Parathyroid hormone in plasma in adenomatous hyperparathyroidism, uremia, and bronchiogenic carcinoma
Parathyroid hormone was measured by radioimmunoassay in the plasma of control patients, patients with parathyroid adenoma, bronchiogenic carcinoma, and in those with chronic renal failure. Concentrations of parathyroid hormone in the plasma of patients with chronic uremia were frequently much higher than those in many patients with proven parathyroid adenoma. Since the concentration of other hormones (insulin and growth hormone), as judged by radioimmunoassay were not high, one can assume that plasmas from uremic patients, which contained high concentrations of parathyroid hormone did not have nonspecific factors that affected the reaction of antigen and antibody. Although most of the uremic patients had hypocalcemia, there was no strong correlation of the concentration of parathyroid hormone with the degree of hypocalcemia; rather the severity of the uremia seemed to be the more significant factor. However, the concentrations of parathormone in the plasma of two uremic patients given calcium intravenously decreased 75 and 80%, respectively, within one hour. When EDTA was injected into normal subjects, the concentration of serum calcium was acutely reduced to values as low as or lower than those in many of the uremic subjects. Although an increase of a significant percentage, in the concentration of parathyroid hormone in plasma then occurred, the absolute increment in concentration was small compared to the concentration in plasma from patients with uremia. Higher than normal concentrations of parathyroid hormone in plasma were also found in a significant percentage of unselected patients with bronchiogenic carcinoma.
Author’s address: Prof. Dr. S.A. Berson, Radioisotope Service, Veterans Administration Hospital, Bronx, N.Y. 10468 (USA).

Autonomy of parathyroid function after renal homotransplantation
Of seven long-term survivors of renal homotransplantation at the Wilford Hall USAF Hospital, five developed chemical evidence of hyperparathyroidism in the postoperative period. Three had persistent hypercalcemia and underwent subtotal parathyroidectomy for diffuse parathyroid hyperplasia. The fourth patient was not explored because hypercalcemia did not persist after a rejection crisis, but there was evidence at autopsy, eight months later, of persistent parathyroid hyperplasia. The fifth patient had intermittent hypercalcemia for 13 months, but subsequently, this subsided.
It appears that an autonomous state of parathyroid function may develop in uremic patients receiving a renal homograft. This may be a transient autonomy with eventual resumption of homeostatic control or a persistent one, requiring parathyroidectomy for control of the hypercalcemia. Renal functional impairment after rejection appears capable of masking the hypercalcemia, but a persistently
low tubular reabsorption of phosphorous may be a clue to the continued parathyroid autonomy. The authors suggest that all transplanted patients be observed for the development of this complication and parathyroidectomy undertaken if hypercalcemia is persistent.

Author’s address: Dr. J. J. McPhaul, Jr., Chief, Renal Section, Wilford Hall, USAS Hospital, Lackland Air Force Base, San Antonio, Tex. (USA).

Effects of parathyroidectomy and kidney transplantation on renal osteo-dystrophy

Four patients with severe renal osteodystrophy and secondary hyperparathyroidism are discussed in relation to management and the effect of renal transplantation. All patients underwent subtotal parathyroidectomy because of bone lesions, even though the serum calcium was normal in some of them. Two patients received a kidney transplant and the parathyroid operation was performed six months prior to transplant in one and four months after grafting in the other. Parathyroid exploration revealed large hypertrophied glands with Chief cell hyperplasia and subtotal (7/8ths) parathyroidectomy was successful in relieving symptoms in every case.

It appears that renal homotransplantation which allows adequate renal function, of itself, is not sufficient to reverse completely the calcium elevation in the patient whose parathyroid tissue has developed a degree of hyperplasia necessary to maintain a normal serum calcium in the face of severe uremia. It is recommended that in such cases subtotal parathyroidectomy be performed prior to renal transplant in order to allow any recoverable renal function to occur and in addition to prevent any possible damage to the transplanted kidney. It is also suggested that by performing the surgery pre-transplant, one also avoids possible complications of wound healing secondary to immunosuppressive drugs. These patients comprise a unique group in which parathyroid exploration is indicated in the face of normocalcemic serum and in the absence of hypercalcuria.

