cyclo-oxygenase activity rather than in phospholipase activity might be the mechanism of the enhanced biosynthesis of MDA by diabetic platelets. Overnight fasting significantly reduced MDA production under all conditions but the differences between normal and diabetic remained.

These results indicate that biosynthesis of prostaglandin endoperoxides may be increased in diabetic platelets. Since the prostaglandin endoperoxides are precursors of the thromboxanes, which are potent aggregating agents, this may help to explain the abnormalities observed in the behaviour of diabetic platelets.

3. THE EFFECT OF PARENTAL ARTERIAL PRESSURE ON PRESSURE-RELATED NATRIURESIS IN NORMAL YOUNG MEN

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An increased sodium excretory capacity is a well-recognized feature of arterial hypertension. Hitherto it has been generally considered to be the result of the elevated pressure, but congenitally hypertensive rats show an exaggerated natriuresis before they develop hypertension (Ben-Ishay, Knudsen & Dahl, 1973, Journal of Laboratory and Clinical Medicine, 82(4), 597; Bianchi, Baer, Fox & Pagetti, 1975, Sixth International Congress of Nephrology, Florence, 274), so it may be that, in man, abnormal renal sodium handling also precedes the development of hypertension rather than being a consequence of it. Therefore, since arterial pressure is inherited (Ayman, 1934, Archives of Internal Medicine, 53, 792), the relationship between arterial pressure and the rate of renal sodium excretion following a small sodium load has been studied in 34 young (18–26 years) normotensive Caucasian men in relation to their parents' arterial pressure.

To minimize small variations of prehydration, the subjects were fasted overnight for 10–5 h, then drank 540 ml of water at 07-30 hours, followed by 5% dextrose intravenously (26.7 ± 0.8 ml/kg) between 08-30 and 09-00 hours. A large iso-osmotic sodium load (31.5 ± 0.8 ml/kg Ringer lactate over 60 min) was then given and the relevant measurements were made at 20 min intervals for 250 min. The arterial pressure of the 68 parents was measured after 5 min sitting.

As expected, there was a considerable variation in the rate of renal sodium excretion (5–60% of the infused load) but the normotensive sons of hypertensive parents (n = 20, one or both parents' BP > 140/85 mmHg) excreted more sodium (P < 0.02) than the normotensive sons of normotensive parents (both parents' BP < 140/85 mmHg, n = 14). Furthermore, there was an increasing time-dependent relationship between the mean arterial pressure and the rate of sodium excretion (r = 0.21, 0.29 and 0.38 for the first, second and third hours, with significance levels of 5%, 0.1% and 0.1% respectively). This time-relationship was seen only in the sons of normotensive parents; for example, during the third hour r = 0.78 (P < 0.001) when the sons of hypertensive parents showed only an insignificant relationship (r = 0.18, P > 0.1). When the rate of sodium excretion was corrected for GFR (creatinine clearance) the correlation coefficient for the sons of two normotensive parents increased still further (r = 0.94, P < 0.001) but for the hypertensive parent group the correlation remained insignificant (r = 0.32, P > 0.1).

Thus for the sons of normotensive parents most of the variation in the rate of sodium excretion following a large sodium challenge is a function of the mean arterial pressure response, whereas no such relationship exists when either or both of a son's parents are hypertensive.

These findings show that, as a group, the normotensive sons of hypertensive parents excrete sodium more rapidly than their colleagues with normotensive parents. Thus the increased sodium capacity characteristic of hypertension precedes, in man, the development of overt hypertension. They also show that in man an increasingly pressure-dependent sodium excretory capacity develops following a large intravenous fluid load but that this pressure-dependence is perturbed in the sons of hypertensive parents.

4. OXYGEN-15 BRAIN SCANNING IN SYSTEMIC LUPUS AND VASCULITIC DISEASES


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The short-lived gamma-emitting isotope 15O can be used to study cerebral blood flow and metabolism non-invasively; the former is derived from cerebral scanning after inhalation of CO2, which is converted into H215O in the lungs, and the latter after metabolism of inhaled 15O2, which is converted into H215O by metabolism in cerebral tissue (Jones et al., 1976, British Journal of Radiology, 49, 339–343). 24 patients with systemic lupus erythematosus (SLE) and seven with suspected cerebral vasculitis as a part of polyarteritis nodosa (PAN) or Wegener's granulomatosis (WG) have been studied. In the patients with cerebral vasculitis as a part of PAN or WG the scans were strikingly abnormal; in four cases frank neurological signs were present and the scans confirmed the presence of lesions in appropriate cortical areas, while in three others disorders of higher function were seen, reflected by abnormal scans in all cases. In all patients with SLE having unequivocal evidence of cerebral involvement (nine), gross changes were seen on the scans. The most interesting finding in SLE patients was the high incidence of abnormalities (13/15) in patients in whom there was no clinical evidence of cerebral disease (six/eight) or in whom only minor psychiatric symptoms were present (seven/seven). The technique was found to be useful in monitoring the effects of therapy and improvement in scan appearances paralleled the clinical response (14 cases), while in all four relapses studied the new cerebral symptoms were accompanied by gross changes in the scans. In general, regional abnormalities were seen in both the flow and metabolism scans. This technique represents an important advance in the study of allergic cerebral disease and may shed new light on its pathophysiology.

5. INTENSIVE IRON CHELATION IN TRANSFUSION-DEPENDENT THALASSAEMIA: THE EFFECT OF AGE AND PREVIOUS IRON LOADING

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Patients with thalassaemia disorders and other genetic or acquired anaemias requiring regular blood transfusions usually die from the results of iron overload which causes cardiac, hepatic and endocrine damage. Desferrioxamine (DF) is a specific iron chelator but its use by daily intramuscular (i.m.) injection has been disappointing. With such treatment patients remain in positive iron balance in the early years of life, and negative iron balance can be achieved only after a potentially lethal accumulation of body iron. Recent studies have shown that much more iron may be excreted with slow subcutaneous (s.c.) infusions of DF. To examine the possibility that with such infusions total body iron might be reduced to or maintained at lower, potentially less toxic, levels a comparison was made between urinary iron excretion after i.m. bolus injections and after s.c. infusions of DF at various doses in 16 patients with transfusion-dependent thalassaemia major. Eight patients were aged 6 years or less with previous transfusions of less than 50