

46. SERUM CORTISOL LEVELS: THE FIRST 48 HOURS IN FULLTERM, PREMATURE AND OVERWEIGHT NEWBORNS

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The detailed temporal changes in cortisol levels during the neonatal period have not been accurately delineated. Our recently developed micromethod for the radioimmunoassay of cortisol in heel-prick blood samples collected on filter paper enabled the determination of cortisol concentrations in fullterm, premature (<34 weeks) and overweight (>4 kg) neonates. Serum cortisol levels ( $\mu\text{g/dl}$ ) at various intervals following birth were (mean  $\pm$  SEM, n): Fullterm:  $\frac{1}{2}$  hr:  $17.2 \pm 1.7$  (n = 16); 1 hr:  $16.4 \pm 1.3$  (n = 20); 2-4 hr:  $10.4 \pm 1.0$  (n = 9); 4-8 hr:  $11.2 \pm 1.1$  (n = 16); 8-16 hr:  $9.8 \pm 0.8$  (n = 15); 16-24 hr:  $8.7 \pm 0.8$  (n = 23); 24-36 hr:  $9.7 \pm 0.9$  (n = 8); 36-48 hr:  $9.5 \pm 1.5$  (n = 8); 3-10 days:  $9.0 \pm 1.0$  (n = 27). Premature:  $\frac{1}{2}$  hr:  $19.7 \pm 2.3$  (n = 12); 1 hr:  $15.1 \pm 2.1$  (n = 12); 16-24 hr:  $10.7 \pm 1.2$  (n = 14); 3-10 days:  $7.9 \pm 0.8$  (n = 10). Overweight: 4-8 hr:  $8.7 \pm 0.8$  (n = 26); 16-24 hr:  $5.7 \pm 0.4$  (n = 30).

The data demonstrate that: 1. The high transient cortisol levels in the fullterm neonate drop abruptly ( $p < 0.001$ ) 1-2 hr. postnatally and remain essentially unchanged ( $p > 0.05$ ) for at least 10 days thereafter. 2. No significant difference ( $p > 0.05$ ) in cortisol levels was found in premature compared to fullterm newborns. 3. Cortisol levels were significantly lower ( $p < 0.01$ ) in overweight newborns.

47. THE INFLUENCE OF ENDOGENOUS CORTISOL ON THE PERIPHERAL CONVERSION OF THYROXINE IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION

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A study was performed to elucidate whether endogenous cortisol, as previously suggested, could be responsible for the decreased  $T_3$  and increased  $rT_3$  levels seen in euthyroid patients with acute myocardial infarction (AMI). Thyroid hormones and cortisol levels were serially measured over 7 mornings and evenings in 23 consecutive patients with AMI (n = 20) or coronary insufficiency (n = 3). The patients were divided into 2 groups: high and low cortisol level groups, according to mean morning and evening cortisol levels. A transient increase in plasma  $rT_3$  and decrease in plasma  $T_3$  was observed in both groups. The change in  $T_3$  and  $rT_3$  was significantly higher and persisted for a longer time in the high level cortisol group. Taking the 23 patients together, a significant correlation was observed between the maximal change in  $T_3$  or  $rT_3$  with the mean cortisol levels preceding these changes. No significant correlation was observed between infarct size and change in  $rT_3$  or  $T_3$ . It is suggested that cortisol level, rather than infarct size, is the possible mediator of the altered peripheral conversion of  $T_4$  to  $T_3$  and  $rT_3$  in AMI patients.

48. GENERAL CRYO-TREATMENT FOR WITHDRAWAL OF PATIENTS WITH RHEUMATOID ARTHRITIS FROM GLUCOCORTICOIDS

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The general cryo-treatment is a kind of stimulation therapy that was developed by Toshima Yamauchi, rheumatologist, in October of 1979. This is done in special chamber of extreme cold dry air of  $-160^\circ\text{C}$ . All patients with rheumatoid arthritis, who had been administered with glucocorticoids, were treated once daily, in the cryo-chamber. This was started two weeks after their hospitalization, with tapering or the altogether withdrawals of glucocorticoids. Within six to twelve months of this cryo-treatment, there was neither drug dependency nor withdrawal syndrome, but remission of the underlying disease. Two cases, including a patient with juvenile rheumatoid arthritis, will be presented in film.