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The relation between the renal excretion of inorganic phosphate and sodium during chronic ammonium chloride load in infants.

In 15 normal infants on artificial feeding, aged 3-12 months, the renal excretion of inorganic phosphate /P/ and sodium /Na/ has been measured before and during 5 days of ammonium chloride administration. During acid load in infants the urinary P to creatinine ratio /$U_PV/U_{Cr}V$/ and P to creatinine clearance ratio /C_P/C_{Cr}/ increased and showed significant correlations with the accompanied increase of urinary Na to creatinine ratio /$U_{Na}V/U_{Cr}V$/ and Na to creatinine clearance ratio /C_{Na}/C_{Cr}/ respectively. The renal excretion of P varied independently on blood pCO_2 or urinary pH. In contrast, there was the close negative correlation between these acid-base parameters and the renal excretion of Na. The finding of interdependence of renal excretion of P and Na in infants during ammonium chlorid load is compatible with the view that this effect could be mediated electrostatically and may be at least partly controlled by the action of parathormone.

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AN ANALYSIS OF PREMATURE BIRTHWEIGHT BY GESTATIONAL AGE.

The distribution of birthweight (BW) of a sample of 16,680 infants born at or before 36 weeks gestational age (GA) from 1967 to 1971 in England and Wales was found to be skewed or bimodal after allowance had been made for sex, GA and maternal parity. The observed distribution could be described accurately in terms of a mixture of two normal distributions with different mean values but the same standard deviation. The population with the higher mean BW comprised one third of the observations each week between 28 - 34 weeks but was only 0.7% of all births. Their mean BW was 3.10 to 3.37kg and their sex ratio was 106, both equivalent to those of 38 - 39 week infants. The sex ratio of the population with the lower mean BW rose with increasing prematurity and was 128 between 28 and 34 weeks. The mean BW of these infants rose with GA and agreed closely with figures published earlier. CONCLUSIONS: The population of infants with the higher mean BW is composed mainly of pregnancies of mistaken gestational length. The error in GA is not a multiple of months but is continuously distributed. These pregnancies form a small fraction of all births but one third of supposedly premature births.

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Failure of hypothermia as a treatment for experimental asphyxia in neonatal rabbits.

Cooling is known to increase survival from asphyxia in newborn animals, when it is used before the onset of anoxia. It has therefore been advocated as a treatment for birth asphyxia in humans. Since it is not possible to cool a human baby before the onset of birth asphyxia, experiments were designed to test the effect of cooling after anoxia.

Newborn rabbits were asphyxiated in 100 per cent nitrogen and were cooled either quickly (drop of 1°C in 45 secs.) or slowly (drop of 1°C in 2 minutes). There was an increase in survival only when fast cooling was used early in asphyxia. This rate of cooling is faster than is usually possible in clinical practice.

Further litters of rabbits were asphyxiated in utero. After delivery, they were divided into 3 groups, and were put into an enviromental temperature of 37°C, 20°C or 0°C. The animals who were cooled survived less often than those kept at 37°C.

The results of these experiments suggest that hypothermia has little to offer in the treatment of birth asphyxia in humans.

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Night and day growth hormone levels during daily or alternate-day therapy with corticosteroids.

Diurnal rhythms of HGH secretion were measured in five children 3 to 13 years old: a) during daily administration of 60 mg/M^2 of prednisone b) during alternate-therapy with 40 mg/M^2 of prednisone c) following discontinuation of therapy. It was found that daily administration of prednisone resulted in an almost complete disappearance of the normally observed HGH peaks. A decrease of the mean peak plasma HGH level as well as the mean of the highest HGH levels was also observed. However on alternate-day therapy it was found that on the day "offsteroids" the peaks were maintained. The mean peak plasma HGH level, as well as the mean of the highest HGH levels were higher when compared to the values observed when the patients were treated daily ($p<0.01$). No significant differences were found after discontinuation of treatment. It is suggested that the disappearance of the spontaneous peaks might explain in part the growth retardation noticed in children on long-term treatment with corticosteroids. Nevertheless, the normal growth rate observed in children on alternate-day steroid therapy could possibly be explained by the normal HGH secretion noticed during the day when steroids were not given.