Yerevan State Medical University

“Arabkir” Medical Centre

Armenian experience in kidney transplantation:

Achievements and the challenges

Ashot Sarkissian (Yerevan, Armenia)

The first joint conference of the South Caucasian countries

Tbilisi, 13-14 September 2023

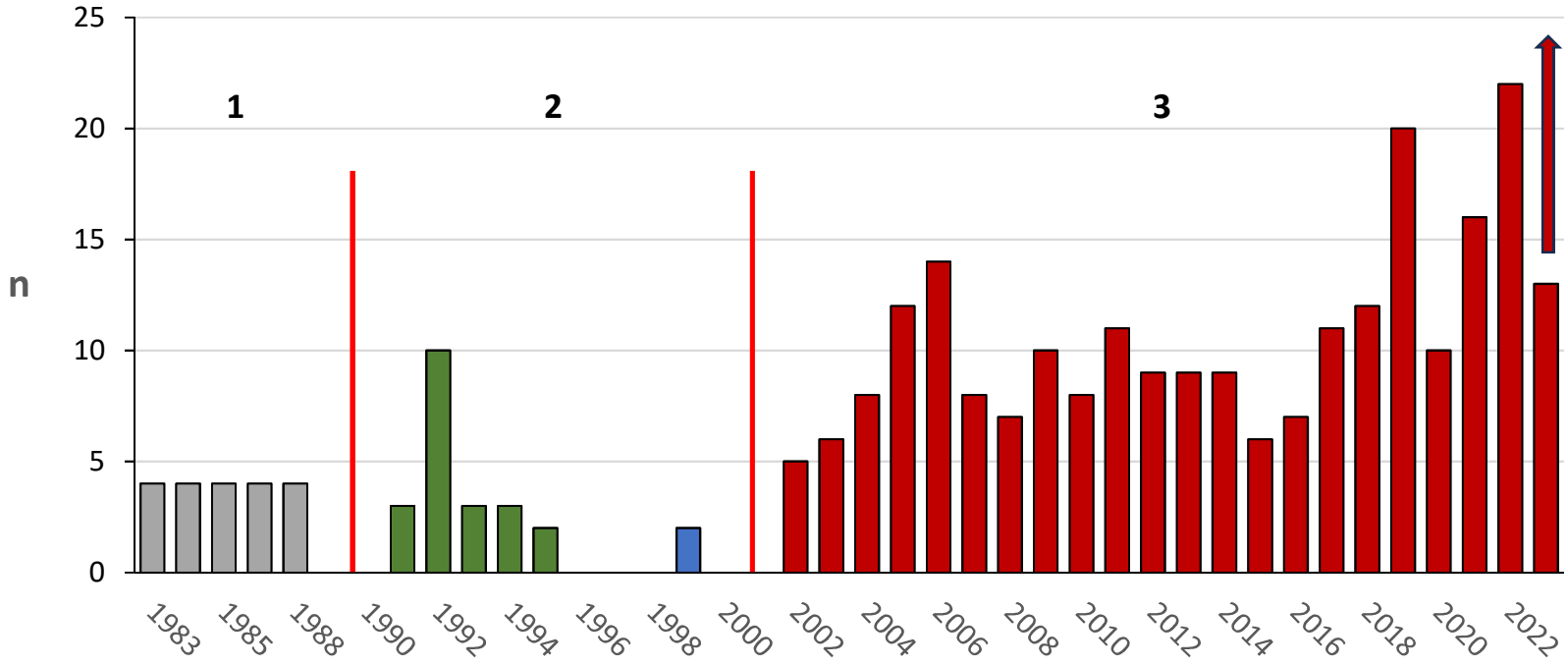
Demographics and RRT data of Armenia

- Teritory 29,800 km^2
- Papulation - 2,976,800 (Jan 2023 est.)
- Children (age< 18 years) – 25%
- Dialysis centers – 18 (in Yerevan - 6)
- Hemodialysis population ~ 1100 pts
- Chronic PD – 1 pts (just started)
- Kidney Transplant Centers – 1 (Arabkir Medical Centre, Yerevan)
- Number of Kidney Transplantations done so far (since 1983) ~ 280

Milestones of Renal Replacement Therapy in Armenia

▪ First Hemodialysis Unit	1972
▪ First Deceased Donor Kidney Transplantation	1983
▪ First Living Donor Kidney Transplantation	1995
▪ Number of kidney transplant centers	1
▪ Organ transplantation law adopted by Parliament	2002
Revised (presumed consent)	2009