Author’s address: Dr. R.E. Wilson, Department of Surgery, Peter Bent Brigham Hospital, Boston, Mass. (USA).

Musculoskeletal disorders after renal homotransplantation

Of 60 patients who received renal homotransplants and whose duration of survival (mean, 491 days) permitted accurate analysis, there were 38% in whom there were one or more clinical manifestations denoting connective tissue disorder independent of muscular weakness, dermatologic lesions, osteoporosis, or neuropathy. Avascular bone necrosis appeared in five patients; synovitis in 5; arthralgia in 13; diffuse musculoskeletal pain in 10. To investigate the pathogenesis of these clinical findings, studies were performed to determine the presence and significance of humoral antibodies and lipid analyses to evaluate the potential etiologic role of systemic fat embolization. Anti gamma globulin activity principally directed against human gamma globulin was detected between the second and 28th weeks post-transplant (mean, 8.5 weeks) in 93% of cases regardless of the presence or absence of rheumatic problems. Antibodies to DNA and RNA were detected in 40% and 28% respectively. Antigen preparations from synovial membrane, skeletal muscle, blood vessels, liver, and kidney tested in tanned-cell hemagglutination and agar gel diffusion systems failed to detect antibodies to specific tissue constituents in posttransplant sera from patients either with or without rheumatic disorders. Quantitative plasma lipid determinations demonstrated fluctuating abnormalities in free and esterified cholesterol, phospholipid,
triglyceride, nonesterified fatty acid, and total lipid levels. Analysis of synovial fluid consistently showed the presence of both intracellular and extracellular refractile, oval, lipid staining particles. The authors conclude that the data presented appears to show that except for situations involving a donor kidney from an identical twin, that all patients in receipt of renal homografts, if given sufficient time, will manifest rheumatoid factor-like activity. Even though, in the present series an inciting factor based upon rapid reduction or cessation of corticosteroids is absent, the author suggests the potential importance of aberrations in lipid metabolism secondary to cortico-steroid therapy as a factor in the pathogenesis of the rheumatic complaints.

**Author’s address:** Dr. Charles J. Smyth, 4200 East 9th Avenue, Denver, Col. 80220 (USA).

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Hemorrhagic pancreatitis. A fatal complication of renal transplantation


Two cases of hemorrhagic pancreatitis occurring in patients on immunosuppressive drugs (azathioprine and prednisone) 9 and 11 months after renal allografting are reported. Both patients presented with the classical clinical picture of acute pancreatitis and demonstrated evidence of active vasculitis in the pancreas at postmortem examination in addition to marked fat necrosis. Although both patients were severely jaundiced late in their course, no evidence of biliary obstruction was found. Significant numbers of virus particles were identified in the pancreas of one patient, but no virus was cultured from the pancreas of the other. No clear cause for the pancreatitis found in these patients is apparent, but the authors postulate that any or all of the following may be involved: (1) Treatment with steroids, (2) A diffuse vasculitis secondary to a generalized ‘auto immune’ response developing in the course of homograft rejection and (3) Viral infection.

**Author’s address:** Dr. N.L. Tilney, Department of Surgery, Peter Bent Brigham Hospital, Boston, Mass. (USA).

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Serial changes in glomerular filtration during rejection of the allografted dog kidney


Because of earlier work suggesting a discordant fall between renal blood flow and glomerular filtration (GFR) in early renal allograft rejection, effective renal plasma flow (131I hippuran clearance) and GFR (creatinine clearance) were measured simultaneously in auto and allografted canine kidneys. The measurements were performed daily in the hopes that an indication of homograft rejection might be obtained prior to the rise in serum creatinine. In the autografted kidney, it was found that after an initial postoperative fall in effective renal plasma flow (ERPF) and GFR there was a gradual increase to normal levels at about 10 days. In the allografted kidneys, however, following the initial postoperative fall in both tests and return toward normal levels, as rejection occurred, there was an early fall in ERPF followed by a later reduction in GFR and increase in serum creatinine. The results obtained in this study may have an application in the clinical situations.

**Author’s address:** Dr. D.G. Dibble, Department of Surgery, Stanford University, School of Medicine, Paolo Alto, Calif. (USA).

