MEETING OF
THE BRITISH TRANSPLANTATION SOCIETY

WEDNESDAY, 21st APRIL, 1976

THE WELLCOME BUILDING, EUSTON ROAD, LONDON

Chairman: **Mr. R. A. Sells** *(Renal Transplant Unit, Liverpool Royal Infirmary):*

09.30 **C. G. Winearls and P. J. Morris** *(Nuffield Department of Surgery, Radcliffe Infirmary, Oxford):*
"The effect of prednisolone and azathioprine on passive enhancement of rat renal allografts."

09.50 **I. V. Hutchinson, H. Zola and J. R. Batchelor** *(Department of Experimental Immunobiology, Wellcome Research Laboratories, Beckenham and McIndoe Memorial Research Unit, Queen Victoria Hospital, East Grinstead):*
"Immunological enhancement of rat renal allografts using rabbit antisera with specificity for rat transplantation antigens."

10.10 **D. R. A. Finch and P. J. Morris** *(Nuffield Department of Surgery, Radcliffe Infirmary, Oxford):*
"Passive enhancement of isolated pancreatic islet allografts in the rat."

10.30 **J. Bancewicz, N. L. Tilney, T. B. Strom, C. B. Carpenter and S. G. MacPherson** *(Department of Surgery, Western Infirmary, Glasgow and Surgical Research Laboratory, Harvard Medical School, Boston, Massachusetts):*
"Structure and function of infiltrating cells isolated from acutely rejecting and enhanced rat cardiac allografts."

10.50 COFFEE

11.10 **Guest Speaker: Professor J. Hamburger** *(Centre de Recherches Néphrologiques de l'Hôpital Necker, Paris):*
"What do we know of the cytotoxic agents actually responsible for allograft rejection?"

Chairman: **Dr. Ph. Thibault** *(Hôpital de la Pitié, Paris):*

12.10 **J. C. Gluckman, Eliane Gluckman, Jacqueline Guillet, J. Rottembourg and M. Legrain** *(Service de Néphrologie and Groupe Hospitalier Pitié-Salpétrière 83, bd de l'Hospital, Paris and Laboratoire d'Immuno-Hematologie, Centre Haymen Hôpital St-Louis, Paris):*
"Cell mediated immunity against allogeneic fibroblasts in haemodialysed patients."

12.30 **D. Millar and J. R. Salaman** *(K.R.U.F. Institute of Renal Disease, Royal Infirmary, Cardiff):*
"The immunological status of dialysis patients."

12.50 LUNCH

14.00 BUSINESS MEETING

14.10 **Béatrice Descamps, R. Gagnon and J. Crosnier** *(Département de Therapeutique Néphrologique de l'Hôpital Necker, Paris):*
"Influence of immunosuppressive drugs on lymphocyte-dependent antibody-(LDA)-mediated cytotoxicity."

14.30 **P. J. Morris, T. Mathew, D. Oliver, V. C. Marshall and P. Kincaid-Smith** *(Nuffield Department of Surgery, Radcliffe Infirmary and Departments of Nephrology and Surgery, Royal Melbourne Hospital, Australia):*
"Blood transfusions and rejection in renal transplantation."

14.50 **H. Betuel, C. Vincent and J. P. Revillard** *(Centre de Tranfusion Sanguine de Lyon—Beynost and Laboratoire d'Immunologie—Pavillon P Hôpital E. Herriot, Lyon):*
"Soluble HLA antigens in serum and urine."

15.10 TEA

Chairman: **Professor L. Brent** *(Department of Immunology, St. Mary's Hospital Medical School, London):*

15.30 **R. G. Kinsky, H. T. Duc and E. Fuensalida** *(Centre d'Immunopathologie, Paris):*
"In vitro and in vivo activities of antibodies directed against idiotypes or recognition structures (RS) of transplantation antigens.

15.50 **J. W. Fabre and A. F. Williams** *(Immunochemistry Unit, Department of Biochemistry, South Parks Road, Oxford):*
"Serological and partial biochemical characterisation of the antigens recognised by rabbit anti rat ALS."