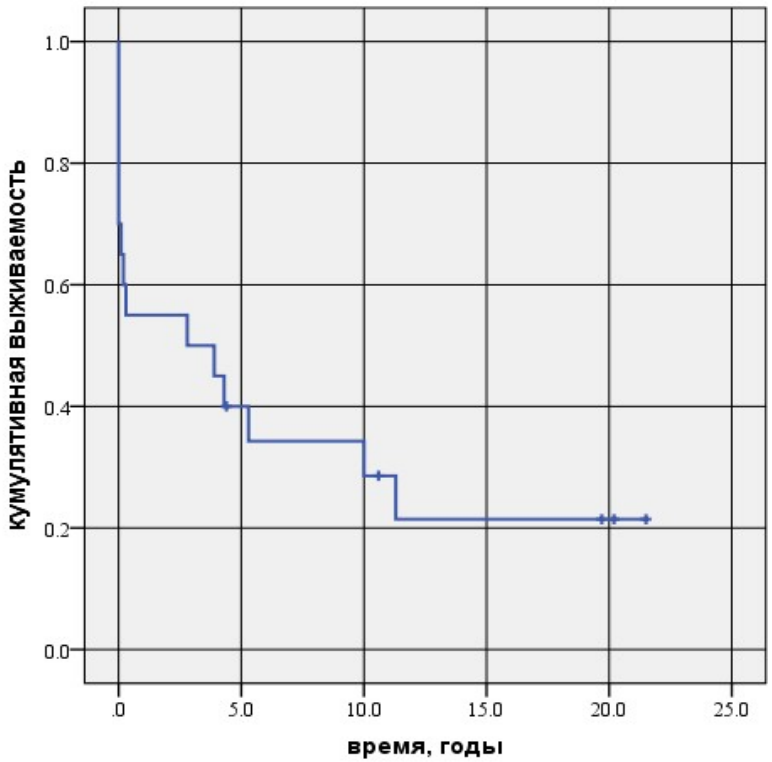
Number of Kidney Tranplantation Since 1983 (N ~ 280)



KT from deceased donors: 1991-1995 (n=21)

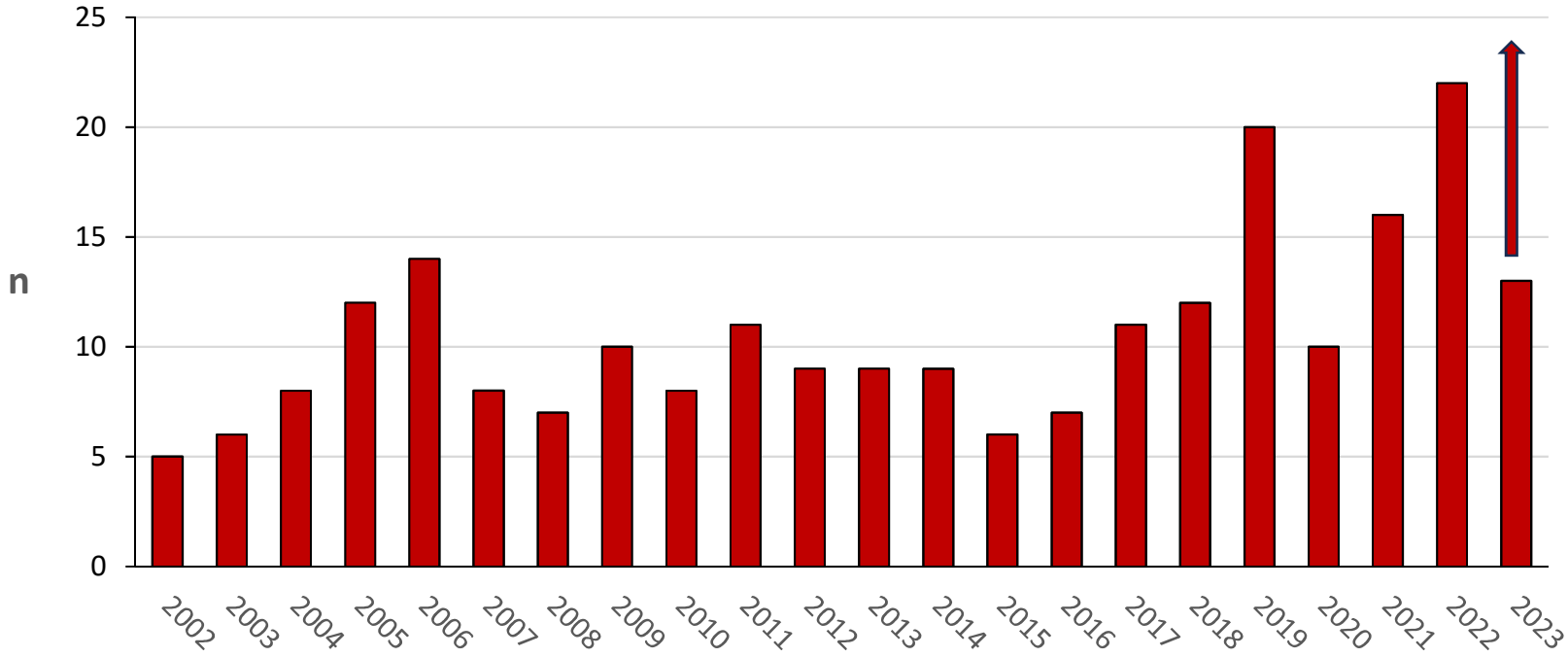
- No HLA-typing
- CsA + Prednisolone + Azathioprine
- No possibility to check CsA concentration
- Long cold ischemia time (sometimes more than 30h)
- Acute rejection episodes – 21; 100%
- Kidney Rupture – 8 (7 nephrectomy)
- Death – 6 (5 at early postop period)

