

IV. IMMUNOLOGY, IMMUNOGENETICS, TRANSPLANTATION

SCIENTIFIC-ORGANIZATIVE BASES OF THE COLLABORATION IN RENAL TRANSPLANTATION WITH THE INTERNATIONAL SYSTEM "INTERTRANSPLANT"

E. M. Balakirev

Renal transplantation (RT) is the most often clinical operation in transplantation as a whole and a total number of 3500 patients annually receive their new kidneys. The number of transplantation centers increases constantly. In USSR until now functionate 18 transplantation centers where have been operated more than 2000 patients. In the rest socialistic countries (Bulgaria, Hungary, DDR, Poland, Czechoclovakia) the number of such centers is 13.

In the clinical practice recently is applied quite often already second operation of RT; new types artery-venous fistules for haemodialysis are invented; principally new and modern methods of extrarenal clearance are developed and applied in the practice. RT provides certain possibilities for the approbation of all scientific, organizative, methodical, clinical and practical questions and problems, thus improving and accelerating the application of other vitally important organs' transplantations. Just at this point was indicated for the first time the necessary mutual collaboration between all transplantation centers in the country and those from other countries in Europe and the world, specially concerning the exchange of donors' organs and their proper distribution. In Europe only were organized 5 large and multiple systems working their scientific programme in RT, based on the cooperation and collaboration between transplantation centers in and out of the country.

At the end of the 70-ies (1978—1979—1980) in the socialistic countries already existed all necessary conditions for the organization of future collaboration in RT. During 1980 as a result of enormous scientific-organizative work of the leading transplantologists in socialistic countries was created "Convention for international collaboration in RT— INTERTRANSPLANT", which was signed by the ministers of Health in the name of the governments of Bulgaria, Hungary, DDR, Poland, Czechoslovakia and USSR.

The organization of the System INTERTRANSPLANT is a new step in the perspective development and progress of RT concerning both, organization and practice.

The creation of united pool of recipients allows to put RT in all socialistic countries on considerably new, wider and modern base, thus achieving larger number of transplantations and better clinical results. The successes of INTERTRANSPLANT will allow in the nearest future a broader collaboration between all world systems of RT.

The main object of INTERTRANSPLANT is to built a precise system which will provide a regular and scientifically proved exchange of donors' organs. The principles of this system include the following obligations dis-

cussed and voted by the countries-members of CEMEA (European socialistic countries):

— Organization of united immunological department for tissue typing providing the "WAITING LIST"

— Unification of surgical technique for collecting donors' kidneys

— Unification of methods for renal conservation.

Observing all these regulations will allow to organize donors' kidneys exchange with same or similar organs' qualities and characteristics which will give undoubtedly better histocompatibility and clinical results.

The organization of the united immunological department for tissue typing and WAITING LIST includes the following positions:

— Determination of blood groups and Rh-factors

— Investigation of antigens of HLA-system and their loci A, B, C

— Determination of the level of HLA-antibodies

— Study of the cross-match tests.

The investigation of HLA-antigens is performed on cells of defibrinized and heparinized blood by using the standard methods of microcytotoxicity. At the beginning their determination includes at least 17 antigens of locus, A 18 — locus B and 5 — locus C.

Determination of the level of HLA-antibody is done with every recipient (waiting operation) once every second month and the results of it are transferred from all countries to the Prague Calculation Center. If no results for any of the patients are received for a period of 4 months he is taken out of the WAITING LIST. The determination of antibody-level in patients' sera is performed with not less than 20 lymphocytes of non-relative individuals.

As for the cross-match tests, every transplantation center transfers to its typing laboratory sera of all recipients; from there they are transferred to Prague where a total united pool of sera from the whole contingent of recipients is prepared (the recipients are obligatory from the WAITING LIST); after that the results are sent back to the typing laboratories of the countries-members of INTERANSPLANT. Receiving the list of recipients from Prague who are suitable for any of the donors their sera are set to a cross-match test for determination of antibodies towards the cited donor. Recipients with a positive cross-match are excluded from the list for transplantation.

The selection of recipients is performed after the following regulations:

— Obligatory same blood groups (A_1 and A_2 are considered as group A)

— Always identical recipients are preferred

— If the level of circulating HLA-antibodies is 0—10% and 91—100% and there is no identical partner, a recipient is chosen with minimum incompatibility in locus HLA-B. Transplantation is allowed only with up to 3 incompatibilities.

— If the level of circulating antibodies is 11—90% and there is no identity transplantation is allowed with only up to 2 incompatibilities. Concerning patients with "urgent" mark the recommendations are the same.

Collecting kidneys from dead bodies is the initial and most important phase of RT and the result of it determines more or less the success of the operation.

In all countries is applied unified method for donor kidney collection with both variants, preserved blood circulation and no blood circulation in the organ.

The unified method of kidney conservation concerns mutual (between the countries-members) regulations for the defence of the organs against ischemia at the stage of preservation in the donor organism and later — after the kidney is taken out and preserved in isolated conditions.

In the donor organism is performed a complex of reanimative therapeutic procedures, directed at the renal functions' preservation and quickly making them resistant towards the forthcoming ischemic damage.

The complex includes normal renal blood circulation, normal conditions for renal metabolism, which all is a result of an adequate artificial respiration and infussive therapy, creating in the organism of donor a condition of normocapnia and normovolemia.

At this phase of preparing of the donor is recommended the application of dophamine — predecessor of noradrenalin synthesis, in dose $4 \text{ mcg/kg}^{-1}/\text{min}^{-1}$, and diuretics.

The collection of donors' kidney can be done effectively and successfully if only the diuresis of kidneys is not less than 90 ml/hour and creatinin level in serum — not more than 107 mmol/l.

Just before canulization of aorta for perfussion and filling of the kidney with conservation liquid in situ, heparin (25000 U), phenoxibenzamin (100 mg) or droperidol (10 mg) and manitol (10 g) are applied in order to prevent intrarenal thromb-formation, vessel spasms and increased tolerance of the organ towards ischemia.

The application of other preparations for a pharmacological defence is recommended only after consultations between the centers of donors' organs collection.

The conservation of the isolated kidneys is performed by using perfussion and non-perfussion methods.

However, a preferred method in INTERTRANSPLANT is the non-perfussion one; the solutions COLLINS-3 or EURO-COLLINS are applied for initial perfussion and conservation. The perfussion is done after the commonly suggested united method which is used successfully in all international systems and transplantation centers.

НАУЧНО-ОРГАНИЗАЦИОННЫЕ ОСНОВЫ СОТРУДНИЧЕСТВА В ОБЛАСТИ ПЕРЕСАДКИ ПОЧЕК В РАМКАХ МЕЖДУНАРОДНОЙ СИСТЕМЫ «ИНТЕРТРАНСПЛАНТ»

Э. Балакирев

Р Е З Ю М Е

Проведен тщательный анализ организации и структуры трансплантационного центра, являющегося частью созданной в последние годы системы «Интертрансплант», с участниками стран СЭВ: СССР, Болгарии, ГДР, Венгрии, Польши, Чехословакии. Указывается на необходимость в более тесном сотрудничестве и унифицировании методов работы в области пересадки органов.