●674 EFFICACY OF ADENOIDECTOMY FOR RECURRENT OTITIS MEDIA: RESULTS FROM PARALLEL RANDOM AND NONRANDOM TRIALS.

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We defined 218 children at high risk for otitis media (OM) in that each had received myringotomy with tympanostomy-tube placement (M&T) and, subsequent to tube extrusion, had developed recurrent acute or secretory OM. 102 children were assigned to an adenoidectomy or control group randomly, and 116 according to parental preference, and all were followed closely. Standardized antimicrobial regimens were used for new episodes of OM, as were specified criteria for repeat M&T for persistent middle-ear effusion. Each ear of each subject on each follow-up day was categorized as with or without tube, and with or without OM.

Preliminary results in the random trial in subjects largely completing full years of follow-up were as follows:

Outcome Measure	Follow-up Year	Percent of Group Adenoidectomy	Control	P
OM present ≤10% of year	1	50 (24/48)	26 (10/38)	.05
	2	50 (23/46)	18 (5/28)	.01
OM present on ≤10% of "tube-out" days	1	56 (27/48)	24 (9/38)	<.01
	2	54 (25/46)	29 (8/28)	.06
Developed no episodes of acute OM	1	46 (22/48)	32 (12/38)	.26
	2	54 (25/46)	18 (5/28)	<.01

In the nonrandom trial, results also tended to favor surgical subjects, but the differences were not statistically significant.

675 THYROID FUNCTION IN HOSPITALIZED CHILDREN

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Serum concentrations of thyroxine (T4), triiodothyronine (T3), reverse T3 (rT3), and thyrotropin (TSH) were determined in 21 consecutively admitted children (ages 3 wk-63 mo;10 M,11 F) in April, 1986. In 14 children in whom thyroid function was assessed on the first and last days of hospitalization, the levels of T4 and T3 ($\bar{X}$±SD) increased (T4 9.6±3.4 to 11.4 ± 3.2 ug/dL, p<0.03) (T3 124.8±66.7 to 180.6±56.9 ng/dL, p<0.01) and that of rT3 decreased (444.1±165.3 to 369±156.9 ng/dL, p<0.02). Clinically children were grouped into those in (1) good, (2) fair, or (3) poor condition upon admission. Serum values of T4 and T3 were lowest in group 3 compared to group 1 and intermediate in group 2.

	N	T4	T3	rT3	TSH
Group 1	13	10.6±3.2	141.5±62.4	474.6±181.9	2.7±1.9
Group 2	4	9.6±1.1	136.0±47.8	297.0± 31.3	1.6±0.9
Group 3	4	6.3±3.5*	59.3±68.5**	508.0± 63.8	1.9±1.3

(3 vs 1) *p<0.03, **p<0.04

Further grouping of children into those with (a) bacterial(n=4), (b) nonbacterial nonrespiratory (n=9), (c) nonbacterial respiratory (n=5), (d)others (n=3) revealed lower T3 values for group (a) versus groups (b,c,d) (p<0.04).

T3: a)41.9±33.5 b)136.9±68.8 c)156.4±31.3 d)146.7±65.3

We conclude that thyroid function is altered primarily in the clinically very sick child with a bacterial illness. Measurement of serum T3 concentrations may provide a rapid method for identifying the acutely ill child with a bacterial infection.

†676 PERIPHERAL VENOUS LINE INFILTRATION IN INFANTS RECEIVING 10% DEXTROSE, 10% DEXTROSE/AMINO ACIDS, OR 10% DEXTROSE/AMINO ACIDS/FAT EMULSION.

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97 peripheral venous lines (PVL) were prospectively studied to determine 1) if the infiltration incidence differs for 10% dextrose (D) vs 10% dextrose/amino acid solutions (DAA) and 2) if the continuous infusion of fat emulsion concurrently with dextrose/amino acid solutions (DAAF) affects the incidence or time to infiltration, The patients had a mean age + SD of 2.1 + 2.9 months (range:0.03-12). 34 patients received ($\bar{D}$), 30 (DAA), and 33 (DAAF). Electrolyte and mineral content was standardized for the DAA and DAAF groups. All solutions were infused via teflon catheters with similar gauge. The three groups were similar with respect to age,race,gender,weight,and site (p>0.05). Patients receiving DAA and DAAF had higher infusion rates than the D group (p<0.001). 70% of D, 66% of DAA and 67% of DAAF infiltrated (p>0.05). The probability of infiltration was significantly different with DAA > than D or DAAF (p=0.01).

TIME TO INFILTRATION (hours)[MEAN + SEM]

D	p=0.002	DAA	p=0.02	DAAF
54.9 + 7.8		26.3 + 3.3		43.6 + 4.2
	p>0.05			

No complications were noted following infiltration of any solution. We conclude: 1) there is a significant difference in the time to and probability of infiltration when DAA are infused, and 2) continuous infusion of fat emulsion with DAA significantly prolongs the survival of a PVL.

●677 RISK FACTORS AFFECTING THE SURVIVAL OF PERIPHERAL INTRAVENOUS LINES IN INFANTS.

