

History of kidney transplantation in Poland



Magdalena Durlik

Department of Transplantation Medicine, Nephrology and Internal Diseases, Transplantation Institute, Medical University of Warsaw

Corresponding Author: Professor Magdalena Durlik

59 Nowogrodzka Str., 02-006 Warszawa

Tel: (+48 22) 502 12 32; Fax (+48 22) 502 21 26; E-mail: mdurlik@wum.edu.pl

ABSTRACT

The history of renal transplantation in France began with 2 surgeons from Lyon, M. Jaboulay and A. Carrel. The latter initiated the proper techniques of vascular suture, performed the first experiments in animals, initially in Lyon, then in Chicago with C. Guthrie and demonstrated that failure in obtaining a prolonged success was due to an immunological rejection of the graft. Trials in humans began in France in the 1950s with transplants from healthy donors. All ended in failure, although in 1953 the conjunction of a donor mother and a previous irradiation of the recipient allowed a survival of 3 weeks in the patient. J. Hamburger in France and J. Murray in the USA tried transplantations in monozygotic twins, then dizygotic ones, which represented the first successes. A decisive jump occurred with the arrival of immunosuppressors (combination of azathioprine and prednisone) which allowed R. Küss to win the first success in recipients that were unrelated to their donors. At the same time, J. Dausset described the Human Leucocyte Antigen (HLA) groups, markers of tissular immunogenicity, thus allowing the most appropriate donors to be selected. To the living donors were added soon the patients in irreversible coma, which made it possible to increase the number of grafts. Despite obstacles and doubts, kidney transplantation developed rapidly and was accepted as the most efficient treatment of chronic renal failure. The role of French and American physicians was decisive in this success.

KEYWORDS: transplantation, kidney, history

Introduction

The first successful cadaveric kidney transplantation in Poland was performed in Medical University in Warsaw on January 26th 1966 by professor Jan Nielubowicz and his team (Waldemar Olszewski, Jerzy Szczerbań i Wojciech Rowiński). The recipient 18 year-old nursing school student had been prepared and taken care afterwards by nephrologists Professor Tadeusz Orłowski and his team. The operation went well and the patient was discharged home 3 weeks after transplantation. The patient died 6 months later with well functioning graft due to acute pancreatitis (1, 2). Soon after Professor Wiktor Bross in Wrocław performed the first in Poland kidney transplantation from living related donor on March 31st 1966. At the time when the first cadaveric kidney transplantation was performed in Poland the World Registry organized by professor Joseph Murray recorded only 600 such procedures in the world. It was a great success of Polish medicine. This was followed by some attempts in other centres which however were abandoned very soon and the program until eighties was continued in Warsaw only. The surgical team had been preparing to start the clinical transplantation program for over two preceding years in Surgical Research Laboratory headed by prof. Jan Nielubowicz. Prof. Wojciech Rowiński learned transplantation medicine as research fellow in Peter bent Brigham Hospital in Boston in 1965. 1967 laboratory In Warsaw Transplant Centre produced anti-dog, anti-rat, anti-human anti-lymphocytic sera (ALS) and purified globulins in horses, goats, pigs and rabbits. Evaluation of effect of administration of ALS on renal graft survival in dogs was performed. The team one of the first in the world prepared rabbit-anti-thymocyte serum used in transplant patients (3, 4).

Up to 1976 some 80 cadaver (10-12 per year) and several living related donor kidney transplantations were performed. Since 1977 the number of kidney transplantations in Poland slowly increased to 40-46 per year (5, 6). The legal limitations were not helpful. Cadaveric kidneys procurement was considered as an element of post-mortem examinations. The diagnosis of brain death was well known but not legally permissible. Harvesting of the kidneys was done after cardiac arrest which resulted of high rate of ischemic injury of the organ. At early eighties revival of transplantation programs in other Medical School hospitals: Wrocław, Katowice, Gdańsk, Kraków, Szczecin was started. In Warsaw in addition to Department of Vascular Surgery and Transplantology (headed by prof. Nielubowicz, thereafter by prof. Jacek Szmidt) two other transplant centres were set up; Department of General and Transplantation Surgery (1983 headed by prof. Wojciech Rowiński) and Children's Memorial Health Institute where the first cadaveric kidney transplantation was performed in 1984 by prof. Wojciech Kamiński and prof. Czesław Szymkiewicz. In 1985 the first kidney transplantation from living donor was done. The forth transplant centre in Warsaw was established in Hospital of Internal Affairs in 1990 headed by prof. Marek Durlik (7, 8).