16.10 **C. Mawas, D. Charmot, D. Fradelizi and J. Dausset** *(Research Unit for the Immunogenetics of human transplantation, Paris):*
"In vitro generation of cell mediated lympholysis suppressor cells and partial characterisation of these cells."

16.30 **J. F. Bach, Marie-Anne Bach and Mireille Dardenne** *(Hôpital Necker, Paris):*
"Thymic hormones: present status."

16.50 **P. Mahieu, P. Graindorge and G. Lejeune** *(Departments of Medicine and Surgery, University of Liège, Belgium):*
"Detection of anti-tubular basement membrane antibodies by a radio-immunological method. Clinical application after renal transplantation."

17.10 **P. T. Klouda and M. Jeannet** *(Transplantation Immunology Unit, Hôpital Cantonal, Geneva, Switzerland):*
"Cold and warm antibodies and graft survival in kidney allograft recipients."

17.30 **G. S. Walker, M. Peacock, G. R. Giles and A. M. Davison** *(Departments of Renal Medicine and Surgery, St. James' University Hospital, Leeds and Department of Mineral Metabolism, Leeds General Infirmary, Leeds):*
"Calcium absorption following renal transplantation: restoration of a renal endocrine function."

17.50 CLOSE OF MEETING

19.00 Tour of the Houses of Parliament followed by a reception and buffet in the House of Commons, for those who wish to come.

FUTURE MEETINGS

Wednesday, 14th July, 1976—University of Liverpool (organiser Mr. R. A. Sells) Open papers. Symposium on "Virus disease in transplant recipients."

The British Society for Immunology will be meeting in Liverpool on 15th and 16th July.

A joint B.S.I. and B.T.S. meeting will be held on 21st and 22nd October, 1976, at the Wembley Conference Centre.

THE EFFECT OF PREDNISOLONE AND AZATHIOPRINE ON PASSIVE ENHANCEMENT OF RAT RENAL ALLOGRAFTS

C. G. Winearle and P. J. Morris

Anti-lymphocyte globulin had been shown to have a marked synergistic effect in passive enhancement of rat renal allografts (Batchelor et al., 1972). In this study the effect of prednisolone and azathioprine on passive enhancement of (Da X Lewis) F1 renal allografts in Lewis recipients has been investigated. The following results have been obtained:—

Treatment	*No. of rats*	*Mean Blood Urea at day 7 (mg/100ml) S.D.*	*Survival (days)*
Nil	6	599 ± 113	7, 7, 7, 7, 9, 10
Lewis anti-Da serum, 0.5ml days 0, 1, 3, 5	6	169 ± 109	23, 39, >100, >100, >100, >100
Methyl/prednisolone 4mg/kg/day X 6 weeks	6	377 ± 170	9, 9, 62, >140, >140, >140
Azathioprine 8mg/kg/day X 6 weeks	6	381 ± 75	8, 8, 10, 11, 11, 111
Lewis anti-Da + Methyl prednisolone	7	200 ± 151	9, 10, 30, >100, >100 >100, >100
Lewis anti-Da + Azathioprine	6	235 ± 225	9, 23, 26, >100, >100, >100

Thus prednisolone, though exerting an immunosuppressive effect by itself did not augment the effect of enhancing serum.

Azathioprine at a dose of 8mg/kg/day (equivalent to 1.5mg/kg/day in the human) was not significantly immunosuppressive when used alone nor did it augment the effect of enhancing serum. Experiments using higher doses of azathioprine are in progress and will be presented.

Ref: Batchelor, J. R.; Fabre, J. W.; Morris, P. J. (1972)
Passive enhancement of rat kidney grafts: potentiation with antithymocyte serum, Transplantation 13: 610.

IMMUNOLOGICAL ENCHANCEMENT OF RAT RENAL ALLOGRAFTS USING RABBIT ANTISERA WITH SPECIFICITY FOR RAT TRANSPLANTATION ANTIGENS

I. V. Hutchinson, H. Zola and J. R. Batchelor

Rabbits immunized with particulate and soluble preparations of rat lymphoid tissue of the HO strain produced antisera which reacted without strain specificity on rat lymphocytes. Absorption of the sera with tissue from the AS strain of rat removed the antibodies reacting with AS tissue leaving activity against HO cells only. Studies with back-cross rats showed that the antigens detected by these sera were products of the AgB genes or genes segregating with them.