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Serial histologic alterations in human renal homotransplants


Fifteen biopsies and 3 post-mortem specimens of allografted kidneys in 8 patients were examined by light microscopy in from 7 days to 76 weeks after transplantation. Five patients
received cadaver kidneys. All patients were maintained on relatively low levels of
immunosuppression (azathioprine less than 1.3 mg/kg and prednisone 0-80 mg/day). The early
changes in glomeruli consisted of focal proliferation of endothelial cells and edema followed by
adhesions and fibrosis. Proliferation of cells to form crescents was present in a few glomeruli in
the late specimens. The cellular infiltrate was at its peak at 20-28 weeks and consisted chiefly of
lymphocytes. Ischemic tubular necrosis was present in biopsies taken within 2 weeks after
transplantation. Destruction of the tubules associated with dense inflammatory infiltrate was
observed at 20-28 weeks. Atrophic tubules surrounded by fibrous tissue were present in the focal
region in the late biopsies from 2 patients. The intima of the arteries in 1 specimen was strikingly
thickened.

Author’s address: Capt. E. W. Peterson, Department of Pathology, Wilford Hall, USAF Hospital,
Lack/ami Air Force Base, Tex. (USA).

Human renal transplants. I. Glomerular changes
By Porter, K.A.; Dossetor, J.B.; Marchioro, T.L.; Peart, W.S.; Rendall, J.M.; Starzl, T.E. and

The light and electron microscopic appearances of the glomeruli are described in 50 renal
allografts which were examined 43 days to 2 years, 3 months after transplantation into patients
receiving immunosuppressive treatment. Appropriate controls were also studied. In the renal
allografts, the epithelial and endothelial cells were hypertrophied, and there was an increase in
fusion of the epithelial foot processes. Subendothelial accumulations of amorphous material were
present on the glomerular capillary basement membranes of 37 of the allografts. In 27 of the
kidneys, these deposits were large, and the basement membrane thickening was obvious under
light microscopy; in ten they were small and produced no thickening visible in ordinary sections.
Increased amounts of basement membranelike material were present in the mesangium of those
kidneys with subendothelial deposits, and there was, sometimes, hyperplasia of the mesangial
cells. These changes in the renal allografts were usually associated with mild proteinuria and
impairment of glomerular filtration rate. Occasionally the proteinuria was severe and unselective
in type. A nephrotic syndrome, however, was not produced. There was a close association
between the occurrence of marked glomerular deposits and incompatibility of host and donor as
shown by lymphocyte typing. These lesions are felt not to be drug induced, and in the majority
are unlikely to have been caused by the patient’s original disease. Two of the transplants,
however, showed additional distinctive subepithelial humps, and in these cases, it was
considered probable that there had been transmission of the recipient’s active

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glomerulonephritis to the allograft. Four of the renal allografts which were biopsied during a
clinical rejection episode contained platelet aggregates in many of the glomerular capillaries.
Author’s address: Dr. K. A. Porter, Department of Pathology, Medical Unit, St. Mary’s Hospital,
London W. 2 (England).

Apparent glomerulonephritis in a homotransplant

A 20-year-old female with a clinical course consistent with subacute and chronic
glomerulonephritis underwent renal homotransplantation from her mother and later developed
histologic evidence of recurrent glomerulonephritis. The histologic appearance of the
transplanted kidney (biopsy on 17th postoperative day) showed proliferative changes with early
crescent formation and slight membranous thickening. There was, in addition, focal necrosis of glomerular tufts with fibrinoid change and a scattered polymorphonuclear and mononuclear reaction. The vessels were normal and inflammation was not present in the interstitium. The patient became progressively azotemic and expired 29 days after operation. At necropsy the transplanted kidney still did not show evidence of classic homograft rejection. This case is presented as an example of recurrence of a patient's original renal disease in the transplanted kidney.

Author's address: Dr. G. A. Hallenbeck, Mayo Clinic, Rochester, Minn. (USA).

