**41** $H_2O_2$ GENERATING SYSTEM IN HUMAN BLOOD PLATELETS. Del Principe D.,* Menichelli A.* Di Giulio S.,De Matteis W.,Lubrano R.
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$H_2O_2$ plays a role in the thrombus formation in the endotoxin-induced disseminated intravascular coagulation(DIC) in rats.It has been also shown that antioxidants,such as vit.E,could prevent the aggregation of platelets in this experimental DIC.It is now evident that human platelets produce oxidizing substances.Using a cytochemical ultrastructural method,we demonstrated that platelets carry an $H_2O_2$ producing NADH-dependent system,which is activated by immunologic stimuli.By a biochemical method,we quantified the $H_2O_2$ production(15 nmol/$10^9$ platelets/20 min)after opsonized-zymosan(opZ)stimulation.We also demonstrated that platelets,by the membrane $H_2O_2$ generating system,partecipate in non specific immune mechanisms in the recruitment of inflammatory cells.The addition of catalase to platelet suspensions activated by opZ caused a 60% drop in the aggregation and in the release of ATP.Immunologic stimuli caused a 40% decrease in platelet vit.E,which was inhibited by catalase.Our data suggest that $H_2O_2$ generating system could play a role in the pathogenesis of DIC in childood.

**42** II. Multicentre clinical trial of diets for low birthweight infants: interim analysis of short term clinical and biochemical effects of diet. LUCAS A*, COLE TJ*, GORE SM*, BAKER B*, BATES CJ*, SIMPSON P*, LUCAS PJ*, CORK S*, DICARLO L*, BRINKWORTH R*, BAMFORD MF*, DOSSETER JFB*. Dunn Nutrition Unit, Milton Road, Cambridge, and Neonatal Units at Cambridge, Ipswich, Kings Lynn.

In 3 of 5 collaborating centres, two clinical trials comparisons are being made between infants randomly assigned to a preterm formula (PTF) or banked milk (BBM) fed as sole diets or in conjunction with maternal milk. (n=200 at second interim analysis). BBM fed infants showed: 1. increased incidence of: severe hyponatraemia (Na <126 mmol/1, p <0.05), radiological and biochemical evidence of rickets of prematurity (hypophosphataemia and higher alkaline phosphatase p <0.01) and riboflavin deficiency (erythrocyte glutathione reductase activation coefficient >1.3, p<0.01); 2. higher peak plasma bilirubin and more prolonged hyperbilirubinaemia (p<0.01), 3. higher plasma prolactin and growth hormone concentration (p<0.01). PTF fed infants showed 1. increased: growth rates (reported elsewhere), gastric pooling (p<0.01) and latent systemic anaphylactic sensitisation to cows milk (basophil histamine release to cowsmilk and anti IgE challenge, p<0.01); 2. faster postnatal fall in plasma IgG and rise in IgM (p<0.05); 3. lower plasma calcium (week 1) and potassium (p<0.02) 4. higher platelet count (p<0.05) and plasma concentration of some amino acids, notably threonine (p<0.0001). We conclude that patterns of short term response to diet are complex and cannot be used to predict an overall clinical benefit of a feeding regime - their clinical significance can be assessed only by follow up studies, the principle concern of these trials.

**43** Expression of the X-linked steroid sulphatase gene in single hair roots.
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We studied the expression of the X-linked steroid sulphatase (STS) gene in single hair roots of patients with X-linked ichthyosis, obligate heterozygotes and controls. STS activity was expressed as the amount of radiolabeled dihydro-epiandrosterone (DHEA) literated from DEAH-S per hair root in 5 hours. Nine patients with X-linied ichthyosis had an STS activity < 0.3 pmole DHEA per hair root in 5 hours. This is far below the activity of 12 male controls (4.6±1.8 pmole DHEA per hair root in 5 hours) and allows the reliable detection of the patient by means of the assay of single hair roots. Each hair root of 7 obligate heterozygotes had an STS activity in the control range (3.0±0.9) and the frequency distribution of the STS activities did not show a bimodal distribution, which would have been compatible with X-inactivation. The STS activity of 12 control females (6.0±1.8), on the other hand, was significantly higher than that of the control males (4.6±1.8) and the heterozygotes (3.0±0.9). The STS activity ratio between control females and males, calculated from these mean values (1.3) is compatible with partial gene dosage compensation of the STS locus. Both the absence of a subpopulation of hair follicles with deficient STS activity in obligate heterozygotes and the gene dosage effect suggest incomplete X-inactivation of the steroid sulphatase gene.

**44** LIPIDS, LIPOPROTEINS AND APOPROTEINS IN GROSSLY OBESE ADOLESCENTS.
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Massive overweight is related to an increased risk for coronary heart disease, while lipids and lipoproteins are frequently normal or only slightly altered. To elucidate possible changes of apoproteins in obese adolescents 40 grossly obese adolescents,46±13% overweight aged 11.5±1.0 yrs. and 26 normalweight subjects aged 11.8±0.8 yrs. were investigated. Serum cholesterol (C) and triglycerides (TG) were determined enzymatically, lipoproteins by ultracentrifugation and apoproteins by electroimmunoassay.

Results: (mean±SD, mg/dl)

| | NORMALWEIGHT | OBESE | |
|---|---|---|---|
| CHOLESTEROL | 179±22 | 190±35 | n.s. |
| LDL-CHOL | 111±22 | 121±34 | n.s. |
| HDL-CHOL | 51± 7 | 52± 9 | n.s. |
| TG | 90±30 | 108±51 | n.s. |
| APO AI | 120±30 | 103±26 | p< 0.01 |
| AII | 48±13 | 45±13 | n.s. |
| B | 57±18 | 81±24 | p<0.001 |

While for lipids and LP no differences could be shown, apoprotein levels differ markedly in the obese group: The lower concentrations of Apo AI and the higher levels of Apo B indicate an altered lipoprotein composition, which might be associated with an increased incidence of coronary heart disease.