of the ministry of health [12] are currently under way.

The strength of our study lays in the completeness of data collected through our registry, the vast majority of centers having entered their data on a real-time basis. The weakness of the study is due to the disparity in number of patients treated in the different techniques that does not allow statistical analysis and is due to the low penetration of home dialysis techniques in our region. Joining data from different countries or regions could increase the value of the study.

DISCLOSURE

The authors have no conflict of interest to declare.

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