

397 PREMATURE RUPTURE OF THE MEMBRANES, A PROSPECTIVE STUDY. Richard L. Naeye (Spon. by Nicholas Nelson) Pennsylvania State University College of Medicine, M.

S. Hershey Medical Center, Department of Pathology, Hershey, Pa. Premature rupture of the membranes leading to perinatal death was analyzed in a prospective study of 59,379 pregnancies. 183 cases were placed in the category when the membranes ruptured before 37 weeks gestation or 20 or more hours before the onset of labor. The fatal disorder had a frequency of 3.8/1000 live births. Most of the ruptures appeared secondary to amniotic fluid bacterial infections. 87% of the cases had congenital pneumonia, 71% chorioamnionitis and 59% funisitis. The disorder decreased after 27 weeks gestation when antimicrobial activity appears in the amniotic fluid. It increased again after 37 weeks when bacteria normally gain access to the amniotic fluid in increased numbers. The late gestational peak was comprised almost entirely of the poor suggesting that antimicrobial activity may have been reduced in their amniotic fluids. Gravida who made many clinic visits had higher weight gains at each gestational age than did those who made fewer visits and those who made many visits had a very low frequency of the fatal disorder. The disorder was strongly associated with suboptimal pregnancy weight gain and the resultant neonates had a pattern of growth retardation characteristic of undernutrition. There was a 10 fold increase of the disorder with placenta previa and smaller increases with obesity, hypertension, ambulatory work during pregnancy, prior pregnancies, abortions, fetal deaths, preterm deliveries and infant's blood group B. (Supported by U.S.P.H.S. contract N01-NS-2311).

398 ABRUPTIO PLACENTAE, A PROSPECTIVE STUDY, Richard L. Naeye, Pennsylvania State University College of Medicine, M. S. Hershey Medical Center, Department of Pathology, Hershey, Pennsylvania 17033.

Abruptio placentae fatal to the fetus or neonate was studied in a prospective series of 59,379 pregnancies with approximately 60,000,000 pieces of data used in the analyses. All diagnoses were made by a single pathologist. The fatal disorder had a frequency of 4.0/1000 live births. Necrosis of the decidua basalis at the placental margin, thrombosis of decidual arteries and large placental infarcts were the most characteristic placental abnormalities. The decidual necrosis was strongly correlated with gravidas' smoking and pregnancy weight gain. There was a parallel fetal growth retardation indicating that maternal undernutrition may have contributed to the abruptions. An increased frequency of decidual necrosis at the placental margin was also found in successful, non-abruption pregnancies when the gravida smoked and when they had suboptimal pregnancy weight gains. An increased frequency of intrapartum but not prepartum maternal hypertension was observed in the fatal abruptio cases. Perinatal death was 42% more frequent in males than in females. The frequency of fatal abruptio was 86% greater when gravida made 0-2 clinic visits for prenatal care than when they made 5 or more such visits. This appeared related to weight gain, women who made more visits had higher weight gains at each gestational age than women who made fewer visits. (Supported by U.S.P.H.S. contract N01-NS-3-2311).

399 AMNIOTIC FLUID INFECTIONS, A PROSPECTIVE STUDY, Richard L. Naeye, Pennsylvania State University, College of Medicine, M. S. Hershey Medical Center, Dept. of Pathology, Hershey, Pennsylvania 17033.

Fatal amniotic fluid infections were studied in a prospective analysis of 59,379 pregnancies. 31,494 well preserved placentas and approximately 60,000,000 pieces of medical, demographic, hereditary, social and postmortem data were analyzed using a log-linear model analysis of contingency tables to determine the significance of data. 386 cases were classified as amniotic fluid infections with intact membranes when acute chorioamnionitis, funisitis and inflammation of the chorionic plate were associated with acute congenital pneumonia. The fatal disorder had a frequency of 6.3/1000 live births making it the most common cause of perinatal death in the study. The disorder decreased after 27 wks gestation correlating with the appearance of antimicrobial activity in the amniotic fluid. It increased again after 37 wks when more bacteria gain access to the amniotic fluid. It was most common when gravida made few prenatal clinic visits. Many factors lost their association with the disorder when gravida made clinic visits, i.e. race, socioeconomic status, maternal age and numbers of prior pregnancies, abortions, fetal deaths and preterm deliveries. The disorder was strongly associated with gravida suboptimal weight gain suggesting that undernutrition may have a role in its genesis. The neonates had a pattern of growth retardation characteristic of undernutrition. Gravida who made few clinic visits had smaller weight gains than those who made more visits. Polyhydramnios was also correlated with the fatal disorder. (Supported by USPHS contract N01-NS-3-2311).

