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REDUCTION OF INSENSIBLE WATER LOSS (IWL) IN PREMATURES UNDER RADIANT WARMERS. T.F.Yeh, M.Baccaro, R.S. Pildes. Cook County Hosp. Dept. of Ped., Chgo., Ill.

Excessive IWL is a well known complication in prematures placed under radiant warmers. A controlled study was therefore undertaken to determine if a plastic dome would be useful in minimizing IWL. Twenty-nine AGA healthy infants with gest. age of 30.9±0.4 wks (mean±S.E.) birth wt. 1.4±.03kg and postnatal age of 8.7±2.1 days were studied. IWL was determined from insensible wt. loss measured on a Potter Bed Balance scale. Water losses from urine and stool were prevented by attaching a plastic pouch to the perineum. IWL was measured under 2 conditions in the same infant: with heat shield (Grp A) and without heat shield (Grp B). Each study period extended for 3 hrs after 30 min. of stabilization. The studies were done in an infra-red radiant warmer (Ohio) with servo-control set at skin temp. of 36.5°C. Skin, rectal, ambient temp. RR, HR and wt. loss were monitored and recorded every 30 min. Total IWL was significantly lower ($p < .01$) in Grp A as compared with Grp B infants (1.76±.24 vs 2.74±.3 g/kg/hr). RR, HR and skin temp. were similar in both groups. Ambient temp. was higher ($p < .01$) in Grp A, 34.6±.25°C. than in Grp B, 30.6±.26°C.; rectal temp. was lower ($p < .01$) in Grp A, 36.7±.13°C. than in Grp B, 37.2±.10°C. The lower IWL of Grp A infants may be due to a smaller skin-air ambient temp. gradient in Grp A than in Grp B. The shield may also alter air flow pattern, resulting in an insulating layer of saturated air over the baby which reduces evaporation from the skin.

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THE RELATIONSHIP BETWEEN THE INCIDENCE OF RESPIRATORY DISTRESS SYNDROME (RDS) AND MATERNAL TOXEMIA. Jing J. Yoon and Schuyler Kohl (Spons. by C.D. Cook) Albert Einstein Medical College, Bronx-Lebanon Hospital Ctr. Dept. Ped. & SUNY-Downstate Medical Ctr., Brooklyn.

We have analyzed the relationship between RDS and maternal toxemia in 2107 premature infants weighing between 1000 and 2199 g born from Jan. 1968 to Dec. 1975 at Downstate Medical Center. Two-hundred and forty-six mothers developed toxemia. The incidence of RDS (15%) in the toxemia group was significantly ($p < 0.001$) lower than that (30%) in the non-toxemia group. In infants whose gestational age was 34 wk or less, the incidence was 21% in the toxemia group and 35% in the non-toxemia group ($p < 0.001$). In infants whose gestational age was 35 wk or more, the incidence (6%) in the toxemia group was significantly ($p < 0.05$) lower than that (15%) in the non-toxemia group. Toxemia was classified into 6 groups; mild pre-eclampsia (1), severe pre-eclampsia (2), antepartum eclampsia (3), intrapartum eclampsia (4), hypertensive before pregnancy with toxemia (5), hypertensive before pregnancy without toxemia (6). The incidence of RDS was 21% in group 1, 13% in 2, 9% in 3, 0% in 4, 10% in 5 and 15% in 6. It appears that the incidence of RDS was inversely related to the severity of maternal toxemia (group 1-4). The incidence of RDS was significantly ($p < 0.005$) lower in infants of mothers who had hypertension before pregnancy with or without toxemia. Our study demonstrated the low incidence of RDS in premature infants of toxemic mothers and inverse relationship between the development of RDS and the severity of maternal toxemia.

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THE EFFECT OF MOTHERS' DRUG ADDICTION ON THEIR OFFSPRING. Jing J. Yoon, K.D. Shin, and B. Kissin (Spon. by C.D. Cook) Albert Einstein Med. College, Bronx-Lebanon Hosp. Dept. of Ped. & Downstate Medical Center, Dept. of Psych., Bronx, N.Y. From Jan. 1975 to June, 1977, 113 infants of drug-addicted mothers (IDAM) were studied and compared to 5903 infants of non-addicts at Downstate Medical Center.

There were no differences in the ethnic background, maternal age and parental education between the study and control groups. Of 113 pregnant addicts, 69 were taking multiple drugs. The incidences of maternal urinary tract infection, positive STS and fetal distress were significantly ($p < 0.005$) higher compared with the control group. Mean birth weight and gestational age in the study group were 2807 g and 38.5 wk respectively. The high incidence of low birth weight (27%) was mainly due to prematurity (21%). Mean birth weight (2435 g) of 8 infants of pure heroin addicts was significantly ($p < 0.05$) lower than that (2790 g) of 27 infants of pure methadone addicts. Neonatal mortality rate per 1000 live births in IDAM was 33 and in the control group was 15. Withdrawal symptoms were noted in 96% of IDAM. Of 113 IDAM in the study group, 43 infants were followed for 9-30 months. Neurological evaluation at follow-up in these 43 infants was within normal limits. Weight increment and head growth were normal. Of these 43 infants 26% had lengths below the 3rd percentile. Seven of them had normal growth rates while 4 had retarded growth rates. Our study indicates that mothers' drug addiction appears to affect their offspring during the neonatal period and linear growth in early childhood.

