Current situation of kidney transplantation in France

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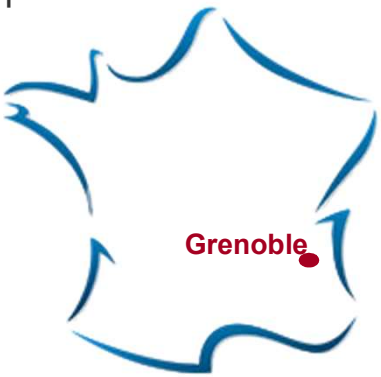


Grenoble university hopital

- 1400 beds
- Transplantation programs:
  - Heart
  - Liver
  - Kidney
  - Pancreas islets

➢ Kidney transplantation:

- ➢ Started in 1969
- ➢ The 3000th KTx was performed on October 10th 2019
- ➢ Around 140 KTx/year
  - ➢ 2/3 deceased donors (heart-beating and non-heart beating donors); of these 60% expanded criteria donors (ECDs)
  - ➢ 1/3 living (un) related donors
  - ➢ ABOi and HLAi KTx programs: the FIRST one in France

Transplant National Agency

- National Agency (Agence de la Biomedecine: ABM) : looks after
  - Organ transplantation
  - Tissue transplantation
  - Allogeneic bone marrow transplantation
  - Assisted medical procreation
  - In order, to be transplanted a patient has to be filed on the national data base of ABM

➢ When there is a suitable deceased donor, he/she is immediately declared at the national level (ABM) in order to find the best suitable recipient(s) across the country for each retrieved organ

DONORS (1)

Who can be a donor ?

- Deceased donors
  - Brain-dead donors
  - Donors after cardiac death (Maastricht 2 and Maastricht 3)
    - **Presumed consent but…**
  - ➢ The ABM requires to collect the family's opinion
    - ➢ 36% of the relatives refuse organ donation
    - ➢ Organ procurement : 25 per million inhabitants (highest rate in Europe: Spain 40.8; highest rate in the world USA : 41.6)

What is a marginal kidney ?
Expanded criteria donors (ECDs)

OPTN/UNOS 2002

1. donor age > 60 years

OR

2. donor age > 50 years

+ 2 risk factors:

- Arterial hypertension
- Terminal SCr level > 1.5 mg/dL
- Cerebrovascular accident as cause of death

Matas AJ. Am J Kid ney Dis. 2006;47:353–355

DONORS (2)

- More than 60% of brain-deaths are related to cerebrovascular hemorrhage
- DCD donors represents around 15% of deceased donors
  - Around 60% of brain-dead donors are ECD donors
    - This implies high risk for delayed graft function (DGF)
    - We need to have the shortest cold ischemia time as possible
    - DGF can be prevented by machine perfusion of the kidneys

PERFUSION MACHINES

- In France since 2016 it is mandatory to place on a perfusion machine any kidney from:
  - DCD donors
  - ECD donors
  - For the other types of deceased donors it is optional
    - The kidney and its machine are traveling
    - Perfusion machines are placed in the transplant wards and monitored by nurses
    - Cold ischemia time has to be below 16 hours

  Requires great skills from surgeon that retrieves the kidneys in order not to injure renal artery during cannulation process

DONORS (3)

- Living donors :
  - Restricted to kidney donation
  - Any friend (> 2 years of relationship) can donate
  - Medical workup is done by the transplant nephrologist (including inulin clearance or iohexol clearance)
  - Then the surgeon decides which kidney to remove/which surgery, i.e. laparoscopic or robotic (for obese patients, female patients)
  - AFTERWARDS the potential donor is audited by an ethical committee (they can say NO)
  - Finally, the last word (YES) will be given by the judge
  - ALL the workup, the donation, and the hospital stay(s) are fully covered by law by the hospital where kidney donation will be performed.

Organ Transplant Centers in France

- KIDNEY : 34 ; of these 3 are paediatric centers
- LIVER : 22 ; of these 2 are paediatric centers
- HEART : 16 centers
- LUNG : 12 centers
- PANCREAS : 9 centers

➢ These transplant centers are all:

- Public centers
- Affiliated to a University Hospital, except one (Hôpital Foch, Paris).