The immunosuppressive activity of rabbit antisera specific for Ag-B5 rat transplantation antigens was tested in a rat renal allograft assay. Some of the antisera markedly prolonged the survival of (AS x HO)F, kidneys transplanted to AS rats. The prolongation of graft survival was not due to ALS activity since the sera were active in the absence of antibody directly against recipient antigens. There was no correlation between *in vivo* enhancement and anti-donor lymphocytotoxic titres of the xenoantisera.

PASSIVE ENHANCEMENT OF ISOLATED PANCREATIC ISLET ALLOGRAFTS IN THE RAT

D. R. A. Finch and P. J. Morris

The intra-portal transplantation of 600-800 isolated pancreatic islets will reverse the effects of streptozotocin-induced diabetes in the rat. Syngeneic islets will maintain a normoglycaemic state throughout the natural life-span of the recipient without the development of the secondary complications of diabetes which are not prevented by the long-term use of exogenous insulin in man. Allogeneic islets, which will be necessary for clinical transplantation, are rejected promptly. For this reason the efficacy of passive enhancement of DA, Lewis, and (DA X Lewis) F1 allogeneic islets had been studied in DA and Lewis recipients.

Homozygous islet allografts are rejected (as judged by the elevation of blood sugar) at a mean of 3.4 days (Da→ Lewis) and 4.0 days (Lewis→ DA). The IV administration of 500μl of Lewis anti-DA or DA anti-Lewis antiserum at the time of transplantation produced a moderate increase of survival of the allografts to 7.8 and 7.0 days respectively.

In the (DA X Lewis) F1→ DA and (DA X Lewis) F1→ Lewis combinations rejection occurred at a mean of 4.6 and 4.2 days. The administration of 500μl of antiserum greatly increased graft survival with 2 out of 5 rats in each group showing indefinite graft survival. A dose of antiserum of 50μl still produced a significant prolongation of graft survival. A dose of 2.5mls did not increase graft survival further, but produced evidence of a direct cytotoxic effect on the donor tissue in the strong DA to Lewis combination.

STRUCTURE AND FUNCTION OF INFILTRATING CELLS ISOLATED FROM ACUTELY REJECTING AND ENHANCED RAT CARDIAC ALLOGRAFTS

J. Bancewicz, N. L. Tilney T. B. Strom, C. B. Carpenter and S. G. MacPherson

The surface properties and functional characteristics of the infiltrating cell population in acutely rejecting cardiac allografts have been previously described (Tilney et al. 1975). This study has now been extended to include the enhanced state.

Viable, functioning host cells were recovered from 200 rat cardiac allografts by Ficoll-hypaque gradient separation. Enhancement was produced in 100 rats by recipient pretreatment with donor spleen cells (5×10^7) and anti-donor antiserum (1 ml) eleven and ten days prior to transplant. Cellular events were studied both in acute rejection and in enhancement.

Lymphocyte subgroups did not vary between the models. Infiltrating cells with surface Ig comprised 30-50% of the cell yield. Fc receptors detected by EA rosettes or by aggregated γ globulin occurred on 30% of cells. Only 1-2% of cells formed EAC rosettes. The remaining cells, presumptive T cells, comprising 25-50% of the infiltrate lacked Ig, receptors for Fc or C or macrophage morphology.

Specific lymphocyte-mediated cytotoxicity (LMC), measured in a 51 Cr-release assay, peaked in acute rejection 4-5 days after grafting (37%), 3 days before clinical rejection and peak cytotoxicity of peripheral lymphoid tissue. T cells were shown responsible by serial cell deletions. LMC of cells from enhanced grafts were reduced (26%) but rose (40%) after in vitro trypsinization.

This change did not occur in acutely rejected hearts and we conclude that in the enhanced state T cell activity is blocked by a trypsin-sensitive structure.

Tilney, N. L., Strom, T. B., Macpherson, S. G., Carpenter, C. B. Transplantation, 1975, *20*, 323-330.