Graft survival: 1991-1995 (n = 15)



- 1-year 55%
- 3-year 50%
- 5-year 40%
- 10-year 28,6%

Number of Tx (2002-2023; n=233)



Methods

- Work-up of patients was according to European protocols
- Tissue typing is done locally (HLA, X-match: CDC, flow cytometry)
- Immunosuppression provided by state
- Blood CsA, Tacrolimus levels are determined locally
- Transplant biopsies are evaluated in Yerevan, Zurich and Bern
- No CMV prophylaxis

2002-2023: Recipients & Donors (n=233)

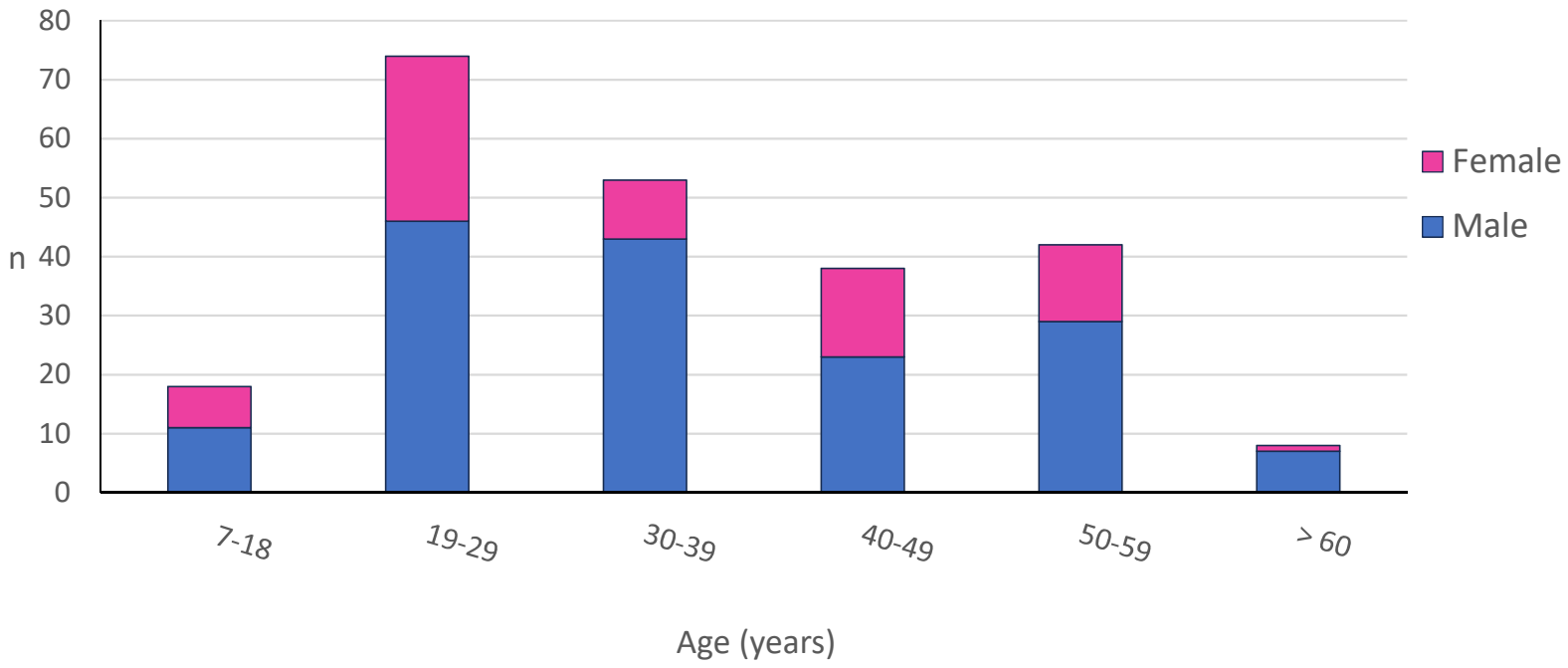
Recipients:

