

Rapport Activités du Collège – 2018 - Part 1

Rapport national du GNFB et du NBVN pour le collège de médecins pour le centre de traitement de l'insuffisance rénale chronique Janvier 2010 – Janvier 2018

1. Prevalence of adults and children treated with renal replacement therapy in Belgium

On January 1, 2018, 14797 adults were treated in Belgium with renal replacement therapy, either with dialysis or living with a functioning renal transplant [Table 1]. This corresponds to a prevalence of about 1303 per million inhabitants (ppm). The number of patients with a functional renal transplant [44%] still remains below that of dialysis patients [56%].

* basic characteristics: 60% men, 40% diabetes mellitus, 55% \geq 75 years old.

* the ratio of low care / high care dialysis was significantly higher than on January 1, 2017.

There is a positive growth of the prevalent dialysis patients over the last years, but at a very undulating rate rather than a constant rate. In the transplant population, the annual growth percentage is rather constant : 2.0 à 3.0%.

The number of adult dialysis patients per million inhabitants - 726 ppm – is among the top-5 of Europe and is comparable between the NBVN and GNFB registries.

The total number of patients who are treated with peritoneal dialysis (PD) stays rather constant – about 620 patients. This means a progressive decreasing percentage of PD contribution to the total renal replacement therapy. This trend is noticeable everywhere in Europe. Possible causes are an aging population of dialysis with a smaller medical opportunity, reduced self-reliance or reduced interest; and / or the emergence of live donor kidney transplantation, pre-emptive or not (ie, without a prior dialysis period).

The last available aggregated data for children treated with renal replacement therapy in Belgium date from 2018; no data were forwarded by the Hôpital Universitaire des Enfants Reine Fabiola.

During the last years, about 20 children are on chronic dialysis (10 in hemodialysis, 10 in peritoneal dialysis). About 90 children are currently in follow-up after a renal transplantation.

2. Inflow of adults in renal replacement therapy

The annual number of new patients with end-stage renal failure starting with renal replacement therapy is rising again as of the calendar year 2015, after a downward trend between 2009 and 2014. In 2017, 2188 patients with renal replacement therapy were started, comparable to the year 2009 [Table 2].

The implementation of the care trajectory "chronic renal insufficiency" [Zorgtraject, Trajet de soins) as June 2009 may have led to a postponement of end-stage renal failure [although that is difficult to demonstrate due to the lack of a control population – as mentioned also in the ACHIL & EVACQ2017 analyses – www.sciensano.be]. In any case, there has truly been

a faster detection of chronic kidney disease; but not everyone will commence or wants to start renal replacement therapy - as a result of either death (before starting dialysis) or because of the wish to live without dialysis till death [option "conservative policy without dialysis"].

The number of preemptive kidney transplants (ie without a prior dialysis period) in adults remains so low that there is no impact on the annual intake of dialysis patients.

3. Outflow of adults out of dialysis

3.1. Mortality of the dialysis population

The absolute number of adult dialysis patients that dies during a calendar year is nearly constant during the last years [Table 3]. The number per 100 patient years varies between 14.9 and 16.6.

In the NBVN region, dialysis treatment is stopped prematurely in 20% of dialysis patients: often there is "dialysis burnout" - often at the request of the patient for various reasons [e.g. loss of self-reliance, fatigue, ...] or it is a shared decision taken by both the nephrologist and his/her patient due to the very limited remaining life expectancy [e.g. in view of an end-stage carcinomatosis]. After stopping the dialysis treatment, a short palliative care process follows.

3.2. Transplantation of the dialysis population

The annual kidney transplant activity with a kidney of a deceased donor averages 462 transplants over the last 3 years [2015-2016-2017]; this includes combined kidney transplants (kidney + pancreas, kidney + heart, kidney + liver, etc.) [Table 3; source: Eurotransplant International].

The majority of transplants takes place during the dialysis period of the patient.

Living donor kidney transplants and kidney transplants before the start of dialysis contribute very little to the overall transplant activity, in contrast to some neighboring European countries, such as the Netherlands, Germany and Norway.