Inhibition of the afferent arc of the immune response to renal homografts by local graft radiation

Local graft radiation as the sole means of therapy has been shown to prolong survival of renal homografts in dogs. This study is an attempt to define the mechanisms of action. Dogs investigated in this experiment were divided into three groups: control, local graft radiation, and azathioprine-treated. Control dogs received no treatment of the first set graft, and those with local graft radiation received six daily doses of 150 roentgens; the first dose being administered on the day of transplantation. Azathioprine-treated dogs received a daily dose of 5 mg/kg, beginning on the day of transplantation. First set grafts were allowed to remain for 4-7 days in controls, 4-8 days in local graft radiation groups, and 4-19 days in azathioprine-treated dogs. After cessation of function or completion of the treatment protocol, first set grafts were removed. Second set grafts were then placed in the neck and a cutaneous ureterostomy was constructed. Functional survival time of second set grafts was assessed by urine production. In addition, appropriate histologic sections were prepared. Mean survival time for second set grafts were as follows: control, 1.8 ± 0.7 days; local graft radiation, 3.3 ± 1.4 days; azathioprine-treated, 4.2 ± 1.9 days. The latter two groups differed significantly from the control. Local radiation of the first set grafts not only resulted in prolonged function of second set grafts but also altered the histologic features of the second set rejection. The authors conclude that the data demonstrate that local radiation can affect graft survival by interference with the afferent arc of the immune response.

Author's address: Dr. D.M. Hume, Department of Surgery, Medical College of Virginia, Richmond, Va. (USA).

The use of heterologous antilymphoid agents in canine renal and liver homo-transplantation and in human renal homotransplantation

Plasma, serum, or globulin were prepared from horses which had been immunized with canine lymphoid tissues. They were tested after being rendered less toxic with absorption methods in both renal and orthotopic liver homotransplantation. The survival of animals after either kind of procedure was significantly prolonged compared to that of controls, although in virtually all, clinical and pathologic evidence of rejection eventually developed. The best results were obtained if treatment was started several days before operation and continued thereafter. Combination therapy of antilymphoid globulin and small doses of azathioprine resulted in slight and statistically nonsignificant increases in survival. Horse anti-human lymphoid globulin was also used in 11 patients in combination with azathioprine and prednisone as immunosuppressive
agents during renal homotransplantation. Eight of these patients received intramuscular globulin starting before operation and continuing until the close of the study. All were well after 9½ to 14 weeks. The other three patients had renal homografts which had been placed from five to eleven months previously. After institution of globulin therapy in the latter patients, steroid doses were reduced. In two of the three patients, renal function stabilized or improved in the ensuing ten to thirteen weeks, but in the third, there was further deterioration. The authors conclude that antilymphoid globulin is a useful adjunct to standard immunosuppressive therapy. They stress the experimental nature of their clinical trial and do not recommend wider application until further data is collected on its potential toxicity.

Author’s address: Dr. T.E. Starzl, Department of Surgery, University of Colorado, School of Medicine, Denver Veterans Administration Hospital, Denver, Co 80220 (USA).

Renal function in donors and recipients of renal allotransplantation

Single injection radioisotope techniques were used to measure glomerular filtration rate (radioiodinated sodium diatrizoate) and effective renal plasma flow (radioiodinated orthoiodohippurate) in donors and in recipients who underwent allogenic renal transplantation. In the donors, function was observed at varying intervals after surgery and was compared with preoperative clearances taken to represent total renal function. In two pairs of donors and recipients functional comparison was made between two kidneys—one in its natural host and a second in a foreign host under partial immunologic suppression (recipient). Correlation between GFR and ERPF and varying doses of drugs used to suppress the immunologic response, particularly prednisone, was demonstrated in four recipients whose course was followed for 11, 12, 23 and 24 months after transplantation. Studies were performed in five donors and six recipients. Stable or upward trends in function were demonstrated in the kidney of the donor and functional hypertrophy was evident at 6-11 days after nephrectomy when initial measurements were made. This hypertrophy was found to antidate urographically demonstrated increase in renal size. Functional hypertrophy in the donors was maintained or increased in all patients throughout the duration of the study. In the recipients, however, changes in GFR and ERPF were noted with changes in immunosuppressive therapy and with evidence of rejection. The authors conclude that the single injection clearance of both diatrizoate and orthoiodohippurate appear to be sensitive indicators of the activity of rejection in long term surviving recipients. The authors emphasize that serial determinations of renal functions serve as a useful clinical tool to indicate the balance between immunosuppressive therapy and the rejection process in the individual patient.