- Mean age – 36.0 ± 13.2 y
- Age range – 7.1– 65.7 y
- Male – 159 (68.2%)
- Children – 15 (6.4%)
- HD duration – median 10.4 mo
- Pre-emptive KT – 12

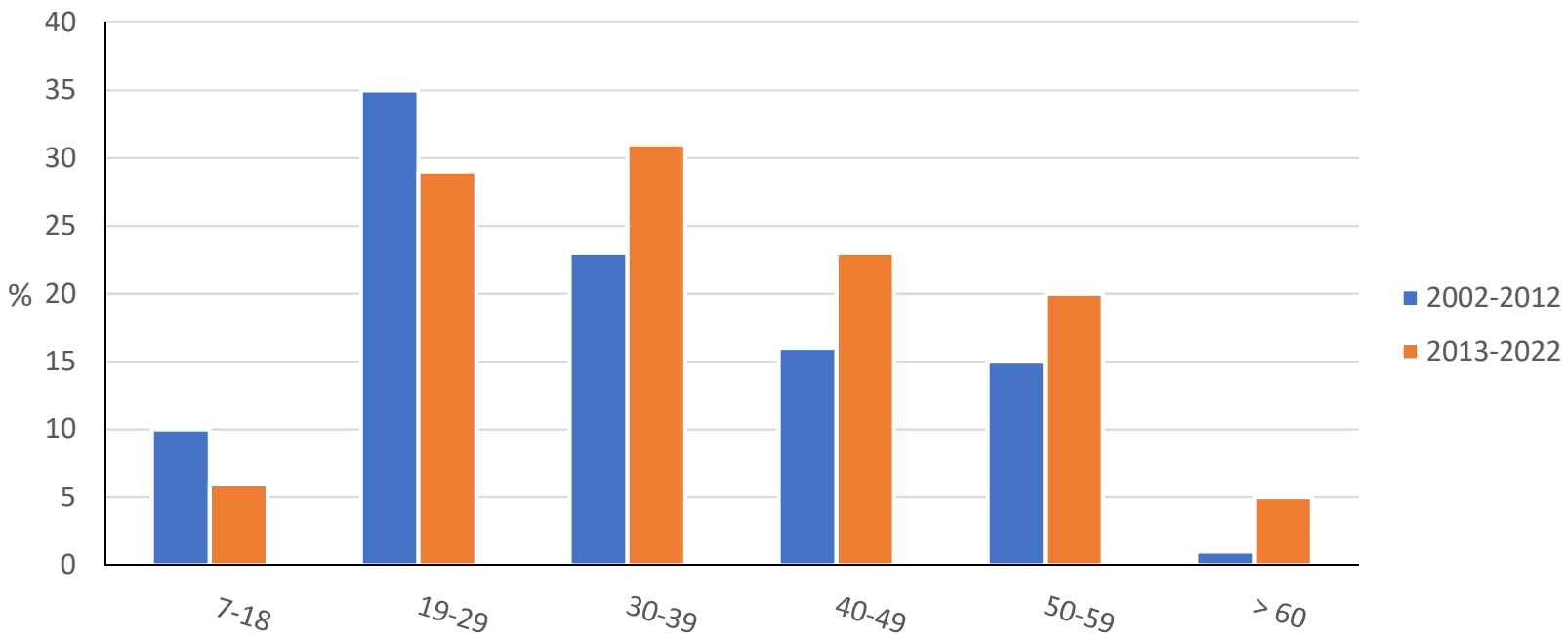
Donors:

- Mean age – 44.6 ± 8.6 y
- Age range– 28.4-65.0 y
- Female – 143 (61.4%)
- Relationship
  - ✓first degree – 95 (40.8%)
  - ✓spouse – 8 (3.4%)

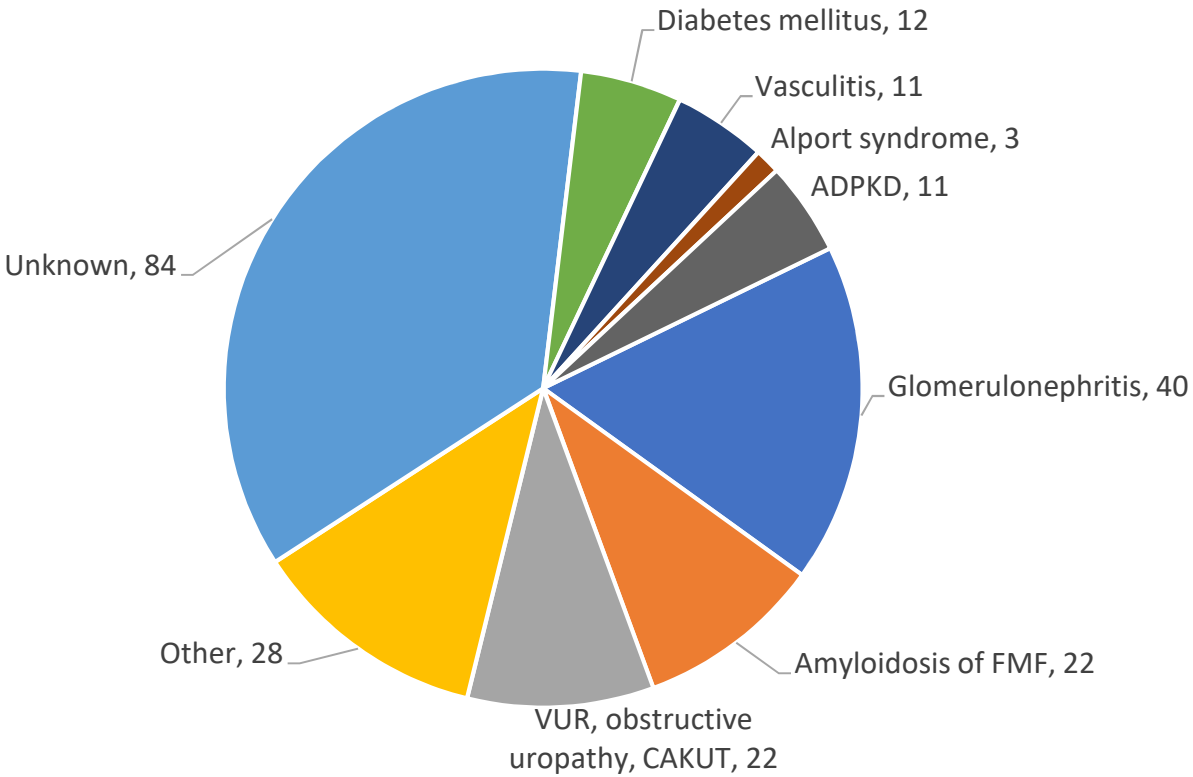
Age and Gender of Recipients (n=233)



Age: 2002-2012 (n= 98) vs 2013-2022 (n=135)



Primary kidney diseases (2002-2023; n=233)