The number of transplants depends on the donor kidney allocation program - prepared and executed by Eurotransplant International [Belgium, Luxembourg, Netherlands, Germany, Austria, Slovenia, Croatia, Hungary]. This allocation program is based on blood type match, tissue type match (HLA-A,B,DR match), chance of a good tissue type HLA A, B, DR match, and the donation activity at local and international levels.

For any dialysis center, the annual number of transplants can fluctuate greatly, even in the presence of a "well-filled" kidney transplant waiting list.

4. Survival of adult dialysis patients

The patient survival of the total Belgian dialysis population is quite good - with continuing improvement between the 2 cohorts studied (2007-2011 & 2011-2014) [Chart1; source: ERA-EDTA registry].

The higher 1-year & 2-year survival of the Belgian dialysis patient might be the result of better dialysis care and / or better selection of the incident dialysis patient. The median survival [Kaplan Meier analysis] of the total population is about 3.7 years.

Chart 2 shows the difference in patient survival between the age categories 45-64 years and ≥ 75 years. The "kidney transplant" option is censored in the Kaplan Meier survival calculation – which might (positively) influence the survival rates of the 45-64 years category; this transplant option hardly occurs in the age category ≥ 75 years.

Not unexpectedly there is a big survival difference between the 2 age categories; the 2-year survival rate approximates 56% for the age group ≥ 75 years, while it is about 80% for the age group 45-64 years.

5. Survival of adult renal transplant patients

The survival of the kidney transplant - with a kidney from a deceased donor - of the total Belgian transplant population is brilliant [Chart 1; source: ERA-EDTA registry].

6. Estimate of the remaining life time of prevalent adult dialysis and transplant patients.

Some realism is necessary with every type of renal replacement therapy, especially for those at old age¹. One does not get eternal life.

In collaboration with the ERA-EDTA registry, a table was drawn up for the prevalent Belgian population on dialysis or living with a renal transplant, per age category [Chart 3]. The average remaining life expectancy (in years) is compared with that of the Belgian general population.

Overall, the dialysis patient has a lower life expectancy than a transplant patient and certainly the general population. The poorer life expectancy is very striking at a younger age. The difference with the general population decreases as the dialysis patient gets older.

These life expectancy tables, survival charts and also the available prognostic scores at the start of dialysis (REIN score [France], aREIN score [NBVN]) can help to inform the patients with nearly end-stage chronic kidney disease more correctly about the possibilities of renal replacement therapy and also those still living on dialysis or with a transplant.

On behalf of the college,
Au nom du collège

Dr. Johan De Meester
Internist-nephrologist

¹ Naylor KL, Kim SJ, McArthur E, Garg AX, McCallum MK, Knoll GA. Mortality in Incident Maintenance Dialysis Patients Versus Incident Solid Organ Cancer Patients: A Population-Based Cohort. Am J Kidney Dis. 2019; epub 28 January 2019.

Collège de médecins pour le centre de traitement de l'insuffisance rénale chronique
College van geneesheren voor het behandelcentrum van chronische nierinsufficiëntie

Table 1: Prevalence Renal Replacement Therapy [RRT] – on reference date January 1, 2010 till 2018