Author’s address: Dr. James C. Hunt, Mayo Clinic, Rochester, Minn. 55901 (USA).

Evaluation of renal homotransplantation by selective angiography

In patients undergoing renal transplantation, oliguria may be the result of acute renal failure secondary to ischemia, vascular thrombosis, ureteral perforation and slough, or the rejection phenomena. In an effort to distinguish between these complications, angiography was performed on 20 patients who received homo-transplants from living or cadaver donors. Thrombosis of the main renal artery was found in three instances. Thrombosis of the renal vein was found in only
one case. An abnormal angiogram was obtained in 7 patients in whom no thrombosis of the renal artery or vein could be demonstrated. Abnormal angiographic findings consisted primarily of delayed filling and emptying of the arterial tree. The dense nephrogram seen in normal kidneys was not observed, was delayed, or was only faintly visualized. The primary histologic findings in each of these cases were the vascular-parenchymal changes associated with the rejection phenomenon. This study indicates that selective renal angiography is of value in assessing the transplanted kidney as to the many causes of oliguria that may follow homotransplantation.

Author’s address: R. J. Alfidi, Cleveland Clinic Foundation, Cleveland, Ohio (USA).

Removal and absorption of antibiotics in patients with renal failure undergoing peritoneal dialysis. Tetracycline, Chloramphenicol, Kanamycin, and Colistimethate

Tetracycline, Chloramphenicol, Kanamycin, and Colistimethate were administered to 24 azotemic patients undergoing peritoneal dialysis. The peritoneal clearance rate for these drugs were: Tetracycline, 5.6 ml/min, Kanamycin, 5.3 ml/min, Colistimethate, 9.8 ml/min, and Chloramphenicol was undetectable. Of these four antibiotics, only Kanamycin was removed by peritoneal dialysis in amounts significant enough to dictate change in the presently accepted dosage schedule. The peritoneal clearance rates for both Tetracycline and Colistimethate calculated from the normal blood levels suggest that significant removal might be accomplished at higher, potentially toxic blood levels provided the clearance rates remained at the calculated levels. When administered interperitoneally, both Tetracycline and Chloramphenicol are rapidly absorbed. The authors feel that this has more significance for Tetracycline, since the serum half-life of active Chloramphenicol does not appear to be significantly altered by renal failure. In contrast, Tetracycline half-life is greatly prolonged, and toxic serum levels may be rapidly attained and maintained unless a reduced dosage schedule is adopted. Kanamycin

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and Colistimethate were both absorbed when administered interperitoneally, but in doses used, not effectively enough to produce therapeutic blood levels. From the results of this study the following dosage schedules are recommended: Tetracycline, loading dose, 1.0 g and 0.5-1.0 g every 48-96 h; Chloramphenicol, 2 g/day (usual dose); Kanamycin, 0.5 g loading dose and 0.25 g daily; Colistimethate, 2 mg/kg body weight daily.

Author’s address: Dr. J.P. Sanford, Department of Internal Medicine, University of Texas, Southwestern Medical School, Dallas, Tex. (USA).

Excretion of cephaloridine and cephalothin in patients with renal impairment

In this report the disappearance from serum of cephalothin and its analogue, cephaloridine, were studied in normal, uremic, and in uremic patients undergoing hemodialysis. The results indicate that the half life of the drugs are prolonged in the face of severe renal failure. The half life in normal subjects for cephaloridine and cephalothin was 1.52 and 0.85 h, respectively. In severely uremic patients (creatinine clearance less than 10 cm3/min), it rose to 20 h (cephaloridine) and 2.9 h (cephalothin). The disappearance of cephaloridine from the serum was significantly decreased with hemodialysis (20 h to approximately 4 h). It was also found that cephalothin activity was inhibited in vitro (against streptococcus and staphlococcus) in the presence of 100% pooled human serum. No inhibition (serum) occurred when cephaloridine was used. It is concluded that cephalothin may be used in almost ‘full’ dosages in patients with severe renal failure, but that cephaloridine tends to be retained, even though a considerable amount of the
drug is inactivated by extra-renal mechanisms, and that the dosage of the drug administered should be reduced. A suggested program is outlined. In addition, the considerable loss of the drug into the dialysis bath during hemodialysis should be considered when calculating the amount and frequency of administration.

