1386 INTRAVENTRICULAR HEMORRHAGE FOLLOWING PROPHYLACTIC PHENOBARBITAL IN PRETERM INFANTS: A CONTROLLED TRIAL, Mujahid Anwar, Shilpa Kadam, I. Mark Hiatt, Thomas Hegyi, UMDNJ-Rutgers Medical School, St. Peter's Medical Center, Department of Pediatrics, New Brunswick, NJ.

We studied the efficiency of phenobarbital(P)administration in the prevention of intraventricular hemorrhage(IVH) in 62 preterm infants with birthweights below 1500g. Thirty-four infants (BW 1119±264G,GA 30±3wk)were randomly assigned to the treatment group and 28 (BW 1120±218g, GA 29±2 wks) to controls. The treatment group received an IV loading dose of 20 mg/kg of P on day 1, followed by 5 mg/kg/day for one week. P Level before first maintenance dose was 25.2±9.4 mg/l, and 34.4±19.2 mg/l after 3 to 5 days of therapy.

The two groups were comparable with respect to sex, race, type of delivery and Apgar score. Twenty-one studies (62%)and 19 control (68%) infants required assisted ventilation. Episodes of hypoxia (PO2 40 mmHg),hyperoxia (PO2 120 mmHg), hypocapnia (PCO2 30 mmHg), hypercapnia (PCO2 60 mmHg) or acidosis (pH 7.20) were comparable. Incidence of pneumothorax,hypotension, thrombocytopenia, PDA and administration of sodium bicarbonate or indomethacin were also similar.

	NO IVH	GRADE I	GRADE II	GRADE III	GRADE IV	DEATHS
Study	12 (35.3%)	2	1	11	8	7
Control	9 (32.1%)	4	4	9	3	4

IVH incidence and severity, or motality were not significantly different in the groups. We conclude that in these infants P was neither effective in protecting against IVH nor in reducing its mortality.

1387 INTRAVENTRICULAR HEMORRHAGE (IVH) IN HIGH RISK NEWBORNS, Claudio Ruiz, Edwin Soto, Victor Zapanta, Robert Novo, Walter Rose, I. Mark Hiatt, Thomas Hegyi. UMDNJ-Rutgers Medical School, Monmouth Medical Center, Dept. of Pediatrics, Long Branch, N. J.

We evaluated the incidence and severity of IVH in a group of high risk infants. Nineteen infants below 1.0kg, 37 between 1.0 and 1.5kg, and 36 between 1.5 and 2.0kg were examined with neurosonograms as part of routine screening, and 33 above 2.0kg were scanned for specific indications (asphyxia, meningitis, trauma). Grading of scans was based on the location of the hemorrhage (Grade I: subependymal, Grade II and III: intraventricular, Grade IV: intracerebral) and on the dimension of the ventricle (IIIa: <5mm, IIIb: 5-10mm, IIIc>10mm). In addition, scans were examined for progressive deterioration of grading.

	≤1kg	1.0-1.5kg	1.5-2.0kg	>2.0kg
N	19	37	36	33
IVH	14	24	11	9
GRADE I/II/IIIa	3/1/5	3/0/4	1/1/3	2/0/1
GRADE IIIb/IIIc/IV	4/1/0	10/6/1	5/1/0	3/3/0
% PROGRESSED	63	67	42	75

The incidence of IVH was 74%, 65%, 31%, and 27% respectively in the four groups, from lightest to heaviest. Severe (IIIb, IIIc, IV) exceeded mild (I, II, IIIa) IVH in the total population and in 3 out of 4 weight groups. 62% of initial scans progressed to a more severe grade. In view of the unexpected IVH incidence in infants >1.5kg, we suggest that the criteria for neurosonographic screening be expanded among heavier infants.

1388 NEUTROPHIL TRANSFUSION IN THE NEWBORN: RESPONSE OF SERUM NEUTROPHIL (SN) CONCENTRATION. Claudio Ruiz, I. Mark Hiatt, Thomas Hegyi.UMDNJ-Rutgers Medical School, St. Peter's Medical Center, Department of Pediatrics, New Brunswick, NJ and Monmouth Medical Center, Department of Pediatrics, Long Branch, NJ.

Unpredictable responses in SN counts were observed in infants following the transfusion of irradiated neutrophils(11.6± 3.3cc/kg) during therapy for neonatal sepsis. Sixteen infants (BW.1880±770g, GA.33±4 wks) were transfused at a mean age of 65.5±43.8 hours. SN count pre(58.4±44.3 hours) and post(67.3±40.1 hours) transfusion was 1350±1070/cu.mm.,and 3177±2493/cu.mm., respectively (p<0.02). Three pre SN counts were used to calculate a rate of SN change. Using these values to predict expected counts without transfusion, four types of responses were noted among three post counts in survivors; full response (N=6),early response(N=3), late response(N=1), and no response (N=4).

Blood cultures were positive in 6 (BW.2460±570g)and negative in 10(BW.1550±680g). Septic infants were transfused earlier (36.3±21.7 vs.83.7±45.0 hours), and responded better (pre: 1456 ± 1062/cu.mm. to post: 4857± 2935/cu.mm.)than the culture negative group(pre: 1285±1127/cu.mm. to post 2058±1401/cu.mm.)These differences were significant at p<0.05.The only post-transfusion count drop occurred in 1 of 2 deaths in the septic group: from 650/cu.mm. to 640/cu.mm.