| Prevalence | 31/12/2009 | 31/12/2010 | 31/12/2011 | 31/12/2012 | 31/12/2013 | 31/12/2014 | 31/12/2015 | 31/12/2016 | 31/12/2017 |
|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Adults | 1/01/2010 | 1/01/2011 | 1/01/2012 | 1/01/2013 | 1/01/2014 | 1/01/2015 | 1/01/2016 | 1/01/2017 | 1/01/2018 |
| Total in RRT | 12446 | 12887 | 13306 | 13641 | 13850 | 14133 | 14240 | 14487 | 14797 |
| Living with a transplant | 5142 | 5349 | 5605 | 5782 | 5939 | 6058 | 6153 | 6349 | 6548 |
| Living on dialysis | 7304 | 7538 | 7701 | 7859 | 7911 | 8075 | 8087 | 8138 | 8249 |
| peritoneal dialysis | 689 | 683 | 672 | 661 | 641 | 639 | 621 | 614 | 617 |
| Hemodialysis | 6615 | 6855 | 7029 | 7198 | 7270 | 7436 | 7466 | 7524 | 7632 |
| low care | 1878 | 1896 | 1919 | 1959 | 1967 | 2127 | 2180 | 2306 | 2657 |
| high care | 4737 | 4959 | 5110 | 5239 | 5303 | 5309 | 5286 | 5218 | 4975 |
| ratio low care/high care | 0,40 | 0,38 | 0,38 | 0,37 | 0,37 | 0,40 | 0,41 | 0,44 | 0,53 |
| <i>Annual evolution total RRT %</i> | | 3,54% | 3,25% | 2,52% | 1,53% | 2,04% | 0,76% | 1,73% | 2,14% |
| <i>Annual evolution dialysis %</i> | | 3,20% | 2,16% | 2,05% | 0,66% | 2,07% | 0,15% | 0,63% | 1,36% |
| <i>Annual evolution transplant %</i> | | 4,03% | 4,79% | 3,16% | 2,72% | 2,00% | 1,57% | 3,19% | 3,13% |
| Population Belgium | 10.839.905 | 10.951.266 | 11.035.948 | 11.099.554 | 11.150.516 | 11.209.044 | 11.267.910 | 11.322.088 | 11.376.070 |
| <i>Total RRT per million inhabitants</i> | 1148,2 | 1176,8 | 1205,7 | 1229,0 | 1242,1 | 1260,9 | 1263,8 | 1279,5 | 1273,5 |
| <i>Dialysis per million inhabitants</i> | 673,8 | 688,3 | 697,8 | 708,0 | 709,5 | 720,4 | 717,7 | 718,8 | 715,4 |

Collège de médecins pour le centre de traitement de l'insuffisance rénale chronique
College van geneesheren voor het behandelcentrum van chronische nierinsufficiëntie

Table 2: Inflow on renal replacement therapy (dialysis or transplantation) per calendar year, 2009 – 2017