Professor Tadeusz Orłowski created in 1975 the Transplantation Institute in Warsaw Medical University which consisted of two medical departments and department of experimental immunology with the tissue typing laboratory. The pretransplant assessment and the post-transplantation care including immunological monitoring were done in Institute. Both surgical transplant units closely cooperated with Institute. For several years Transplantation Institute was the leading transplant centre in Poland. In 1987 the new

protocol originally developed in the Transplantation Institute showed that addition of promethazine to standard immunosuppression (before CsA era) resulted in better graft survival (9).

Regarding legal regulations of organ retrieval Transplant Act on Cells, Tissues and Organ Retrieval and Transplantation was issued by Parliament and signed by President in 1995. It was updated in 2005. The act approved presumed consent for organ retrieval, regulated living donor organ donation, penalized commerce in organ transplantation. In 1993 National Transplantation Council was established by Ministry of Health, main tasks of this advisory body were to elaboration of strategy for development of tissue and organ transplantation, popularisation of the idea of organ donation and transplantation among general public, education of medical students and staff in organ donation and transplantation, active participation in creating legal regulations concerning organ and tissue transplantation. POLTRANSPLANT- Polish Organ Procurement and Sharing Organization was established in 1996 (headed by prof. Janusz Wałaszewski), National Specialist in the Field of Clinical Transplantation (prof. Wojciech Rowiński) as executive body was appointed in 1996 (10, 11). In 1993 the Polish Transplantation Society was established, the first President was elected prof. Mieczysław Lao head of the Transplantation Institute in Warsaw.

In the early 80-ties kidney transplantation programs were started in a number of Medical School hospitals across the country.

In Wrocław renewal of transplant program was started in 1983 by the surgeon prof. Klemens Skóra and nephrologist prof. Zenon Szewczyk. Since 1989 one hundred cadaveric kidney transplants were performed. In 1988 second transplant centre in Voivodship Hospital was created headed by prof. Wojciech Witkiewicz (12).

The first two kidney transplantations from living related donors in Upper Silesia region were performed in 1966 (September, November) by doctor Józef Gasiński in hospital in Bytom in cooperation with nephrologist prof. Zbysław Twardowski. Both recipients died due to sepsis after 28 and 136 days respectively. Renewal of transplant program was started in Department of General Surgery in Medical University in Katowice. In 1983 prof. Roman Kurzbauer performed 4 cadaveric kidney transplants, all of them failed due to infectious complications. Under new head of Department of General Surgery prof. Stanisława Kuśmierskiego with cooperation with Nephrology Department headed by prof. Franciszek Kokot in 1984-1990 more than 200 kidney transplantation were performed (12).

In Krakow 9 kidney transplantations (one from living donor) were performed by doctor Romuald Drop, first in march 1975.

The responsible nephrologist was prof. Zygmunt Hanicki. In 1992 renewal of transplant program was reported by prof. Tadeusz Popiela and doctor Jerzy Bucki in cooperation with nephrologist prof. Władysław Sułowicz (12).

In Gdańsk the first kidney transplantation in Medical University was done on 31st August 1980 by prof. Wojciech Gacyk and prof. Jerzy Dybicki in cooperation with Department of Nephrology headed by Andrzej Maniatus thereafter by prof. Bolesław Rutkowski (12).

In Szczecin the first kidney transplantation was performed in 1980 in II Department of Surgery in medical University by prof. Stanisław Zieliński. The second transplant centre in Szczecin was established in 1983 in Voivodship Hospital by doctor Marek Umiński, prof. Marek Ostrowski and doctor Janusz Lapis (12).

In the Białystok Medical University the first kidney transplantation was performed in 1989 by prof. Stanisław Głowiński with help of prof. Jacek Szmidt from Warsaw in cooperation with Department of Nephrology headed by prof. Michał Myśliwiec (12).

In Poznań in Medical University the first kidney transplantation was performed in 1985 in Department of General Surgery and Gastroenterology by prof. Adam Deja in cooperation with prof. Maciej Krzymański and prof. Andrzej Oko from the Department of Nephrology. The second transplant centre was created in Poznań in 1994 in Voivodship Hospital by prof. Zbigniew Włodarczyk, Konstanty Tukałło, Adam Deja and Maciej Głyda (12).