Primary kidney diseases:
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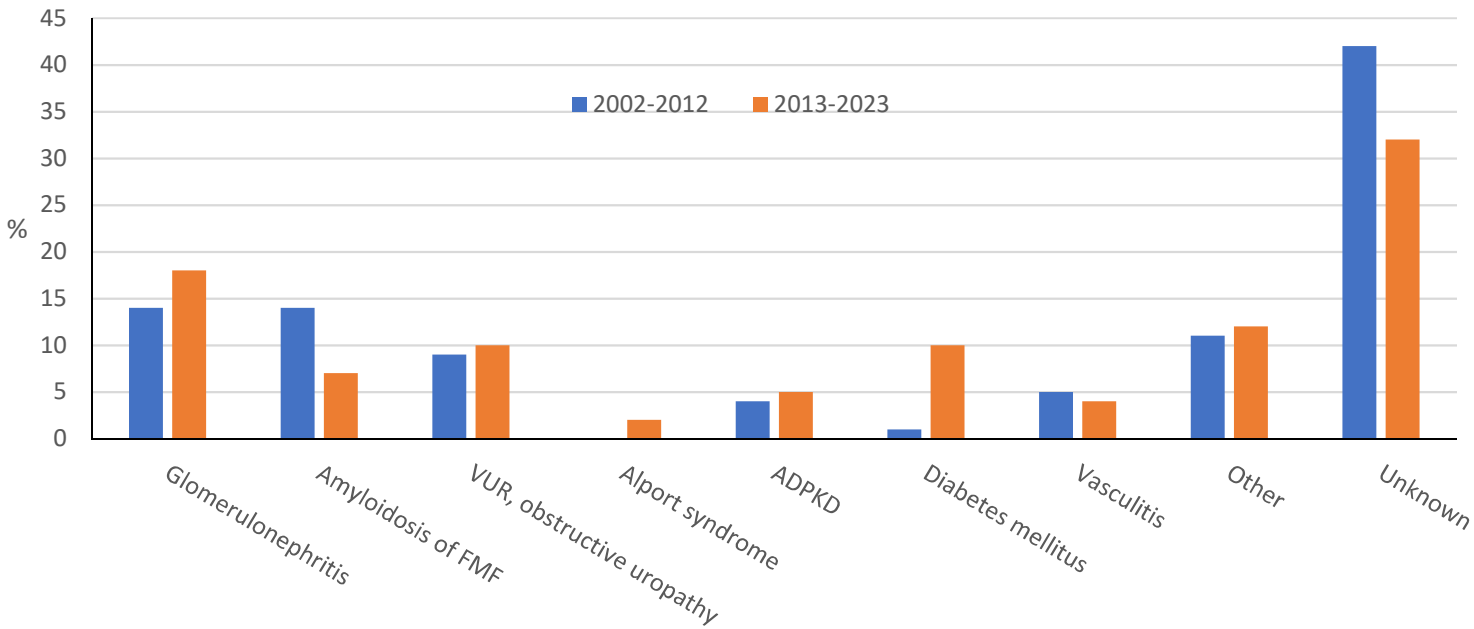


Immunosupression

- Induction therapy with Basiliximab (in all since 2008)
- Triple immunosuppression: steroids + CNI + antimetabolites
  - Cyclosporine A + MMF + Pred
  - Cyclosporine A + Aza + Pred
  - Tacro + MMF + Pred
  - Tacro + Aza + Pred

Surgical complications (2002-2019; n=172)

Intraoperative	
Bleeding	3
Subcapsular hematoma, rupture	1
Detachment of Iliac arthery and thrombosis	1

Total 74

Postoperative	
Lymphocele	47
Stenosis/necrosis of distal ureter	5
Bleeding	4
Wound infection/secondary intention	3
Subcutaneous seroma	2
Stenosis of proximal ureter	2
Urethral stenosis	2
Ventral hernia	2
Intestinal obstruction	1
Arteriovenous fistula after biopsy with rupture	1

Babloyan S et al. Kidney Transplantation in Low to Middle Income Countries: Outcomes and Lessons Learned from Armenia. Ann Transplant, 2021; 26: e910943 (1-7)