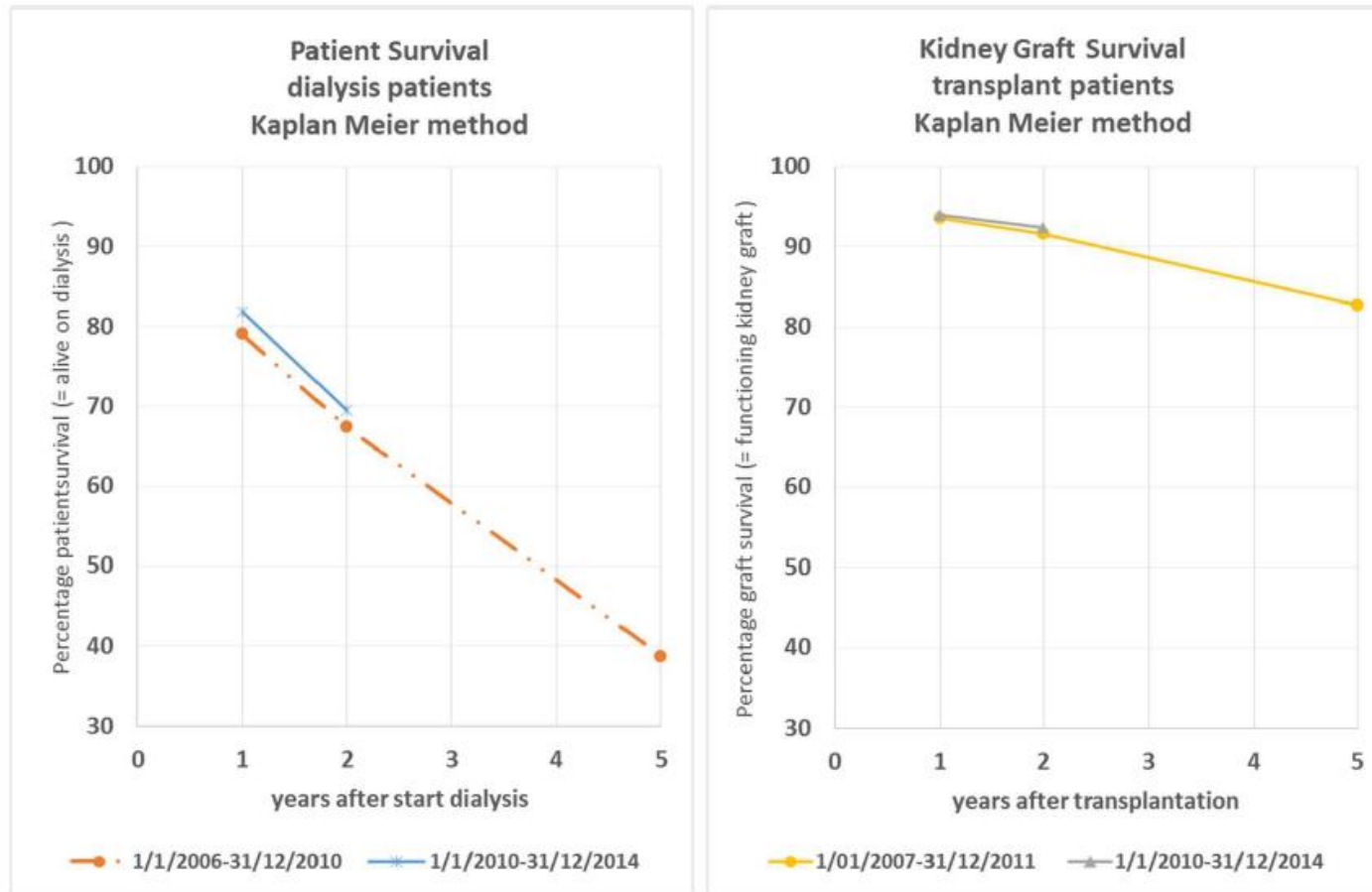
| <i>Inflow RRT</i> | 1/01/2009- 31/12/2009 | 1/01/2010- 31/12/2010 | 1/01/2011- 31/12/2011 | 1/01/2012- 31/12/2012 | 1/01/2013- 31/12/2013 | 1/01/2014- 31/12/2014 | 1/01/2015- 31/12/2015 | 1/01/2016- 31/12/2016 | 1/01/2017- 31/12/2017 |
|--|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Adults | | | | | | | | | |
| Inflow on dialysis | | | | | | | | | |
| de novo = first episode RRT | 2131 | 2067 | 1985 | 2034 | 2014 | 1937 | 2019 | 2041 | 2083 |
| <i>evolution de novo dialysis inflow %</i> | | -3,0% | -4,0% | 2,5% | -1,0% | -3,8% | 4,2% | 1,1% | 2,1% |
| Inflow transplantation - preemptive | | | | | | | | | |
| de novo = first episode RRT | 22 | 30 | 44 | 45 | 43 | 43 | 33 | 40 | 55 |

Table 3: Outflow out of dialysis by renal transplantation and by death, per calendar year, 2009 – 2017

| <i>Outflow dialysis</i> | 1/01/2009- 31/12/2009 | 1/01/2010- 31/12/2010 | 1/01/2011- 31/12/2011 | 1/01/2012- 31/12/2012 | 1/01/2013- 31/12/2013 | 1/01/2014- 31/12/2014 | 1/01/2015- 31/12/2015 | 1/01/2016- 31/12/2016 | 1/01/2017- 31/12/2017 |
|---|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Adults | | | | | | | | | |
| Transplantation (Source: Eurotransplant) | 455 | 424 | 468 | 492 | 457 | 438 | 495 | 480 | 485 |
| Death | 1376 | 1460 | 1398 | 1417 | 1442 | 1375 | 1352 | 1449 | 1447 |
| <i>Mortality per 100 patient years</i> | 16,4 | 17,0 | 16,1 | 16,0 | 16,2 | 15,2 | 14,9 | 15,8 | 15,6 |