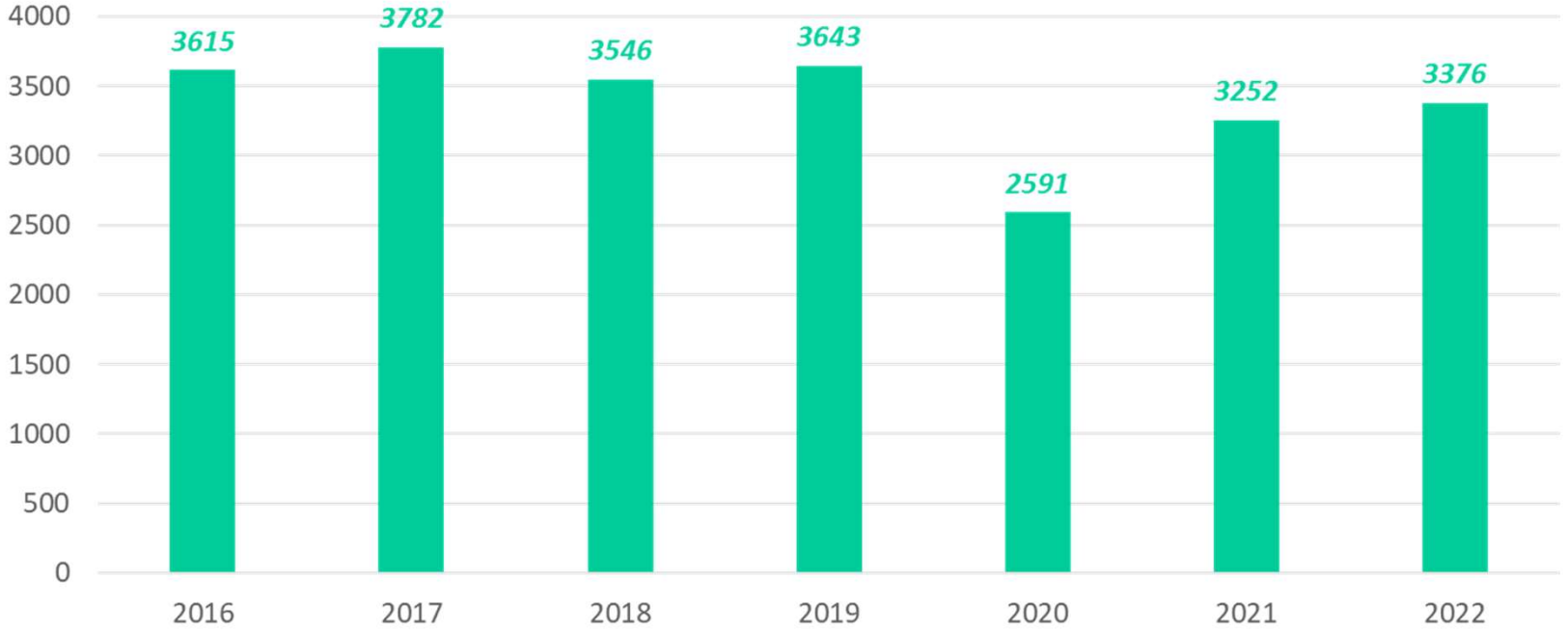
Kidney transplant allocation system

- For every deceased donor
  - 1 kidney is transplanted locally
  - 1 kidney is for the whole community :
    - 1/ kidney-pancreas recipient ?
    - 2/ highly sensitized recipient, i.e. PRA > 85%?
      - ✓ HLA matched ?
      - ✓ Permitted antigen program (virtual cross-match)?
    - 3/ best-matched sensitized patient
    - 4/ best-matched non-sensitized patient