CELL MEDIATED IMMUNITY AGAINST ALLOGENEIC FIBROBLASTS IN HEMODIALYSED PATIENTS

J. C. Gluckman, E. Gluckman, J. Guillet, J. Rottembourg and M. Legrain

Early rejections of kidney transplants in recipients with negative donor cross-matches may be due to sensitised lymphocytes without regard to the presence or absence of antibodies. Therefore, the state of cellular allo-immunity in hemodialysed patients has been assessed by a microcytotoxcity assays, using cryopreserved lymphocytes as effector cells and fibroblasts from a panel of normal donors at targets. Repeated experiments with frozen lymphocytes showed that the results were fully reproducible in 91% of cases.

Twenty hemodialysed patients have been studied. Lymphocyte mediated cytotoxicity (LMC) detected presensitisation more often than the standard test for cytotoxic antibodies: 13 out of 20 patients were LMC positive at one time or another, while 7 out of 20 had antibodies. Only three patients had cytotoxic antibodies and positive LMC simultaneously, and in no instance were the antigens detected by both tests similar. Results obtained in patients after transplant rejection demonstrated that the lymphocytes were not sensitised against the HLA mismatches from the donor, but regularly against other undetermined antigens.

These data suggest that, whereas humoral immunisation is usually directed toward HLA antigens, the cellular response observed in microcytotoxicity assay could be related to other non-HLA antigens.

Further work is needed to determine what is the clinical significance of the microcytotoxicity assay in the field of transplantation.

THE IMMUNOLOGICAL STATUS OF DIALYSIS PATIENTS

D. Millar and J. R. Salaman

Uraemic patients frequently exhibit depressed immunological responses. A factor causing immune depression may be present in the patient's serum but when lymphocytes are removed from this environment they often behave perfectly normally in immunological tests.

We have examined the immunological responses of 35 dialysis patient to see if a genuine "poor-responder" group could be identified. Lymphocytes from these patients were injected into the foot pads of immunosuppressed rats and the resulting graft-versus-host reaction used as a measure of responsiveness. Eight patients gave results that were more than two standard deviations below the normal mean. This group failed to develop cytotoxic antibodies after a year on dialysis, were unresponsive when skin tested with P.P.D. and had serum IgG levels that were significantly reduced. The graft versus host test was a better indicator or immune status than was skin testing with D.N.C.B. which gave negative responses in some patients who were clearly immunised, having developed cytotoxic antibodies after blood transfusions or after a previous kidney transplant.

The identification of a "poor-responder" group of patients has allowed us to formulate a transplantation policy, and this will be discussed.

INFLUENCE OF IMMUNOSUPPRESSIVE DRUGS ON LYMPHOCYTE-DEPENDENT ANTIBODY-(LDA)-MEDIATED CYTOTOXICITY

Béatrice Descamps, R. Gagnon and J. Crosnier

The in vivo effect in human renal allograft recipients, of treatment by Azathioprine, Prednisone or both drugs upon the LDA-mediated cytotoxicity phenomenon was studied in human renal allograft recipients. The two following facts were established:

1) Azathioprine and Prednisone treatment does not impede in vivo production of LDA, those antibodies which are able to render normal lymphocytes cytotoxic in the absence of complement. However the cytotoxicity index observed with sera from treated recipients was lower than that obtained with sera containing LDA but taken from untreated subjects (polytransfused hemodialysed patients).

2) A striking difference was observed in the vivo effect of these drugs upon the so-called K lymphocyte population (Killer cells) responsible for the cytotoxicity observed in vitro.

As shown in the following table, lymphocytes from Azathoprine (AZ)-treated recipients are as capable as lymphocytes from normal (N) or uremic (U) patients of inducing cytotoxicity against the LDA-coated target cells. Conversely, lymphocytes from Prednisone (PR)-treated patients are in most cases unable to induce the same effect. Differences observed with other groups of recipients are statistically significant ($p<0.001$).