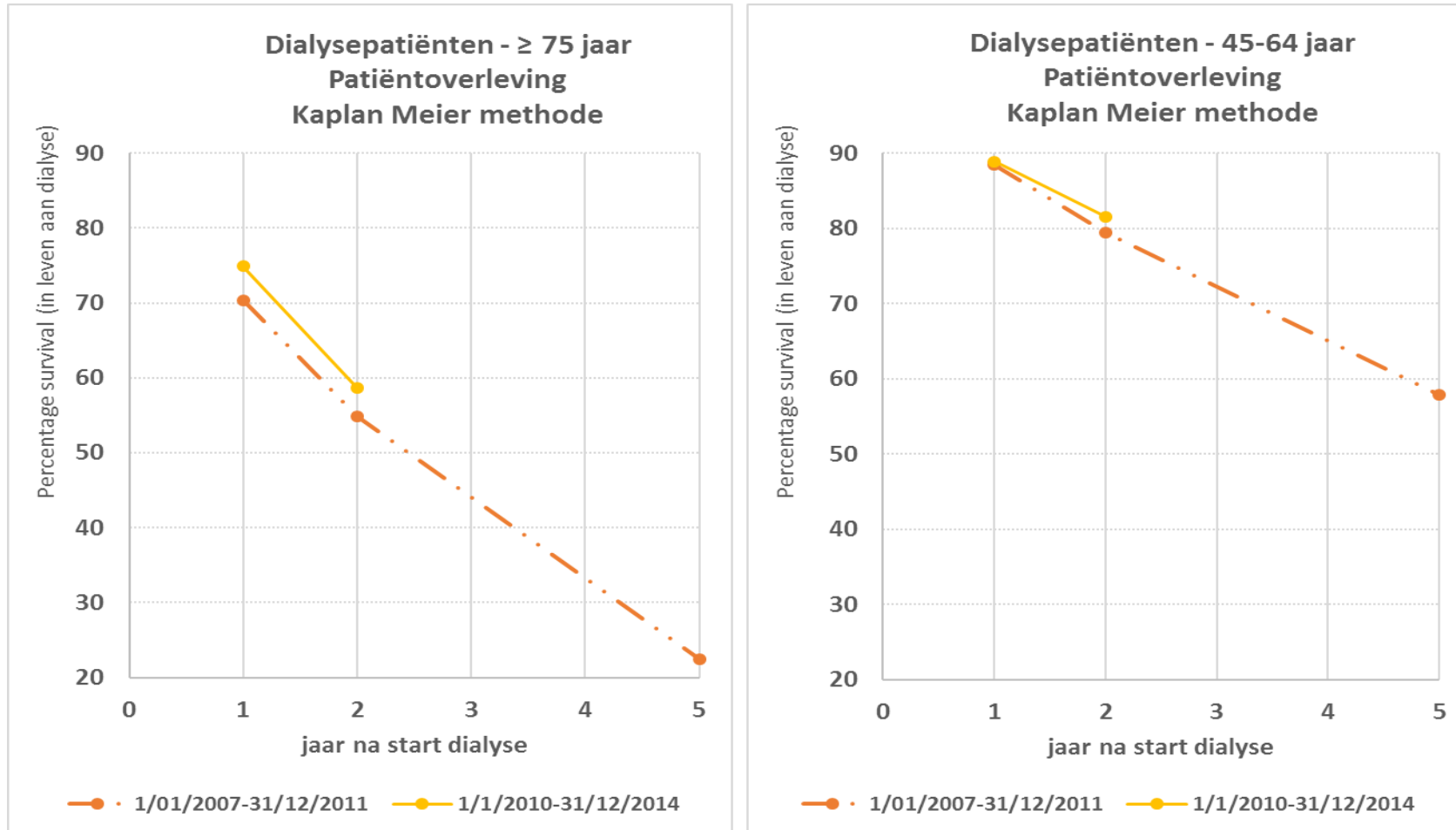
Chart 1: Kaplan Meier survival – comparing 2 different incident cohorts [2006-2010; 2010-2014]

- A. Patient survival – adult dialysis population, Belgium
- B. Renal transplant survival – adult renal transplant population, Belgium



Collège de médecins pour le centre de traitement de l'insuffisance rénale chronique
 College van geneesheren voor het behandelcentrum van chronische nierinsufficiëntie

Chart 2: Patient survival – adult dialysis population, Belgium – age categories ≥ 75 year & 45-64 years
 - Kaplan Meier survival comparing 2 different incident cohorts [2007-2011; 2010-2014]



**Collège de médecins pour le centre de traitement de l'insuffisance rénale chronique
College van geneesheren voor het behandelcentrum van chronische nierinsufficiëntie**

Chart 3: Expected remaining lifetime (years) of the Belgian general population, dialysis patients and patients living with a renal transplant, per age category – ERA-EDTA registry.