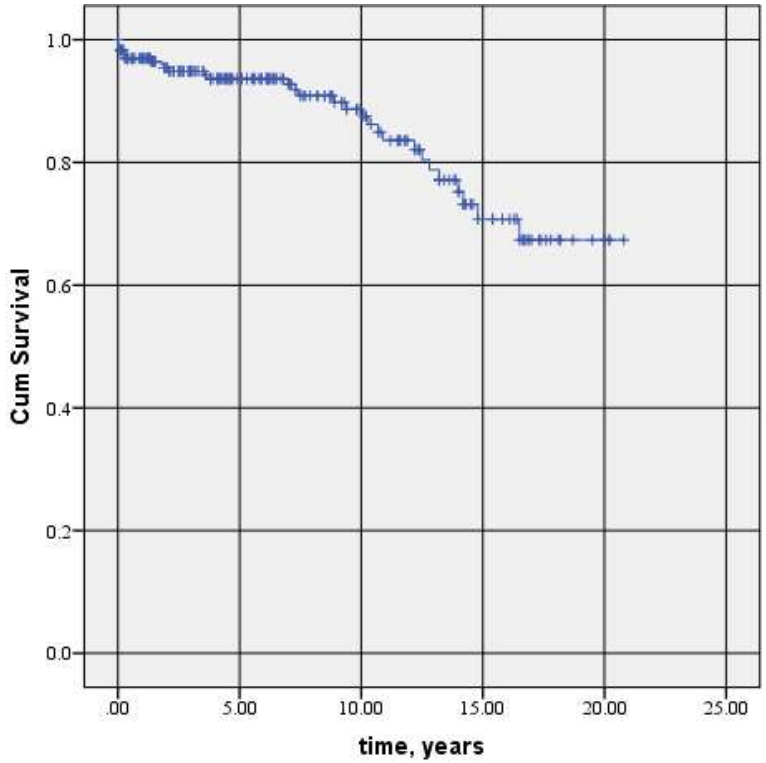
2002-2023: main complications (n=233)

- Rejection – 80 (34.3%), 26 (11.1%) pts - >1 episode
- Tubulonecrosis – 20 (8.6%)
- HD after KT – 17 (7.3%), 6 stayed on HD
- CMV – 35 (15%)

  R-/D+ 7 pts, 2 developed CMV disease

  3 pts received prophylaxis (2 on ATG therapy)
- Non-compliance – 17 (10.3%), 9 lost Tx
- Post-transplant diabetes – 22 (9.4%)
- Oncology – 13 (5.6%), 7 pts died

2002-2022: Graft Survival (n=233)

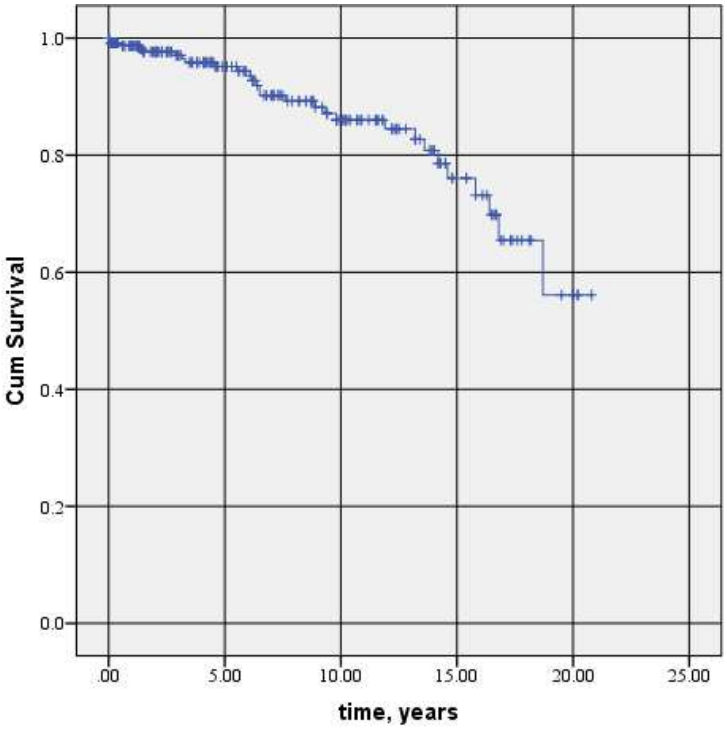


1-year	97.0%
3-years	94.7%
5-years	93.7%
10 years	88.7%

2002-2023: Causes of graft failure (n=30)

CAN	10
Non-compliance	8
Rejection	6
Surgical	3

2002-2022: Patients' survival (n=233)



1-year	98.7%
3-years	97.1%
5-years	95.1%
10 years	86.0%

2002-2023: Causes of death (n=28)

Cardio-vascular	9
Cancer	7
COVID	4
GI bleeding	2
Multiorgan failure	3
Systemic amyloidosis	1