Author’s address: Dr. C. M. Kunin, Department of Preventive Medicine and Medicine, Virginia School of Medicine, Charlottesville, Va. (USA).

Mechanism of urinary excretion of cephaloridine and its effects on renal function in animals
The administration of cephaloridine, a new semi-synthetic antibiotic obtained from cephalosporin C, causes proximal renal tubular necrosis in several animal species. The mechanism of urinary excretion of the antibiotic and its effects on renal function in animals have therefore been investigated. Cephaloridine, infused intravenously for 2 h in anesthetized cats and dogs, altered glomerular filtration rate and renal plasma flow to a small but statistically significant extent in some animals. Renal tubular function in cats, assessed by measurement of glucose reabsorptive capacity, urea clearance and p-aminohippurate secretory capacity, was unaffected by cephaloridine infusion. Cephaloridine was rapidly eliminated in the urine of anaesthetised cats, dogs, rabbits and monkeys at or a little below the glomerular filtration rate. No evidence of renal tubular secretion was obtained in these species, which distinguishes cephaloridine from the penicillins and cephalothin. In the hen, however, cephaloridine was secreted to a small extent by the kidney tubules, and this active tubular transport of the antibiotic was prevented by probenecid. Preliminary results from some unreported experiments were cited and the authors suggested that development of nephrotoxicity may be associated with renal tubular transport of the antibiotic.

Authors’ address: Dr. K.J. Child and Mr. M.G. Dodds, Department of Pharmacology, Glaxo Research Ltd., Fiddmer, Bucks (England).

Urinary lactic dehydrogenase activity in urinary tract infection
The mean urinary LDH activity in the control group (20 medical students) was 1300 ± 500 units per 8 h, in 20 patients with infectious renal disease 8000 ± 3000 units per 8 h. Urinary LDH activity has a positive correlation to the stage of the disease, but had no correlation to the degree of fever or to the erythrocyte sedimentation rate. No correlation was found to the amount of leukocytes, erythrocytes or bacteria in the urinary sediment. The disappearance of the cells and/or bacteria from the sediment during drug treatment had no effect on the level of LDH activity in urine.

Pure hypertensive disease without apparent changes in renal function does not increase the urinary LDH activity. Increased urinary LDH activity is found in connection with many different renal diseases, it does not indicate any specific diagnosis but is to be considered as a screening test.

Author’s address: Dr. A. Kasanen, Itäinenkatu 20.C.60., Turku 3 (Finland).

Renal concentrating capacity in diabetes mellitus
The ability of the kidneys to concentrate urine in the absence of any fluid intake was studied in 14 normal persons and 52 diabetics over a 24 h period, by measuring depression of the freezing point.
point (cryoscopy) and specific gravity (densimetry). In all subjects there was a close linear relationship between osmotic pressure (osmolality) and specific gravity of urine. In individual cases, however, there were marked deviations in urinary concentration, depending on the method of measurement. These deviations are due to deficiencies in the method of densimetry. There was no difference between persons with normal metabolism and kidney function and diabetics without nephropathy, as far as concentrating capacity was concerned. However, in diabetics in negative fluid balance the urine volume decreased less. The amount of osmotically active substance eliminated in urine was decidedly higher. This finding in diabetics is presumably due to the glycosuria, though it was of slight degree. It is likely that the concentrating capacity of the kidneys in diabetes falls after about the fiftieth year, but no definite answer is possible until a large series of patients has been examined. There was no correlation between the severity and duration of diabetes mellitus, on one hand, and the degree of urinary concentration on fluid abstention, on the other. The advantages of cryoscopy in measuring urinary concentration are pointed out.

Authors’ addresses: Dr. K. Irmscher; Dr. A. Breitbach, II. Medizinische Universitätsklinik, Moorenstrasse 5, 4 Düsseldorf and Dr. H. Holzgreve, Physiologisches Institut der Freien Universität, Arnimallee 22, 1 Berlin 33 (Germany).

