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 (μg/dl) at various intervals following birth were (mean ± SEM, n): Fullterm: ½ hr: 17.2 ± 1.7 (n = 16); 1 hr: 16.4 ± 1.3 (n = 20); 2-4 hr: 10.4 ± 1.0 (n = 9); 4-8 hr: 11.2 ± 1.1 (n = 16); 8-16 hr: 9.8 ± 0.8 (n = 15); 16-24 hr: 8.7 ± 0.8 (n = 23); 24-36 hr: 9.7 ± 0.9 (n = 8); 36-48 hr: 9.5 ± 1.5 (n = 8); 3-10 days: 9.0 ± 1.0 (n = 27). Premature: ½ hr: 19.7 ± 2.3 (n = 12); 1 hr: 15.1 ± 2.1 (n = 12); 16-24 hr: 10.7 ± 1.2 (n = 14); 3-10 days: 7.9 ± 0.8 (n = 10). Overweight: 4-8 hr: 8.7 ± 0.8 (n = 26); 16-24 hr: 5.7 ± 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°C. All patients with rheumatoid arthritis, who had been administrered 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.