produced no adverse effects. The mean basal plasma Prl concentrations were similar in the pts. (241 ± 10 mu/L) and controls (218 ± 34 mu/L) and plasma Prl was suppressed for 10 h with maximum suppression occurring at 4 h in both groups. However the reduction in Prl concentration was significantly greater in the control group than in the pts. and the mean pt. Prl concentration at 4 h was 113 ± 20 mu/L compared to a mean control Prl of 60 ± 6 mu/L (P<0.05).

There have been no previous reports of the effects of 10 µgm pergolide and the results suggest that this dose will suppress plasma Prl for 10 h. 10 µgm pergolide twice daily may therefore be a suitable starting dose for pts. with cyclical oedema. The observed resistance to pergolide in cyclical oedema may be explained by a reduction in hypothalamic dopamine acttivity and provides further evidence for a hypothalamic disturbance in this disorder.

202 ALTERATIONS IN THE RESPONSES OF CIRCULATING TSH, PROLACTIN AND ALDOSTERONE LEVELS TO METOCLOPRAMIDE IN HYPOTHYROIDISM DUE TO WARMING

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The physiological dopaminergic inhibition of human TSH release is reduced in hypothyroidism, improving with L-thyroxine therapy, alongside a lowering of basal TSH levels. However, the serum TSH levels of hypothyroid patients fall on warming alone (O'Malley B P et al, 1980, Clinical Endocrinology, 13, 87). Thus, metoclopramide induced (10mgs IV) elevations of TSH and prolactin, were measured in 7 hypothyroid patients before and after 24 hours of warming, in order to assess the contribution of temperature to central dopaminergic modulation in hypothyroidism. Simultaneous alterations in 'extra hypothalamic' dopaminergic activity were assessed by measuring metoclopramide induced changes in plasma aldosterone and renin levels, dopamine directly influencing the former's release from the adrenal glands (Norbiato G et al, 1977, Journal of Clinical Endocrinology and Metabolism, 45, 1313). During warming; means basal TSH levels fell from 76.4 ± 18.7uU/ml (mean ± SEM) to 64.9 ± 13.8µU/ml (P = 0.05) and TSH responsiveness to metoclopramide (peak/basal level) rose from 1.43 ± 0.15 to 1.86 ± 0.22 (P < 0.01) : mean serum prolactin levels fell from 14.4 ± 3.9 to 12.8 ± 4.0ng/ml (P = 0.05) and prolactin responsiveness to metoclopramide rose from 16.57 ± 3.4 to 19.31 ± 3.66 (P = 0.01) : mean basal plasma aldosterone levels did not change but aldosterone responsiveness to metoclopramide rose from 3.59 ± 1.4 to 7.58 ± 3.2 (P < 0.05) : mean basal plasma renin levels rose from 2.73 ± 2.32 to 3.31 ± 3.14pmol.ml^{-1}h^{-1} (P = 0.05), but the minimal responsiveness of renin to metoclopramide did not change.

Our results demonstrate an increase in both central (tuberoinfundibular) and more peripheral (adrenal) dopaminergic activity in hypothyroidism as a consequence of warming, suggesting that dopaminergic tone is at least in part temperature dependent. Moreover, the observed increase in peripheral dopaminergic activity suggests that the dopaminergic deficit of hypothyroidism may be more extensive than hitherto envisaged.

203 THREE HALOGENS AND THEIR PLASMA CONCENTRATIONS IN DIABETICS

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Concentrations of chlorine (Cl), iodine (I) and bromine (Br) were determined by neutron activation analysis of fasting lithium-heparin plasma from 31 insulin-treated diabetics (ITD), 53 non-insulin-treated diabetics (NITD) and 22 non-diabetics (ND). Br concentrations were lower in diabetics as a single group, and particularly in NITD (40.8 ±S.D. 5.9 µMoles) than in ND (45.5 ± 3.1, p<0.001), which were no different from ITD. Contrariwise, plasma I is both raised in NITD (0.31 ±0.06 µMoles, p<0.001) compared to ND, and decreased in ITD (0.23 ±0.02, p<0.005). The molar ratio of Br to I was therefore much lower in NITD than in ITD (136 ±37 v 196 ±25, p<0.001), in whom it did not differ from ND (183 ±49). Complicating variables were age and, less so, gender. Age correlated positively with plasma I in NITD (r_s = 0.36, p<0.01) and in all diabetics but in neither ITD nor ND. However, multiple linear regression analysis (MLRA) for all diabetics showed type of diabetes and age (p < 0.005) as well as gender (p<0.01) to be independent predictive factors for I, while with NITD alone age and gender (higher in males) again predicted (p<0.005), as did Br (p<0.05) inversely. Cl (and sodium) values did not differ significantly among the three groups. An intravenous glucose tolerance test (IVGTT, with 20g.m^{-2} body surface) was done in 61 of the diabetics (21 insulin-treated). The K_G rate constant for fall in blood glucose 10-60 mins after i.v. injection (expressed logarithmically) had zero order correlation coefficient of -0.30 (p = 0.05) against plasma Br for NITD, and on MLRA remained a significant inverse predictive factor (p<0.025). When the 29 treated with oral hypoglycaemics as well as diet were analysed separately, plasma Br predicted log K_G more strongly (p<0.001) and contributed 21% of the total variance (28% residual). If all diabetics were analysed together, the ratio of plasma Br to I correlated inversely with log K_G (r = -0.41, p<0.01) but did not contribute significantly (0.1 > p > 0.05) to the MLRA for log K_G.

204 AN INVESTIGATION OF NEUROENDOCRINE AND CARDIOVASCULAR EFFECTS OF SUBSTANCE P MICRO-INJECTED INTO THE NUCLEUS TRACTUS SOLITARII

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Neural integration of the vasopressin (AVP) response to cardiovascular stimuli is poorly understood. In particular, the neurotransmitter(s) relaying visceral sensory information within the nucleus tractus solitarii (NTS) is unknown. We have investigated the possibility that substance P (SP) mediates the visceral control of AVP secretion in rats by microinjecting SP into the intermediate NTS and measuring the plasma AVP response. The role of SP in the NTS was further investigated by performing similar experiments in rats treated neonatally with capsaicin (Nagy,