LDA WITH EFFECTOR CELLS FROM
Renal allograft recipients treated with

	NL	*UL*	*AZ**	*PR*	*AZ* + PR*	
Daily PR dosage mg/Kg/day	0	0	0	≤0,5	≤0,5	1 to 5
% positive cases	95% (52)	85% (17)	80% (15)	45% (12)	50% (10)	12% (15)

This in vivo effect of steroids on K cells should perhaps be kept in mind when discussing the still obscure mechanism of the action of steroids on rejection episodes.

* *daily dosage: 3 mg/kg/day.*

BLOOD TRANSFUSIONS AND REJECTION IN RENAL TRANSPLANTATION

P. J. Morris, T. Mathew, D. Oliver, V. C. Marshall and P. Kincaid-Smith

It has been suggested that patients receiving no blood transfusions before cadaveric renal transplantation have a high failure rate from rejection in contrast to transfused patients. (Opelz and Terasaki, 1974). Similar results have been presented at the last meeting of the British Transplant Society by Van Rood and Sachs. For this reason transfusion data from 342 cadaveric renal transplants has been assessed in terms of early failure. The actuarial graft survival rate in 86 patients who received no transfusions before transplantation was 62% at 3 months, 52% at 1 year and 50% at 3 years. In 256 patients who were transfused before transplantation graft survival rates were 73% at 3 months, 62% at 1 year and 53% at 3 years. These survival data are not significantly different. Further antibody and transfusion data will be presented and the paradox of blood transfusion in renal transplantation (Morris et al., 1968) discussed in relation to these findings.

Opelz, G. and Terasaki, P. I. (1974) Lancet, ii, 696.
Morris, P. J., Ting, A., and Stocker, J. (1968) Med.J.Australia, 2, 1088.

SOLUBLE HLA ANTIGENS IN SERUM AND URINE

H. Betuel, C. Vincent and J. P. Revillard

Soluble HLA antigens have been detected in normal serum, ascitic fluid, bile and normal urine. Sufficient amounts of HLA can be recovered for purification from certain pathological urines (tubular defects, chronic renal insufficiency and kidney transplants). HLA antigens were quantified by inhibition of microlymphocytotoxicity and B_2microglobulin by RIA. Sephadex G 200 filtration of sera showed HLA antigens in the following zones: 80-90,000, 150,000 and greater than 200,000 MW. This distribution varied according to the specificities. In urine almost all HLA antigen is localized in a peak of 45,000 MW. After polyacrylamide gel electrophoresis with SDS this peak was dissociated into B_2m and a 30-35,000 MW fraction containing the alloantigen. Electrical charges differed according HLA specificities; antigens coded by A and B loci could be separated. The sequential steps of purification must be choosen according to HLA specificities. For example, taking a urine containing 60 u./mg of antigen A1, we obtained 450 units after chromatography on QAE A50, 1,000 units after filteration on Sephadex G100 and 500,000 units after isotachophoresis. The fractionation yields on immunoabsorbant columns (antiB_2m, lectins) were lower. The relative amount of B_2m bound to HLA was found to decrease after purification. This method is expected to allow structural studies of HLA.

IN VITRO AND IN VIVO ACTIVITIES OF ANTIBODIES DIRECTED AGAINST IDIOTYPES OR RECOGNITION STRUCTURES (RS) OF TRANSPLANTATION ANTIGENS

R. G. Kinsky, H. T. Duc and E. Fuensalida

Anti-idiotype sera were prepared by injection of CBA anti-A/JAX serum with or without adjuvant to CBA mice. These sera were tested in allocluster inhibition and passive enhancement facilitation.

While the anti-idiotype sera inhibited allo-cluster formation, particularly when prepared with complete Freund's adjuvant, they had virtually no effect in enhancement of Sa I grafted in CBA except for a marginal prolongation of graft survival in one out of three experiments. Anti-RS (recognition structure) serum was prepared by immunizing (CBA x A)F_1 mice with CBA thymus or spleen cells. The sera were tested in local Graft-versus-Host (GVH) inhibition and passive enhancement. F_1 anti-CBA thymus serum inhibited the local Graft-versus-Host reaction and had no enhancing effect. F_1 anti-CBA spleen serum was virtually ineffective in both tests although a slight tendency to GVH inhibition was noted. The relative contribution of anti-idiotype and/or anti-RS antibodies in transplantation reactions is discussed.

