criteria of size or lack of phagocytic activity to identify lymphocytes. Among twenty-one normal individuals aged 18–53 years the mean±sd percentage of lymphocytes stained by polyvalent IgG anti-immunoglobulin antibody was 20±1%, range 18–22%, and the absolute number was 380±117/μl, range 232–652/μl. The values for lymphocytes bearing stable surface immunoglobulin of different classes were: IgM, 8±1±2 (4–5–12–2)% range 2–8–15–2%; IgD, 8–9±2–2 (5–2–13–2)%), 212±85 (83–317)/μl; IgA, 2–2±1–0 (0–8–4–0)% range 1–6–12–0%; and IgG, 2–3±1–6 (0–4–3)% range 60±47 (0–128)/μl.

It was confirmed that, for the detection of true IgG-bearing lymphocytes, it is essential to either use F(ab')2 anti-IgG antibody or to wash the blood at 37°C before staining. A substantial proportion of the cells stained by polyvalent IgG anti-immunoglobulin lack intrinsic membrane immunoglobulin, but bear Fc(γ) receptors which are avid at 4°C but not at 37°C.

The present method demonstrates remarkable constancy in and between normal individuals of the proportion of both immunoglobulin-bearing and Fc receptor lymphocytes, though the absolute numbers vary with the absolute lymphocyte count. The method also has potential for the study of other lymphocyte markers and receptors in health and disease.

**35. VALIDATION OF 'TRANSIT RENOGRAPHY' AS A METHOD FOR DETERMINING THE INTRA-RENAL DISTRIBUTION OF BLOOD FLOW**

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Although the human kidney consists of two nephron populations the validity of methods previously used for determining distribution of blood flow to each group of nephrons has been questioned. Britton & Brown (1971, Clinical Radiology, Lloyd-Luke, London), by performing a deconvolution analysis of the uptake and removal components of the blood background corrected 131I-hippuran renogram have shown that the transit of hippuran through the kidney is bimodal. It has been suggested that the first mode is due to flow through the short outer cortical nephrons and the second to flow through the longer juxtamedullary nephrons. The area of each mode might therefore be used as an index of plasma flow to each group of nephrons. The validity of this hypothesis was tested in anaesthetized rabbits by comparing the transit analysis of the renogram with the intrarenal distribution of blood flow (IRDBF). The amount of natriuretic activity in the urine the subjects when they were salt loaded than when they were salt depleted (2P<0.005). The urine of salt depleted subjects contained significant amounts of both natriuretic materials (2P<0.001).

**36. TWO NATRIURETIC SUBSTANCES IN EXTRACTS PREPARED FROM THE URINE OF NORMAL MAN WHEN SALT DEPLETED AND SALT LOADED**

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When the extracellular fluid volume is expanded the subsequent rise in urinary sodium excretion that occurs is due in part to a change in the concentration of some circulating natriuretic substance. In order to investigate whether such a substance is excreted in the urine the natriuretic activity of human urine during salt depletion and salt loading has been studied. Extracts prepared from the urine of thirty-one normal subjects were tested for natriuretic activity in ninety-four normal conscious water loaded rats. Two natriuretic fractions were found. The larger of the two was prepared on G-50 Sephadex, and the smaller on G-25 Sephadex. The natriuresis produced by the larger material was slow to develop and persisted for 2 h. The natriuresis produced by the smaller material was maximal in the first 20 min and declined rapidly within the next 40 min. The amount of natriuretic activity that could be extracted from the freeze-dried urine was diminished by high concentrations of sodium chloride. The natriuretic activity of both materials was greater in the urine of the subjects when they were salt loaded than when they were salt depleted (2P<0.005). The urine of salt depleted subjects contained significant amounts of both natriuretic materials (2P<0.001).

**37. COMPLEMENT AND POLYMORPHONUCLEAR LEUCOCYTES IN THE AUTOLOGOUS PHASE OF NEPHROTOXIC NEPHRITIS**

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We have investigated the roles of complement and polymorphonuclear leucocytes (PMN) in the autologous phase of nephrotoxic nephritis (NTN) in the rabbit using sheep antibody to glomerular basement membrane. Studies were undertaken in a conventional model and a 'telescoped' model in which the disease process was accelerated by prior immunization to sheep IgG. Polymorphs were depleted by a specific goat anti-rabbit polymorph serum (APS) and complement by highly purified cobra venom factor (CVF). In both conventional and telescoped models APS provided remarkable protection: proteinuria, glomerular fibrin deposition, crescent formation and glomerular polymorph infiltration were substantially reduced or absent. This protection was not attributable to reduction in formation of antibody to the nephrotoxic immunoglobulin. By contrast, depletion of complement with CVF provided no protection and polymorph infiltration was similar in CVF-treated and control animals. The efficiency of complement depletion was indicated by the failure to detect any complement in the glomerul of