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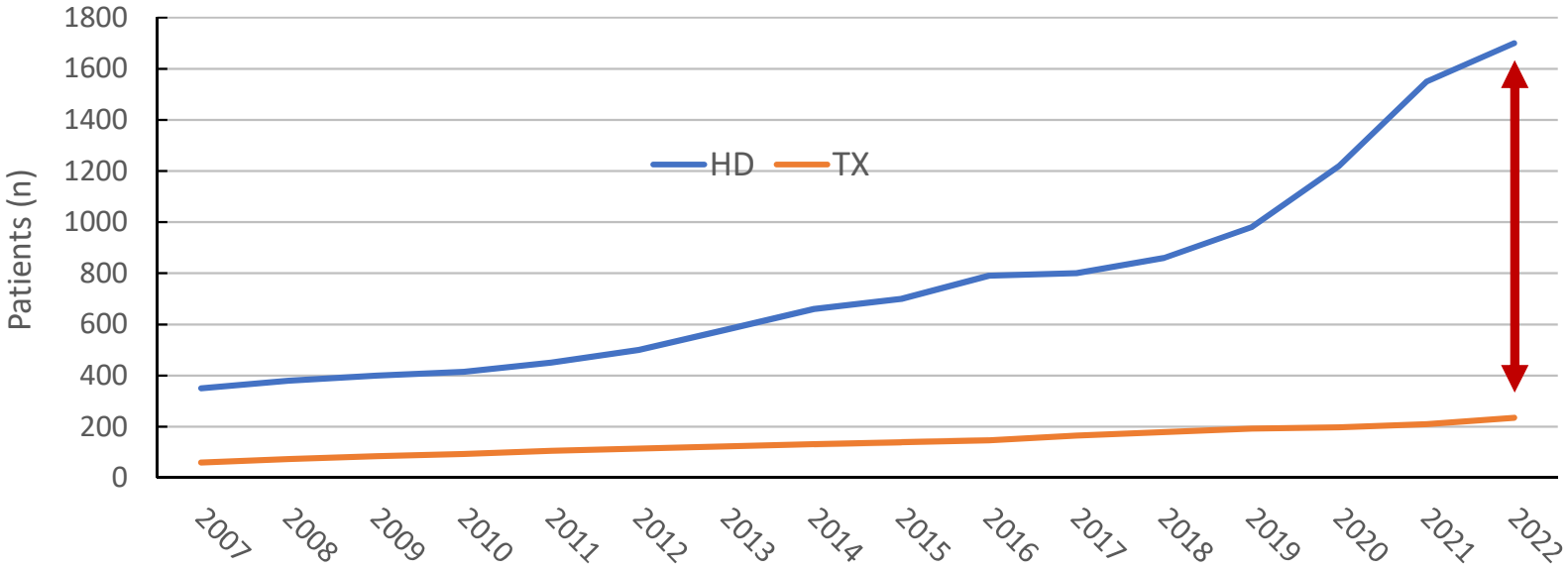
ARMENIAN FIRST TRANSPLANT GAMES

TIBHAR SMASH 28 R

Problems/Perspectives

- Renal pathology
- Luminex (DSA)
- Generics (supply)
- Laparoscopic nephrectomy
- Financing
- ?

Patients: Hemodialysis vs Transplants



Conclusions

- Kidney Tx can be carried out successfully even in a settings of with limited resources
- Absence of such a program would create great injustice (only wealthy patients would be able to get a graft by traveling abroad)
- Instrumental to success was solid training, sufficient – albeit modest – infrastructure, and continuous support from many sides
- The living donor Tx program should be complemented by one with deceased donors

Acknowledgment

- Antwerp University Hospital, Belgium (SRC program)
  - ✓ Prof. Debroe, ME
  - ✓ Prof. Verpooten, G
  - ✓ Prof Ysebaert, D
  - ✓ Dr. Chapelle, Th
- University Children's Hospital of Zurich, Switzerland
  - ✓ Prof Leumann, EP
- Hopital Regional de Porrentruy, Switzerland
  - ✓ Dr. Bernhardt, JP
- Hopital Saint Louis, Paris, France
  - ✓ Dr. Bedrossian, J
- University Hospital of Bern (Inselspital), Bern (SRC program)
  - ✓ Prof. Vogt, B
- Guy's Hospital, London, UK (STC program)
  - ✓ Prof. Mamode, N
  - ✓ Dr. Manook, M

Our Transplant Team

1991

Thank you for your attantion!