SEROLOGICAL AND PARTIAL BIOCHEMICAL CHARACTERISATION OF THE ANTIGENS RECOGNISED BY RABBIT ANTI RAT ALS

J. W. Fabre and A. F. Williams

The experiments to be presented (a) define the tissue distribution of the antigens recognised by rabbit anti rat lymphocyte serum and (b) partially characterise in biochemical terms the main antigen recognised. The ALS was raised by immunising rabbits with rat TDL. The assay system used to detect binding of ALS to target cells involved a second incubation with purified, I^{125} labelled, horse anti rabbit immunoglobulin. Under appropriate conditions this assay allows a quantitative estimation of all specific antibody.

Unabsorbed ALS, unexpectedly, was found to be remarkably specific for lymphocytes: only 3-4% of the antibody reacted with erythrocytes and although liver homogenate could eventually remove all the antibody after very extensive absorption, it was only 1-3% as effective as TDL. Brain, Heart and kidney homogenates were similarly ineffective in absorbing out antibody. The bulk of the antibody response was directed against an antigen (s) widely distributed in the reticuloendothelial system, being present on peripheral lymphocytes, thymocytes and macrophages. A small part (approximately 10%) of the antibody was directed against antigens present only on peripheral lymphocytes and absent from thymus cells. This peripheral specific component could be divided into two antigens, one being present on bone marrow and the other not.

From the viewpoint of the immunosuppressive properties of ALS, it was felt that the main reticulo-endothelial specific antigen was likely to be of greatest interest. It was solubilised from thymus cells using Tween 40 and sodium deoxycholate and preliminary experiments indicate that it is a carbohydrate containing molecule of molecular weight in the region of 100,000 to 150,000.

IN VITRO GENERATION OF CELL MEDIATED LYMPHOLYSIS SUPPRESSOR CELLS AND PARTIAL CHARACTERISATION OF THESE CELLS

C. Mawas, D. Charmot, D. Fradelizi and J. Dausset

(1) In vitro primed cells can no longer generate cytotoxic effectors against third party cells (Charmot et al. 1975)* and (2) cytotoxic effectors against the specific priming cell can be reactivated by non-specific mitogens like PW but not PHA or Con A (ibid.). We have been able to demonstrate that these phenomena are related to the presence of suppressor cells. These cells were separated from a day 7 MLR by a 1G velocity sedimentation and found to be exclusively present in the population of small lymphocytes, and not in the population of large blasts. Under these conditions, PHA could not reactivate cytotoxic effectors from day 14 unseparated primed cells, in contrast to isolated blast populations. A mixture of blast cells and small lymphocytes as well as small lymphocytes alone were equally non-reactive. Under the same conditions, PW could reactivate cytotoxic effectors from either unseparated cells, blasts, or a mixture of blast cells and small lymphocytes, but not from the small lymphocytes alone. These data taken together suggest that: (1) suppressor cells are found in the population of small lymphocytes from a day 7 MLR; (2) suppressor activity can be stimulated better from these cells with PHA or Con A that with PW stimulus; (3) the pre-emption of day 14 in vitro primed cells may be related to suppressor cells, since day 7 separated small lymphocyte are CML unresponsive but have retained their proliferative responsiveness towards HLA-D stimuli. All three mitogens or mitogen blasts suppress equally well an ongoing primary CML if added to the culture in the first 48 hours.

The fact that besides a positive co-operation (Eijsvoogel et al. 1972) a negative co-operation is also demonstrated for the in vitro differentiation of effector cells opens a new field in the immunogenetics of the allogenic response.

*Charmot, D., Mawas, C. E. and Sasportes, M. (1975). Immunogenetics *2*: 465.