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We evaluated prospectively the effect of 11 variables on the survival of PVL. PVL were monitored from the time of cannula placement to discontinuation. Sites were inspected hourly for clinical signs of infiltration. 151 PVL were studied in patients whose median age was 1 month (range 0.1-8.7 months). 58% of PVL infiltrated. The time to infiltration was 36.3 + 33.5 (mean + SD) hrs (median:40 hrs;range 10-187 hrs). No difference existed in non-infiltrated vs infiltrated PVL for patient age, sex, weight, cannula type/gauge,site,infusion device,IV drugs, administration rate, or potassium/dextrose solution concentration. Infiltration frequency was > in blacks than whites (p=0.03), and with lower controller head heights (p=0.01). Infiltration probability was significant for steel > teflon cannulas (p=0.02), IV drug > no drug (p=0.03), and with increasing cannula gauge (p=0.05). No difference in the time to infiltration existed for 5% vs 10% dextrose, potassium ≤ 20 mEq/L vs > 20mEq/L, and gravity controlled vs positive pressure infusion devices. No tissue sloughing or necrosis occurred. Only 13% of infiltrated PVL were associated with an audible infusion device alarm. We conclude: 1) black infants, decreasing controller head height, increasing cannula gauge, use of steel needles, and IV drug administration increases the probability of and decreases the time to infiltration, and 2) present infusion device alarms do not reliably detect infiltration in infants.

678 ASPHYXIA IN VERY LOW BIRTH WEIGHT (VLBW) INFANTS: VARIATIONS BETWEEN LEVELS OF HOSPITAL CARE:

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Level II perinatal centers often lack personnel support to provide immediate resuscitative care for preterm infants. To examine the magnitude of this problem on the incidence of perinatal asphyxia in VLBW, (<1500 g) infants we analyzed the distribution of maternal and infant variables, VLBW frequency, total and VLBW perinatal and neonatal mortality rates (PMR, NMR) and Apgar score distributions among 59,739 births which occurred between 1982-85. The prospective data collection system in 10 Level II and 2 Level III centers is an ongoing monitoring programme.

	Level II	Level III
Total	34,395	25,344
%VLBW	0.9%	2.7%**
Teen age Mother	10.9%	14%
Poor prenatal care	3.56%	7%
PMR/NMR(/1000)	12.1/5.5	20.4/12.9*
VLBW PMR/NRM	469/347	336/268**
Apgar 1'<0-3 (VLBW)	48%	38%
Apgar 5'<0-3 (VLBW)	23%	14 .6%*

(*p<0.05, **0.01)

Our data (Table) show that in spite of a two fold increase in VLBW rate in Level III centers, their VLBW NMR/PMR, and the incidence of severe asphyxia (Apgar<3) were significantly lower than in Level II. In Level II centers 48% of VLBW infants were severely asphyxiated at 1 minute of age, but more significantly, one in one half of such infants had not improved by 5 minutes of age (P< 0.05 as compared to Level III). We conclude that in addition to transferring high risk mothers and/or infants to Level III, Level II centers should also strive to maintain continued educational services regarding neonatal resuscitation to avoid asphyxia in VLBW infants.

679 INCIDENCE OF ROTAVIRUS (RV) REINFECTION AND/OR INFECTION IN CHILDREN HOSPITALIZED WITH DIARRHEA: A PROSPECTIVE LONGITUDINAL STUDY.

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From 12/80 to 7/85, 66 patients (pts) were hospitalized with diarrhea (D), including 4 in the nursery, and studied for rotavirus (RV) infection initially, during later D episodes, and periodically, a total of 2117 person-mos. Fecal samples were collected initially from all, during later D from 25, and q. 6 mos, a total of 376. Acute and convalescent sera were obtained from 62 and sera from most at 6-mos. intervals, a total of 424. During first D, 47 had RV and 19 had no RV in feces. (RV ⊕ were 1-22 mos, RV ⊖ 9 days-19 mos of age; two-thirds were boys.) 22 (47%) RV ⊕ pts had 27 episodes of D vs 5 (26%) RV ⊖ pts with 6 episodes (RV ⊕ 0.2/yr vs RV ⊖ 0.11/yr), none severe. No feces showed RV antigen but 1 had fecal adenovirus. Acute sera of 9/47 (19%) of those RV ⊕ in their initial D vs 10/19 (57%) RV ⊖ had RV CF antibody (Ab) ≥ 1:2 (p=0.01, χ^2). 40/45 (89%) RV ⊕ pts vs only 3/17 (18%) RV ⊖ pts had ≥ 4-fold CF Ab rise during initial D (p=0.006, Fisher's). During follow-up, ≥ 4-fold rise in CF Ab was noted in 18/47 (38%) pts originally RV ⊕ vs 8/19 (42%) RV ⊖. Although RV ⊕ pts had more episodes of D later, particularly at ≤ 36 mos of age (24 D in RV ⊕ vs 4 in RV ⊖, p=.05 Fisher's), the frequency of RV infection and/or reinfection, as measured by Ab rise, was similar in both groups, confirming the universality of high frequency of RV infection. Since our reagents were group RV specific, we cannot state whether the infections were due to different subgroups or serotypes.