The response of the SN count to neutrophil transfusion was erratic and unpredictable in this group of infants.This response did not correlate with BW, volume, or age at transfusion.Septic infants demonstrated neutropenia significantly earlier than nonseptic infants but responded better to transfusion.

1389 THE PREVENTION OF POSTHEMORRHAGIC HYDROCEPHALUS WITH SERIAL LUMBAR PUNCTURES: A CONTROLLED TRIAL. Mujahid Anwar, Shilpa Kadam, I. Mark Hiatt, Thomas Hegyi, UMDNJ-Rutgers Medical School, St. Peter's Medical Center, Department of Pediatrics, New Brunswick, NJ.

We studied the efficiency of serial lumbar punctures in the prevention of posthemorrhagic hydrocephalus in thirty preterm infants with moderate to large (Grade III)intraventricular hemorrhage (IVH) or parenchymal extension (Grade IV). Twenty-four infants (BW 1129±324g, GA 29±2 wks) were randomly assigned to the treatment group and fourteen infants (BW 1001±256g, GA 27± 2 wks) to controls. Success, defined as stable or decreased ventricular size, or failure, increasing ventricular size requiring surgical intervention, was determined by serial neurosonography and clinical signs of hydrocephalus (rapidly increasing head circumference with or without signs of increased intracranial pressure).

The two groups were comparable with respect to race and sex. Seventeen percent of the study infants had Grade IV IVH and overall mortality of 8.3%, as compared to 43% Grade IV IVH and a mortality of 21.4% in the control group. LP's were initiated in the treatment group at 11±5 days of age and lasted for 20.2± 15.7 days. During therapy 16±12 number of taps were done removing 67±101 ml of CSF with an average of 3.2±1.9ml per tap.

Progression to hydrocephalus was found in ten treated (42%) and six control (43%)patients. We conclude that serial LP's do not prevent posthemorrhagic hydrocephalus in preterm infants.

1390 THE RESPONSE TO CO2 IN INFANTS AT RISK FOR SIDS. Francoise Marotta, Maria Fort, Harry Mondestin, I.Mark Hiatt, Thomas Hegyi, UMDNJ-Rutgers Medical School, St. Peter's Medical Center, Department of Pediatrics, New Brunswick, N. J.

Higher incidence of abnormal ventilatory response was found in two of three groups of infants tested with a computerized CO2 waveform analyzer that measures breath by breath responses. Forty nine infants (BW 1980±1010g, GA 33±5wks) with risk factors (prolonged apnea, BPD), 11 near miss (BW 3090±760g, GA 39±2wks), and 6 siblings of SIDS (BW 3310±1090g, GA 39±4wks) comprised the three groups. Age at evaluation was 44±10wks postconceptual age for risk infants, 54±14 wks for the near miss group, and 49±18 wks for siblings.

	Risk Group	Near Miss Group	Sibling Group
Slope (mm/kg/min/mmHg BTPS)	34.6±19.2	27.0±21.9	18.2±6.1
Resting PaCO2 (mmHg)	40±4	37±4	36±2
PCO2 at Ve=300ml (mmHg)	41±8	42±7	42±6
PCO2 at arousal (mmHg)	46±5	44±5	44±2

The risk group slope was significantly greated that the sibling group slope (P<0.05). The difference between risk and near miss slopes did not reach statistical significance. Nine risk infants (18%), 6 near miss (54%), and 3 siblings (50%) were identified to have abnormal slopes, below 20 mm/kg/min/mmHg BTPS (P<0.05). Near miss and sibling infants demonstrated more blunted responses to CO2 that a group identified to be at risk.

1391 RISK PREDICTORS FOR SIDS: CO2 RESPONSE TESTING VS. THE PNEUMOCARDIOGRAM. Francoise Marotta, Maria Fort, I.Mark Hiatt, Thomas Hegyi. UMDNJ-Rutgers Medical School, St. Peter's Medical Center, Department of Pediatrics, New Brunswick, N. J.

Evaluation of the ventilatory response to CO2 is more accurate than the pneumocardiogram (PCG) in predicting well being in infants managed with home monitors. Twenty-two infants (BW 1150-3900g, GA 28-41 wks) were evaluated at 35-47 wks postconceptual age with CO2 response studies and PCGs due to presence of risk factors for SIDS (prolonged apnea, BPD). Abnormal CO2 response was defined by a slope below 20 mm/kg/min/mmHg BTPS, and abnormal PCG was based on the presence of excessive periodic breathing, apnea, and bradycardia. Nineteen infants had normal slopes (43.5±21.8 mm/kg/min/mmHg BTPS) while 3 were abnormal (10.6±3.2 mm/kg/min/mmHg BTPS). Ten infants had an abnormal PCG while 12 were considered to be normal. The relationship between CO2 response slope and PCG result are shown below.

PCG	Normal Slope (N=19)	Abnormal Slope (N=3)
Periodic breathing (%)	9.2±12.3	6.7±7.4
N. with apnea	10	2
N. with bradycardia	15	2

There were no correlations between slope and %PB, and frequency of apnea and bradycardia. All infants were followed to 5-6 month postnatal age, with no reported episodes requiring intervention. The specificity of the CO2 response was 86% and the PCG 54% in forecasting an uncomplicated course (P<0.05). In this group of patients ventilatory response studies were better predictors of well being during the time period studied.