Determinants of Adverse Outcome of Hospitalized Extramural Newborns

In our country more than 75% of deliveries are non-institutional out of which nearly half are conducted by untrained personnel. We carried out a prospective observational study including 300 extramural newborns (home delivery, delivery at centers without resuscitation or newborn care facilities) from in and around Rewa district Madhya Pradesh to evaluate the determinants of their adverse outcome.

Out of the 300 extramural newborns studied, 59% were low birth weight and 24.3% were preterm. The common morbidities were neonatal hyperbilirubinemia 21.3%, anemia 17%, sepsis - late onset 15,7%, severe birth asphyxia 12.3%, sepsis - early onset 7.3%, diarrhea 5%, malarial fever 3.3% and meconium aspiration syndrome 3%.

Causes of death were shock 24.6%, extrinsic perinatal hypoxia 22.8%, sepsis 21.1%, hyaline membrane disease 7%, congenital anomalies 5.3%, kernicterus 3.5%, anemia 3.5% and intestinal perforation 1.8%. Out of the 57 deaths 59.6% were LBW, Mortality rate among preterm newborns was 30.1%.

Survival was directly proportional to socio economic class - 100%, 80% and 69% in upper, middle and lower class respectively. Urban newborns had better survival as compared to rural ones (83.5% and 69.2% respectively). Poor outcome was seen with increasing distance from the hospital and emergency hours admission. Survival was more among newborns with mothers educated upto high school or higher as compared to newborns with mothers with lower education - 82.5% (94/114) and 64.3% (126/196) respectively. Extremes of maternal age was also associated with poor outcome with survival rates of 68.4%, 75.1% and 64.3% in age groups $\leq$18, 19-30 and $\geq$31 years respectively.

Adequate antenatal care had significant association with survival. Poor outcome was seen with delivery by untrained birth attendants - mortality rates of 24.6% (30/122) and 26.7% (12/45) with untrained dai and relative respectively.

Exclusive breast feeding was associated with lower mortality rates - 10.3% (11/107) as compared to 20.1% (32/159) in artificially fed group and 27.3% (3/11) in partially breast fed group. Artificial feeding was associated with higher rates of diarrhea and sepsis. Similar observations were made by other authors(1,2). The high rate of LBW in this study could be due to the fact that the study population was sick newborns. The various factors associated with LBW are shown in *Table I.* Similar associations were also reported by previous studies(3-5).

Substantial reduction in neonatal morbidity and mortality can be achieved by prevention of LBW. It was also seen that maternal literacy also influenced factors like age at first pregnancy, utilization of antenatal services, hospital delivery and exclusive breast feeding.

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TABLE I–*Factors Associated with Low Birth Weight.*

Factors		Number*	LBW	Percentage
Maternal age	≤ 18 yrs	57	41	71.9
	> 18 yrs	243	136	56
Maternal education	upto middle school	186	114	61.3
High school and Higher		114	63	55.3
Socioeconomic status	Lower	193	115	59.6
(Kuppu Swamy)	Middle	105	60	57.1
Higher		Sample Inadequate		
Sex	Male	210	112	53.3
Female		90	65	72.2
Gestational age	term	227	109	48
preterm		73	68	932
Iron-Folic acid supplementation	Yes	152	83	54.6
	No	148	94	63.5
Antenatal visits	≥3	108	64	59.3
	<3	83	51	61.4
	None	109	62	56.9

* out of 300 total cases.

Racecadotril in Acute Diarrhea

A recent editorial review [1] concisely yet comprehensively summarizes the main properties and advantages of racecadotril, the first purely intestinal antisecretory drug. Nevertheless, some points raised by the author need clarification.

The results of a study by Cezard, *et al*. were questioned because (1) "collection of stool uncontaminated by urine is difficult in girls", (2) a larger number of patients were withdrawn from the racecadotril group for trial deviation. In fact (*a*) this study was conducted in a University Hospital Center greatly experienced in infant stool collection, (*b*) both, boys and girls, were treated and the sex ratio was similar in the placebo group, (*c*) patient withdrawal had no statistical consequence since "intention-to-treat" and "per-protocol" analysis led to similar results.

The opinion that "There was no study to evaluate adverse effect - possibly rebound - after the drug has been discontinued" should be revised: in several studies, monitoring for adverse effects was conducted for 5-10 days whereas diarrhoea (and therefore treatment) lasted 2-3 days and no rebound or adverse effect were reported.

The concern about a multi center trial for