400 IMMUNITY TO DIPHTEIRIA IN AN URBAN POPULATION. Lois A. Nelson, Barbara A. Peri, Christian H.L. Rieger,

Richard W. Newcomb and Richard M. Rothberg. University of Chicago Pritzker School of Medicine, Department of Pediatrics, Chicago. Immunity against diphtheria (D) is poorly understood since protection is a complex interaction between host and environment and there are technical problems with existing antitoxin assays. Using a radioimmunoassay, antitoxin was detected in sera from premature infants after 33 weeks of gestation and the maternal-cord serum ratio of 18 term infants was 0.8 ± 0.3 (1 SD). Following the first DTP (7.5 Lf units D toxoid) significant antitoxin production was not detected. This relatively poor antigenicity was found in the absence as well as presence of maternal antibody. A rise in antibody concentration and affinity was found after the 2nd, 3rd, and 4th injections. More than four injections did not alter concentration and affinity of the antitoxin or the rate of decline in concentration. Correlation with recent epidemiologic studies suggests that a serum contained a protective concentration of antitoxin if it bound more than 150 ng D toxin N/ml of serum. By this criteria only 74% of children who received 3 immunizations and 84% of children who received 4 or more were protected. Among the 188 children studied 34% had appropriate immunizations for age. These observations suggest that the immunologic status of urban children to D is inadequate and an improvement in patient education and immunization practices is needed. (supported by AI-07854)

401 VARIABILITY IN RESPONSE TO LEAD EXPOSURE: DEMONSTRATION OF A GENETIC INFLUENCE. LaRue D. Penny, J. Rouff Reigart, C. Boyd Loadholdt, and H. L. Taylor. (Spon. by Milton C. Westphal) Medical University of South Carolina Depts. of Pediatrics, Biometry, and Laboratory Medicine, Charleston, S.C.

Examination of dose-response factors in childhood lead exposure has generally been concerned with environmental and physiological studies. We have studied eight monozygotic and seven dizygotic twin pairs as a means of demonstrating a genetic influence in lead handling and toxicity. Lead exposure and toxicity were assessed by determinations of whole blood lead, (B.L.) hematocrit, erythrocyte porphyrins, (E.P.) and delta-aminolevulinic acid dehydratase activity, (ALA-d). The intraclass correlation coefficients suggest that, in general, monozygotic twins respond more similarly than do dizygotic twins, in all parameters. The difference in correlation coefficients are significant at the $p < .05$ and $p < .01$ level for E.P. and B.L. respectively, when tested by Fisher's Z transformation.

	Intraclass		Fisher's Z
	Correlation Coefficients		
	Monozygotic	Dizygotic	
B.L.	.9309 $p < .01$.2190 N. S.	2.476 $p < .01$
E.P.	.9209 $p < .01$.5165 N. S.	1.771 $p < .05$
ALA-d Absorb. Ratio	.8925 $p < .01$.8041 $p < .01$.558 N. S.

Since each twin pair was exposed, in utero and throughout life, to a similar environment, the variation appears to suggest a genetically determined difference in the dizygotic twins as compared to the genetically identical monozygotic twins. These data suggest the need for further evaluation of the genetic determinants of lead metabolism.

402 THE EFFICACY OF GANTRISIN AS COMPARED TO KEFLEX IN THE TREATMENT OF URINARY TRACT INFECTIONS IN COLLEGE COEDS. Norman D. Pryor, Abdollah Iravani, George A. Richard (Spon. by Martin Schulkind), University of Florida, College of Medicine, Department of Pediatrics, Gainesville.

During the past three years on 354 occasions college coeds with culture proven acute symptomatic urinary tract infections (2 cultures $>100,000$ col) were treated with either Gantrisin (123) or Keflex (231) in subgroups of 3, 7, 10, 14 or 21 days.

A comparison of the recurrence rates for each of the subgroups within the Gantrisin (G) and Keflex (K) groups were not statistically different. For this reason, all subgroups for each of the drugs were combined in order to compare the combined efficacy of each group.

	RECURRENCE RATE POST THERAPY			
	1 week	2 weeks	1 month	3 months
K-231	5.80% (14-231)	6.80% (14-207)	7.80% (14/180)	15.0% (21/141)
G-123	2.44% (3/123)	0.87% (1/115)	4.72% (5/106)	4.76% (4/84)
p	n.s.	<0.01	n.s.	<0.05

Gantrisin (Total Recurrence Rate Post Therapy 12.79%) appears to be more effective than Keflex (Total Recurrence Rate Post Therapy 35.4%) in the treatment of urinary tract infections in college coeds. In addition, three days of therapy proved to be as effective as longer courses of therapy in these young women.