Further Section

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Renal Association (Meeting April 29, 1964)
Steady values for Tmax PO4 were only obtained when they were corrected for filtration rate, this is not only an internal correction for errors of inulin estimation but also corrects for differing tubular mass in different individuals and for alterations induced by heavy hydration or aminophylline in the same individual. These findings suggest that inorganic phosphate is resorbed in a similar way to bicarbonate. Two phases in resorption are suggested, one dependent on the formation of a tubular membrane carrier complex, the other on the dissociation of the latter at the capillary border possibly dependent on renal blood flow. The problem of nephron intermittency is again raised.
TmP<sub>PO4</sub> is often doubled in thyrotoxicosis again related to the higher filtration rates returning to within the normal range when the patient is euthyroid. In renal failure phosphate is resorbed in proportion to the renal mass surviving unless primary or secondary hyperparathyroidism depressed resorption further.
Exchangeable sodium (Nae) was determined with radio-active sodium24 in 55 male subjects (28 normal subjects and 27 with chronic pyelonephritis), and in 19 female subjects.
Corpulence was shown to influence the relative values of the dilution volume of 24Na and Nae.
Comparison of normal weight male controls with similar patients showed a highly significant difference in Nae and dilution volume of 24Na.
In five patients with reduced Nae the extracellular volume, as measured with 82Br, was normal.
In five other sodium depleted patients loading with sodium chloride simultaneously increased dilution volume and Nae and lowered blood urea. The authors stressed the resulting practical and therapeutic implications.
Eight patients with chronic respiratory insufficiency were studied before and during treatment with the carbonic anhydrase inhibitor, dichlorphenamide. Measurements were made of the effects of the drug on the output of acid in the urine and on the pH, pCC<sub>½</sub> and plasma bicarbonate concentration of arterial blood. It was estimated that a dose of 50 mg four times daily depressed the tubular reabsorption of bicarbonate by 20-25% at levels of arterial pCC<sub>½</sub> between 40 and 70 mm Hg. Statistical calculations based on a small number of observations indicate that, if dichlorphenamide treatment is given to patients whose arterial pCC<sub>½</sub> exceeds 63 mm Hg, the risk of depressing the arterial blood pH below 7.20 may be greater than 5%.
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Renal Association (June 1964).
Soothill, J.F.: The detection of the altered form of the complement component C’βA (BicBia) in the serum of patients with various forms of glomerulonephritis.

It has been assumed that the low level of serum complement activity in the serum of patients with acute glomerulonephritis is due to its being used up in an antigen-antibody reaction, though the evidence for this assumption is circumstantial. The observation by Müller-Eberhard and others that exposure of fresh human serum in vitro to an antigen-antibody reaction led to an alteration of the electrophoretic mobility of the complement component called C3A or Bic (to form the so-called Bia), provides a means of obtaining direct evidence for this assumption. Fresh plasma from patients with acute post-streptococcal glomerulo-nephritis with low serum complement was found to contain the altered component, whereas controls were consistently negative using the same technique. Since this work was started, Lachmann has reported a similar phenomenon in disseminated lupus erythematosus.

Other patients with acute nephritis syndrome with normal serum complement activity were also found to contain the abnormal constituent as was the serum of many patients with persistent proliferative glomerulonephritis. It was also found in the serum of patients with membranous glomerulonephritis, though at a lower concentration, providing the first direct evidence of an immunological basis for this disease process. This constituent has not been found in patients with nephrotic syndrome with minimal renal histological abnormality, or in nephrotic syndrome due to renal vein thrombosis.


Two subjects with normal renal function were given a diet of fixed composition for 15 days. After the first three days, which were used as a control, one subject took 7 g of dl-methionine by mouth daily for four days followed by 10 g of choline chloride daily for four days; the other was given the same substances in the reverse order. Both subjects took 10 g of choline chloride and 7 g of methio-nine daily for the last four days.

Administration of choline chloride resulted in acidification of urine with fall of pH and increase of urinary titratable acidity and ammonia comparable to that found during ingestion of methionine. Urinary acidification due to choline chloride was accompanied by an increase in the urinary excretion of ‘organic acid’ to twice its original figure. The difference between measured titratable acidity and that calculated from urinary phosphate was much greater after ingestion of choline chloride than after ingestion of methionine at a comparable urine pH. In these circumstances, therefore, a new buffer substance appeared in the urine. The buffer in question was probably trimethylamine or trimethylamine oxide, substances which are known to be choline metabolites. Calculation shows that this hypothesis agrees with previous experimental data as well as the results of the above experiments.


Studies of the effect of an alkali load have been made in order to assess renal acid-base control by relating urine alkalinity to the changes in the blood. The most consistent relationship was found to be that between PCC½ and the maximum

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concentration of bicarbonate in the tubular resorbate. A straight line relationship was confirmed, allowing the calculation of a factor (PCG⅛/resorbate HCO3), which is constant for the normal subject at any level of PCO2. Patients with renal tubular acidosis all showed the expected
‘shift to the left’ with factors less than normal. The factor was also calculated for various patients with other types of renal disorder.

It is suggested that this procedure may provide a useful additional test of renal function in addition to the ammonium chloride load test, having the special value that the renal response is not dependent (as it is the acid load test) on the dose of alkali given, on its absorption, or on the degree of pre-existing acid-base disturbance.

First Meeting of the Israel Nephrological Association
The first Meeting of the Israel Nephrological Association took place on December 23rd, 1964, at the Beilinson Hospital.

Prof. T.D. Ullman, the President of the Association, in his opening address reviewed the recent advances in the field and justified the necessity for Nephrology to be an independent branch of Medicine. Prof. M. Toor reviewed the developments in the field of blood volume regulation. His further studies on sodium excretion in intraventricular hypertension due to aortic or pulmonary stenosis revealed the same hyperexcretion pattern of sodium as seen in systemic hypertension. When heart failure sets in, this hyperexcretion property is lost. Dr. H. Eliahou presented 2 cases with a unilateral contracted pyelonephritic kidney. Both gave a negative ‘Stamey test’. After nephrectomy, hypertension disappeared in one case and was significantly reduced in the other patient. He pointed out the limitations of the test in unilateral pyelonephritis when the affected kidney is ischemic and cannot produce a concentrated urine as it would do in earlier stages.

Deuxième Congrès Brésilien de Néphrologie
Le 2e Congrès Brésilien de Néphrologie a eu lieu à Belo Horizonte, Minas Gerais, du 6 au 10 octobre 1964. Le programme comprenait 3 symposiums consacrés respectivement aux glomérulonéphrites diffuses, à la lithiase rénale et aux néphropathies de la grossesse, et 11 séances de communications libres, avec 65 travaux inscrits.

Soulignons en particulier le travail présenté par F. Alzamora et R. C. Gui-maraes (Belo Horizonte). Ces auteurs ont étudié le mécanisme de l’exaltation de la clearance de l’urée (CUR) qui va de pair avec l’augmentation de la diurèse quand, chez le chien hydropénique, on installe une perfusion de 1 ml/kg de glucose à 16% dans l’artère rénale droite. Le rapport CUR/F.G. augmente de 0,47-0,58 à 1,1-3,1 avec l’élévation du flux urinaire, ce que les auteurs attribuent au mouvement passif de l’urée de l’interstitium médullaire vers la lumière du tube collecteur.