THYMIC HORMONES: PRESENT STATUS

J. F. Bach, Marie-Anne Bach and Mireille Dardenne

Data are accumulating which demonstrate the importance of thymic hormones in T-cell differentiation. Their biochemical nature and mode of action however, remain unclear. The circulating thymic factor (TF) has been completely isolated and its aminoacid composition determined. It is a neutral peptide of 1 000 mol. wt., active in the rosette assay used for its purification at the pg level (10^{-12}M). Its biological activities have been demonstrated in several systems, using the purified material in ng amounts in vivo and in vitro. TF induces the appearance of T-cell markers and mitogen responsiveness. Moreover, it promotes the differentiation of immature T-cells, as suggested by its action on suppressor T-cells and self-recognizing cells. These two actions have interesting applications for the understanding of the aetiology of autoimmunity, as illustrated by the correction of immunological abnormalities in NZB mice by TF treatment.

DETECTION OF ANTI-TUBULAR BASEMENT MEMBRANE ANTIBODIES BY A RADIO-IMMUNOLOGICAL METHOD CLINICAL APPLICATION AFTER RENAL TRANSPLANTATION

P. Mahieu, P. Graindorge and G. Lejeune

A radioimmunoassay for detection of anti-tubular basement membrane (TBM) antibodies was set up with human TBM antigens labelled with Iodine-^{125}I. Separation of free radioactive antigens from those bound to immunoglobulins was obtained by precipitation with polyethylene glycol. In presence of normal human sera, less than 5% of labelled antigens were precipitated. In presence of sera, IgG fractions and kidney eluates from 2 patients with linear deposits along the TBM, the specific precipitation of labelled TBM antigens reached 35%. On the contrary, in presence of sera of patients with Goodpasture's syndrome, no specific precipitation was observed.

Anti-TBM antibodies were searched for in the serum of 21 patients with a kidney allograft. Significant anti-TBM activity was found in the serum of 7 patients presenting rejection crises demonstrated by histological and biological criteria. The ant-TBM antibody titers were not modified after incubation of the sera with HL-A antigens. The antibodies were directed against the heteropolysaccharide-containing-glycopeptide present in the whole TBM.

The data demonstrate that specific anti-TBM antibodies can be detected by radioimmunoassay in the sera of some patients presenting a tubulo-interstitial injury accompanying rejection crises.

COLD AND WARM ANTIBODIES AND GRAFT SURVIVAL IN KIDNEY ALLOGRAFT RECIPIENTS

P. T. Klouda and M. Jeannet

A high number of renal allograft recipients produce lymphocytotoxic antibodies which often lack HLA specificity. There is conflicting evidence as to whether these cytotoxin positive patients, with a negative cross-match, have a better or worse graft survival than those without detectable antibodies. We have tested pre- and post-transplant sera from 35 renal allograft recipients for cold and warm cytotoxic antibodies using a two stage microlymphocytotoxicity test with three different incubation temperatures. Both, cold and warm antibodies, were found to be reactive at 22°C, the incubation temperatures which distinguished the two classes of antibodies were 15°C and 37°C.

Among 35 recipients, cold antibodies were detected in sera of fifteen patients. Ten recipients had warm antibodies and the remaining ten had a mixture of cold and warm antibodies. In a number of sera, anti-B lymphocyte antibodies were also detected. All the recipients were found cytotoxin positive after transplantation, although not all had performed lymphocytotoxins.

Out of fifteen recipients with cold antibodies, fourteen had functioning grafts at one year. On the contrary, three of the ten patients with warm antibodies had kidneys functioning at one year. The difference in the one year graft survival between the two groups of patients is statistically highly significant ($P<0{,}002$). There is no difference in the graft survival among patients with warm antibodies and those with a mixture of cold and warm antibodies.

The mechanism in which the cold antibodies exert a possible enhancing effect and their relation to anti-B lymphocyte ("anti-Ia like") antibodies in kidney recipients, will be discussed.

CALCIUM ABSORPTION FOLLOWING RENAL TRANSPLANTATION: RESTORATION OF A RENAL ENDOCRINE FUNCTION

G. S. Walker, M. Peacock, G. R. Giles and A. M. Davison

In renal failure there is a reduction in the production of dihydroxycholecalciferol (1:2 5 DHCC), the physiologically active form of Vitamin D and as a consequence malabsorption of calcium is a common finding. This can be corrected by giving oral synthetic 1:25 DHCC, and thus calcium absorption can be used as a method of assessing 1:25 DHCC production in renal disease.