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HYDROPS FETALIS, FETAL MATERNAL TRANSFUSION AND CHORIOCARCINOMA OF THE PLACENTA. I.W. Zarafu, P.I. Tseng and J. Chuachingco. (Spon. by F.C. Behrle) N.J. Medical College, Newark Beth Israel Medical Center, Dept. of Ped. Newark, N.J.

A 4320gm. term Caucasian male was born to a 29 year old para 1011 mother after a normal pregnancy and vaginal delivery. The Appgar score was 4 and 7 at 1 and 5 minutes. He was pale and had generalized anasarca. Initial hemoglobin (Hgb) was 4gm% Hct 12% there were 300 NRBC/100WBC. The smear showed anisocytosis poikilocytosis, polychromasia and burr cells. Mother and baby were 0+ direct and indirect Coombs' negative. The initial CVP was 23cm blood gases showed severe metabolic acidosis. The infant underwent a partial exchange transfusion in the delivery room and a second exchange transfusion with donor's hct of 70% and 100cc deficit. Additional problems: assisted ventilation for 14 days, seizures and oliguria. He required several doses of salt poor albumin and diuretics and lost a total of 700gms. He was discharged at age 3 weeks in good condition, on phenobarbital 3 mg/kg/day. Additional laboratory tests included normal G-6-PD, cord IGM and Torch studies. Hemoglobin electrophoresis of the infant's blood showed AF Hgb. Maternal blood tested by the Kleihauer technique showed a fetal adult RBC ratio of .064 corresponding to 100cc of fetal blood. Hemoglobin electrophoresis on maternal blood showed 75% Hgb A 19% Hgb F and 6% Hgb A2, a month later Hgb F was 0%. The placenta revealed evidence of choriocarcinoma.

To our knowledge this is the first case of hydrops fetalis associated with choriocarcinoma of the placenta. We assume that the cause of transfusion is destruction of the placenta by tumor.

NEPHROLOGY

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INTERSTITIAL NEPHRITIS, A REVERSIBLE CAUSE OF RENAL FAILURE IN SARCOIDOSIS. Joseph J. Abularrage, Ilona S. Szer, Melissa J. Matthews and Robert G. Schacht. New York Univ. Schl. of Med., Dept. of Pediatrics, N.Y.

Two male patients ages 12 and 18 years presented with severe renal functional impairment occurring during the course of untreated sarcoidosis.

Renal manifestations were acute in the younger patient and chronic (4 mo.) in the older. On admission, serum creatinines (S Cr) were 6.1 and 12 mg/dl, serum calciums 10 and 10.2 mEq/L and hematocrits 29 and 28% respectively. Neither course was characterized by hypertension or oliguria. Urinary protein excretions were 1.4 and 1 gm/24 hrs. and the sediments were normal. IVP revealed normal size kidneys without calcifications. Renal biopsies in both revealed severe interstitial nephritis without calcium or granulomata. No glomerular disease was present in the younger patient, while 12 of 24 glomeruli were sclerotic in the older. Immunoglobulins were not present. Prednisone therapy 60 mg q.d. induced a complete remission of renal disease within 3 weeks in the younger patient (S Cr 0.8 mg/dl) and a significant improvement with S Cr diminishing to 5.7 mg/dl within 3 months, in the older patient.

Our experience indicates that the previously unreported etiology of acute renal failure in sarcoidosis, acute interstitial nephritis, can be successfully treated with prednisone.

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URINARY ENZYME ACTIVITY IN PATIENTS RECEIVING GENTAMICIN THERAPY. R. D. Adelman and S. Zakauddin (Spon. by E. Gold). School of Medicine, University of California, Davis, Sacramento Medical Center, Department of Pediatrics, Sacramento, California.

Proximal renal tubular damage is reflected by increased urinary enzyme activity. The urinary enzymes muramidase (MUR), Beta glucuronidase (BG) and N-acetyl-glucosaminidase (NAG) were determined in infants and children receiving gentamicin, and compared to age matched controls.

| | | (n) | MUR* | BG* | NAG* |
|----------|------------|------|----------|--------|----------|
| Neonates | Gentamicin | (7) | 1074±353 | 131±19 | 3974±423 |
| | Control | (7) | 125±25 | 39±3.0 | 1263±90 |
| | p | | <.02 | <.01 | <.01 |
| Children | Gentamicin | (17) | 41±7.6 | 149±16 | 1769±184 |
| | Control | (17) | 11±3.7 | 17±2.8 | 141±21 |
| | p | | <.01 | <.001 | <.001 |

No significant decline in GFR as reflected by serum creatinine and BUN was observed in the gentamicin treated group. However, urinary enzyme activity in both infants and older children receiving gentamicin therapy was significantly higher than in controls, indicating proximal tubular injury. Urinary enzyme activities in neonates were significantly higher than in older children.

Urinary enzyme activities are a sensitive means of detecting gentamicin tubular toxicity.

*Mean activity ± SEM expressed as U/mg of urinary creatinine.