

period is known(4,5). We are not aware about the recurrence of this condition in subsequent pregnancies, though being a neural tube defect, such a possibility exists. Hence, appropriate antenatal screening for neural tube defects in subsequent pregnancies is warranted.

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## Causes of Early Neonatal Mortality

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Early neonatal period extends upto the 7th day or 168 hours of life(1). This period is very important in infant's life, because

75% of infant deaths occur within the first 28 days of life and most of them occur within the first 7 days(2).

This study was undertaken to find out causes of early neonatal mortality which are amenable to prevention and to know the present early neonatal mortality rate in the South West parts of India.

## Material and Methods

This is a retrospective hospital based study undertaken from 1-6-1987 to 31-5-1990. This data was obtained from Neonatal Care Section of Krishna Hospital attached to Krishna Institute of Medical Sciences, Karad, District Satara (M.S.). This teaching institute receives both booked and unbooked pregnant cases as well as high risk pregnant patients referred from periphery.

Karad is situated in South Western Maharashtra. This area is located in the sugarcane belt and the main profession of the villagers is agriculture. Most of the villagers are from the low socio-economic group. The females in rural areas have poor educational status. The literacy rate among Maharashtrian females is 35% which is much lower than Kerala(3). Most of the deliveries in this area are conducted by the untrained Dais under unhygienic conditions.

The early neonatal mortality rate (ENMR) was defined as neonatal death of babies weighing over 1000 g during first 7 days per 1000 live births(1).

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## Results

A total of 1,013 live births with weight more than 1000 g were included in the study. Of these 533 were males and 480 females. In this study incidence of low birth weight ( $\leq 2.5$  kg) babies was 77.1% that of prematurity (gestational age less than 37 weeks) was 58.9%. There were 37 neonatal deaths, with an ENMR of 36.6. The chief causes of ENMR were perinatal asphyxia (40.5%), prematurity (29.7%), bacterial infections (27.0%) and congenital malformations (2.8%).

The mortality was higher in low birth weight as compared to the normal birth weight babies. It is also evident that, among the low birth weight babies the mortality improved with improvement in weight (*Table I*).

## Discussion

The perinatal mortality rate is reliable index of status of women and their health and quality of antenatal and neonatal care available(4). The early neonatal period is a major contributor of neonatal deaths(2).

The main source of information regarding neonatal mortality is from hospital with its inherent bias, as many institutions attend to only referred high risk and antenatally booked cases. But we, in this study, have dealt with birth and deaths of both

booked and unbooked hospital borns. Although there are some limitations of hospital based data, it is more reliable(5).

In this study with ENMR of 36.6, perinatal asphyxia accounted for 40.5% early neonatal deaths. Similar to our finding, perinatal asphyxia, was one of the three major cause of neonatal mortality in the study of Sarna from Lady Hardinge Medical College, New Delhi(5).

A total of 59% of all births were preterms, while they contributed to 29.7% of deaths. A higher incidence (77.1%) of low birth weight babies in this study was due to the fact that this hospital received many (79.4% of total admissions) complicated referred pregnancies for delivery from periphery. The early neonatal mortality is directly related to birth weight (*Table I*). The difference between mortality of babies with birth weight less than 2.5 kg and more than 2.5 kg is statistically significant ( $p < 0.05$ ). The finding of higher mortality in low birth weight babies is in accordance with earlier studies(4,5).

Bacterial infections were responsible for 27% of early neonatal deaths. Bhatia(6) had also reported bacterial infections as one of the major killer of neonates. Congenital malformations accounted for only 2.9% deaths. This finding is not in conformance with other authors(4).

Thus, regular antenatal check up, health education of pregnant and lactating mothers, proper delivery services and timely referral of complicated pregnant ladies to fully equipped hospitals may help reduce early neonatal mortality.

TABLE I—Relationship between Birth Weight and Early Neonatal Mortality

Birth weight (g)	Number	% of total births (N = 1013)	% mortality
1001- 1500	127	12.5	73.0
1501- 2000	193	19.1	34.6
2001- 2500	461	45.5	3.1
2501- 3000	128	12.6	2.0
$\geq 3000$	104	10.3	1.4

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## Larsen Syndrome with Cardiac Anomaly

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Larsen's syndrome is a genetic disorder, first reported by Larsen in 1950 characterized by involvement of connective tissue, with varied manifestations. Since the

fully expressed gene results in death of fetus or newborn, the syndrome is very rare. We report here a patient of Larsen's syndrome who in addition to the classical features had mitral valve prolapse (MVP) leading to bacterial endocarditis.

### Case Report

A ten-year-old boy was admitted for evaluation of fever, cough and breathlessness. He was born of a second degree consanguinous marriage. At birth he was noted to have hypermobile joints and bilateral clubfeet. The clubfeet were subjected to correction in infancy. His milestones were slightly delayed. All his family members were normal. He was 25th percentile of his height for age, had dolichocephaly, predominant forehead, hypertelorism, low nasal bridge, median cleft of the soft palate, anteriorly directed pinnae, pectus carinatum, hypermobility of the larger joints, bilateral subluxation of the knee joints, long cylindrical fingers with clubbing, short metacarpals, bilateral splayed feet and bilateral retractile testes. He had clinical features of MVP, left ventricular failure, and infective endocarditis. Echocardiogram showed MVP and mild aortic root dilatation. He was put on antibiotics, decongestives and supportive measures. He recovered in 6 weeks.

### Discussion

Larsen *et al.*(1) recognized the syndrome consisting of multiple congenital dislocations of the knee and elbows, de-

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