In Łódź two transplant centres started their activity in 1996, first in the Medical University in Department of Surgery headed by prof. Janusz Wasiak and prof. Janusz Strzelczyk in cooperation with prof. Witold Chrzanowski from Department of Nephrology, second in Pirogow Voivodship Hospital headed by prof. Józef Matych (12).

In Lublin transplant program was started in 1994 in the Medical University by prof. M. Jesipowicz, prof. S. Stettner, and prof. S. Rudzki in cooperation with prof. Andrzej Książek, head of the Department of Nephrology (12).

In Bydgoszcz prof. Zbigniew Włodarczyk created new transplant centre in 2000 year.

The youngest transplant centre was established in Olsztyn in 2010 by prof. Wojciech Rowiński and doctor Andrzej Kobryń (12).

During the 51 years since first renal transplantation until December 31st 2016 the total number of 22,658 kidney from deceased donor and 766 kidney from living donor transplantations were performed in Poland. Currently there are 21 kidney transplant centres performing 1000 transplants per year in Poland (13).

REFERENCES

1. Orłowski T, Nielubowicz J, Gradowska L, Rowiński W, Kłopotowska E. (1966) Function of a transplanted kidney. *Pol Arch Med Wewn.* 37(1):47-54. Polish. PubMed PMID: 5330481
2. Nielubowicz J, Orłowski T, Rowiński W, Szczerbań J, Szostek M, Kamiński B, Olszewski W, Ladygin J, Lao M, Gradowska L. (1966) Transplantation of kidney from cadaver. *Pol Przegl Chir.* 38(10):1030-4. Polish. PubMed PMID: 5341716
3. Rowiński W, Szmidt J, Rosnowska M, Baraniewski H, Grupańska E, Tupalska B, Brühl A, Krawczyński K, Madaliński K, Nowosłowski A. (1970) Effect of long-term administration of horse antilymphocyte serum to healthy dogs. *Pol Arch Med Wewn.* 45(2):281-9. Polish. PubMed PMID: 5471505
4. Rowiński W, Szmidt J, Brühl A, Dziedziul S, Tupalska B, Baraniewski H, Grupańska E, Opertowski A, Nielubowicz J. (1970) Production and titration of antilymphocyte serum for use in dogs. *Pol Arch Med Wewn.* 45(2):275-80. Polish. PubMed PMID: 4919365
5. Nielubowicz J, Orłowski T, Wesolowski S, Falda Z, Gradowska L, Rowińska D, Rowiński W, Skośkiewicz M, Szostek M,

- Filipowicz Z, Glyda J, Goliszek Z, Jedrzejewski R, Kardasiewicz W, Klepacka J, Kłopotowska E, Kossowska B, Koziak H, Krzywicka E, Lao M, Ladygin J, Marzinek B, Miller J, Michalowicz B, Machowski Z, Olszewski K. (1970) Results of kidney transplantation in the Warsaw center. *Pol Arch Med Wewn.* 45(2):175-8. Polish. PubMed PMID: 4919357
6. Rowiński W. (1970) Results of kidney transplantation in Poland. *Pol Arch Med Wewn.* 45(2):267-73. Polish. PubMed PMID: 4919364
 7. Rowiński W. (1996) History of organ transplantation in Warsaw. A personal perspective. *Ann Transplant.* 1(1):5-8. PubMed PMID: 9869929
 8. Lao M, Gradowska L, Stryjecka-Rowińska D, Szmidt J, Rowiński W, Wałaszewski J. (1997) Kidney transplantation in Warsaw and Poland in the years 1966-1996. *Pol Arch Med Wewn.* 98(10):294-303. Polish. PubMed PMID: 9557082
 9. Orłowski T, Gaciong Z, Paczek L. Promethazine.(1987) results of triple-drug immunosuppression for kidney transplantation. *Transplant Proc.* 1987 Feb;19(1 Pt 3):2124-5. PubMed PMID: 3079074
 10. Rowiński W, Lao M, Wałaszewski J, Lisik W. (1996) Social, legal and medical limitations of organ transplantation in Poland. *Ann Transplant.* 1(3):36-40. PubMed PMID: 9869918
 11. Rowiński WA, Wałaszewski JE. (1996) Organizational aspects of organ procurement. *Ann Transplant.* 1(4):61-4. PubMed PMID: 9869909
 12. Book: *Homo Homini, Dzieje wybranych ośrodków transplantologicznych w Polsce*, 2012, Publicat.
 13. poltransplant.org.pl