Calcium absorption was estimated following an oral load of radio-calcium (^{47}Ca) in a 20 mg. calcium carrier (calcium chloride). Thirty-one renal transplant patients were compared to thirty-one age and sex matched patients on maintenance haemodialysis.

The calcium absorption in the haemodialysis patients was 0.16 ± 0.10 (normal range $0.4 - 1.3$). In this group the serum creatinine at the time of the calcium absorption test was 765 ± 276 μmol/1. In six patients two months after transplantation the calcium absorption was 0.15 ± 0.09 with a main serum creatinine of 170 ± 37 μmol/1. Twenty-five patients investigated at greater than two months after transplantation (range 8 – 73 months) had a calcium absorption of 0.055 ± 0.17 with a serum creatinine of 123 ± 27 μmol/1.

These results show that the calcium absorption in transplanted patients at two months is not significantly different from that found in patients on maintenance haemodialysis although there was a significant reduction in the serum creatinine. However in patients transplanted for more than eight months the calcium absorption is significantly increased compared with haemodialysis patients ($p < 0.001$) and transplant patients at two months ($p < 0.001$).

BRITISH TRANSPLANTATION SOCIETY

MINUTES OF THE ANNUAL GENERAL MEETING OF THE SOCIETY, AT ST. MARY'S HOSPITAL ON 15TH OCTOBER 1975.

Approximately 100 members were present.

R. Y. CALNE took the Chair.

1. The Minutes of the Business meeting of April 16th 1975 were presented and signed as correct. No matters arose for discussion.

2. Election of Officers: The following officers retired by rotation or because of other commitments:
   L. Brent, General Secretary.
   J. Hopewell, Hon. Treasurer.
   R. A. Sells/H. Festenstein—Committee members.
   The following nominees were proposed and elected:
   R. A. Sells, General Secretary.
   M. N. Elves, Hon. Treasurer.
   The following committee members were elected, by ballot:
   Mary McGeowan.
   J. Salaman.
   The retiring officers were thanked for their work for the Society.
   Particular gratitude was expressed to Prof. Brent, for his hard work as General Secretary during the formative first years of the Society and to Mr. Hopewell for the satisfactory condition of the accounts.

3. Honorary members:
   Sir Michael Woodruff was nominated as Honorary Member as a token of respect by the Society for his distinguished contribution. The proposal was approved unanimously.
   Further nominations may be submitted to be considered at the next Business Meeting.

4. Election of new members: The following new members were elected:
   I. C. Balfour, P. Bisson, G. R. D. Catto, N. Edward, D. P. De Bono, J. Engeset, R. Gabriel, K. Guy, A. R. Jones, B. J. R. Junor, J. A. Kennedy, G. J. Laundy, D. B. Longmore, V. M. Laundy, M. Macleod, P. Mayo, B. H. Ong, D. S. Pole, M. C. A. Puntis, Quanber-Agha, D. J. Schendel, C. H. Self, Poh-Chun Tai, H. Valdimarsson, M. R. Vickers, K. I. Welsh, M. Yamamur a, G. G. Youngson.
   Overseas: D. G. Kilburn, F. Kirsten Lindahl, W. Muller-Ruchholtz, S. Ringoir, J. Traeger.

5. Resignations: Resignations of the following members were noted:
   H. Balner, M. Bewick, J. D. Blainey, E. M. Lance, C. Maddox and M. Rendall.

6. General Secretary's Report:
   Prof. Brent said that the Society membership stood at 321. The link with the British Society for Immunology had continued, joint meetings being held in the Spring and Autumn. This arrangement was friendly and mutually advantageous. The main additional endeavour of the B.T.S. had been the production of the discussion document "The Shortage of Organs for Clinical Transplantation" (Brit. Med. J. 1st Feb. 1975). This had been circulated widely and had produced public debate. The B.T.S. now enjoys affiliation to the Transplantation Society and corresponding membership was available for a subscription of $7.50 (applications should be lodged with Prof. R. Batchelor). Prof. Brent expressed his gratitude to the Institute of Biology for their help during his term of office.