Survival of urinary leucocytes
Urine was taken from patients with urinary-tract infections. The cells were removed by centrifugation and re-suspended in antibiotic-containing buffer solutions under varying conditions of osmolarity, pH, and temperature; cell counts were then made at intervals over a period of 24 h.
Each of the parameters was investigated separately over physiological ranges and the rate of leucocyte disintegration was found to be accelerated by raising the pH, decreasing the osmolarity, and by increasing the temperature at which the suspensions were kept. The effect of the three factors was also found to be additive. Thus cell suspensions kept at pH 7 in isotonic suspension (300 m Osmoles/1) at room temperature showed a 50% drop in the cell count in 5 h, whereas at body temperature in hypotonic suspension (50 m Osmoles/1) at pH 8, a 90% fall in cell count occurred within 2 ⅛ h. Further experiments showed that these results are similar to what occurs naturally in urine.
The findings indicate that in interpreting the significance of urinary leucocyte counts it is important to take into account the condition of the urine and the time and temperature at which it has been kept before examination.
Authors’ address: Dr. D.R. Triger and Dr. J.W.G. Smith, Department of Pathology, The Gibson Laboratories, Radcliffe Infirmary, Oxford (England).

The effect of androgenic hormones on creatinine secretion in the rat
(1) The stop flow procedure was used to compare the urinary creatinine: Inulin ratios in male and female rats, to confirm previous evidence for secretion of creatinine by the renal tubule in the male rat, and to assess the effect of androgenic hormones on this property of the renal tubule in the female rat.
The creatinine: Inulin ratios in free flow and all stop flow samples in the female rat were close to unity, confirming the absence of secretion of creatinine.
In the male rat the ratios in the free flow samples exceeded 1.2. In samples proximal to the sodium minimum the ratio rose to a peak of 1.56, and then declined to the free flow level. Female rats pre-treated with androgenic hormones exhibited a male type pattern. A single intramuscular dose of testosterone, or daily injections of progesterone for 1 month, had a similar effect. The free flow ratios rose to 1.2 and on stop flow a proximal secretory peak was seen. Two conclusions may be drawn—the creatinine clearance is a valid measure of glomerular filtration rate in the female rat, but not in the male; and the secretion of creatinine is a function of the proximal tubular cells which can be influenced by androgenic hormones in the rat.

Author’s address: Dr. A.M. Harvey, Department of Physiology, University of Michigan, Ann Arbor, Mich. (USA).

Low plasma creatinine in diabetes mellitus


Using the endogenous creatinine clearance as a measure of renal function, it was observed that diabetic subjects often have high clearances with low plasma creatinine values. As in diabetic patients the renal function tends to deteriorate in the course of time, it seemed important to define more exactly the normal values for plasma creatinine and creatinine clearance for this group.

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Blood creatinine levels were determined in diabetic patients free of renal disease and in healthy individuals with similar age and sex distribution.

The mean plasma creatinine values (± S.D.) were 0.76 ± 0.19 mg% in 48 diabetic males and 0.95 ± 0.14 mg% in 70 controls. The mean values in 84 diabetic and 92 normal females were 0.60 ± 0.17 mg% and 0.75 ± 0.15 mg%, respectively.

Creatinine levels below 0.5 mg% were found in 31 out of 132 diabetic subjects (23%), and in only 2 out of the 162 controls (1.2%). Values exceeding 1.0 mg% were found in only 5 diabetics (3.8%) but in 25 normal subjects (15%).

Author’s address: A, Aviram, Laboratory of Clinical Research, Hadassah Hebrew University Hospital, P.O.B. 499 Jerusalem (Israel).

Book Review – Livre Nouveau


G. Richet

Erratum

unfortunate mistake occured in table II on p. 32 inasmuch as the column «Actual G.F.R.» was
omitted entirely and the column «Calculated G.F. R.» showed the wrong figures. The correct
version of these two columns is given below.

<table>
<thead>
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<th>Actual G.F.R.</th>
<th>Calculated G.F.R.</th>
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<td>W.C.</td>
<td>78</td>
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1 Assuming 131 ml/min/1.73 sq.m.