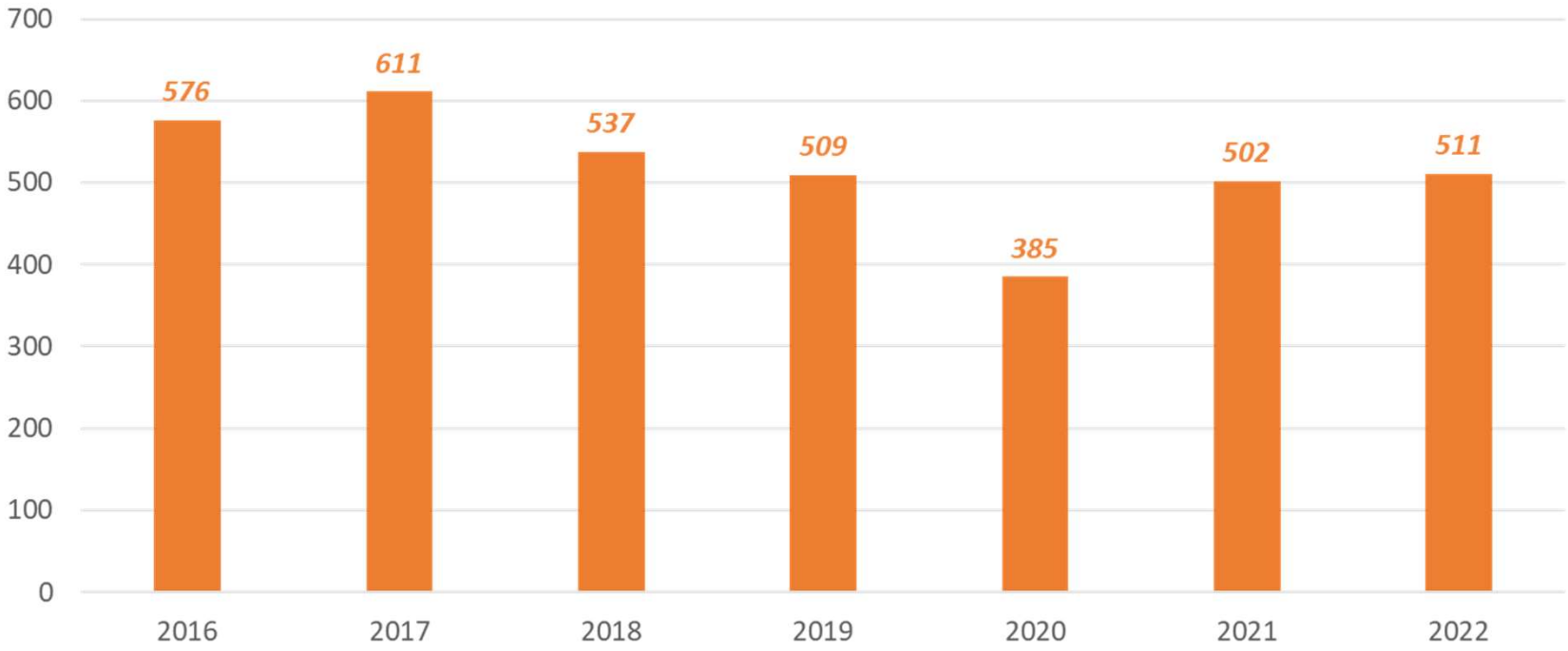
Pre-emptive kidney transplantation

- 48000 chronic dialysis patients in France
  - < 10% are treated by peritoneal dialysis
- 21000 dialysis patients on the kidney transplant waiting list
  - ~ 3700 kidney transplantations/year (of these 650 are from living donors)
- It is possible to list patients before dialysis is started:
  - so far 1/3 of kidney waitlisted patients are NOT yet on dialysis.

Kidney transplantation in France (deceased + living donors)



Kidney transplantation in France with living donors



Who is in charge of the transplant recipients ?

* Kidney recipients:

§ In most of the cases, the nephrologists

§ Sometimes, the urologists

* Liver recipients:

§ 50% centers : hepatologists; 50% of centers: liver surgeons

How are we organized in Grenoble ? (1)

There is NO organ transplant center but instead scattered units/organ

- We have > 800 kidney transplant candidates
  - about 140 KTx / year (more than 150/year before 2020)
    - 100 deceased kidney transplants; of these > 60% are ECDs, and 15% are DCDs
    - 40 live-kidney donors
- We have a kidney transplant unit managed by both nephrologists and urologists
- We follow-up around 2000 KTx patients with a functioning graft
  - Of these more almost 500 are on Belatacept-based therapy
  - About 100 are on Tocilizumab-based therapy for chronic ABMR

How are we organized in Grenoble ? (2)

Kidneys at risk for delayed-graft function (DGF) are placed on a perfusion machine

- About 20% of patients will present DGF
  - Mostly from ECD donors
  - Almost all kidneys from donors after cardiac death

How are we organized in Grenoble ? (3)

We are a reference center for incompatible kidney transplantations

* ABO incompatible cases – living kidney- (with recipients older than 80 years)

* HLA incompatible kidney transplantation, i.e. presence at pretransplant of DSA (s), with positive CDCor flow cytometry cross-match

* desensitization strategies (Rituximab, Tocilizumab, apheresis = immunoadsorption, and soon Imlifidase)

How are managed kidney transplant candidates ?

- KT candidates are coming from the whole Grenoble's area, i.e. at around 20000 km², and 3 millions inhabitants.
  - we also have a lot of dialyzed migrants
- They are referred by 10 big dialysis centers
  - Examined by the transplant nephrologist, then examined by the transplant urologist and its attending anesthesiologist
  - Suitable or not suitable for kidney transplantation

Thank you for your attention