Perinatal mortality in Vellore Part I:
A study of 21,585 infants

Malati A. Jadhav and Lalana G. Christopher

Department of Pediatrics and Neonatal Service, Christian Medical College and Hospital, Vellore, Tamil Nadu

At Christian Medical College Hospital, Vellore, there were 21,585 consecutive births during a five year period of 1979-1983. The overall perinatal mortality rate was 40.7, stillbirth rate was 23.6, and early neonatal mortality rate was 17.5. Although the perinatal mortality rate was only half that reported from other teaching hospitals in India, it is three times the rate reported for Avon area hospitals providing special and intensive care. The highest perinatal mortality rate 45.5 was noted in 1979; the lowest 38.6 in 1982. The highest stillbirth rate 26.6 was noted in 1980, the lowest 19.3 in 1981 (p < 0.05). Throughout it was consistently higher than early neonatal mortality rate. The highest early neonatal mortality rate 20.8 was noted in 1979 the lowest 13.9 in 1980 with 33 per cent reduction; (p < 0.05) however in 1983 it was 17.1. At the end of five years perinatal mortality rate, stillbirth and early neonatal mortality rates were not reduced significantly. If 223 unsalvageable infants, 131 with congenital lethal malformation and 92 others with birth weight below 1000 gm were excluded, then all the three rates for 21,360 normally formed infants weighing above 1000 gm would be statistically significantly lower (perinatal mortality rate 30.7, stillbirth rate 18.4 and early neonatal rate 12.5 (p < 0.01).

Key words: Perinatal mortality; lethal malformation; extremely low birth weight.

Perinatal mortality rate is being increasingly used as a sensitive index for evaluating the standard of maternal and neonatal care services. During the last eight years, eight government run teaching hospitals in India have reported an overall perinatal mortality rate ranging from 70.6 to 113.56, an average of 84.23.1-8. It is six times the rate of 14.7 during 1976-1979 for Avon area, United Kingdom where 84.6 per cent of the 36,810 births took place in Southmead and Bristol maternity hospitals, each of which provides special and intensive baby care.9

Perinatal mortality rate, stillbirth rate and early neonatal rate for all 21,585 infants born in our hospital during January 1, 1979 to December 31, 1983 were half the corresponding rates reported from other teaching hospitals in our country. The findings are reported in this article.

Material and Methods

A total of 21,585 births took place in Christian Medical College Hospital (CMCH), Vellore, India, from January 1, 1979 to December 31, 1983. Table 1 shows the distribution of total births, livebirths, stillbirths and early neonatal and perinatal
Table I. Perinatal deaths of all infants, CMCH, Vellore

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<tbody>
<tr>
<td>No. of births</td>
<td>4045</td>
<td>4131</td>
<td>4447</td>
<td>4427</td>
<td>4535</td>
<td>21,858</td>
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<tr>
<td>No. of live births</td>
<td>3943</td>
<td>4021</td>
<td>4361</td>
<td>4325</td>
<td>4426</td>
<td>21,585</td>
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<tr>
<td>Stillbirths</td>
<td>102</td>
<td>110</td>
<td>86</td>
<td>102</td>
<td>109</td>
<td>509</td>
</tr>
<tr>
<td>Early neonatal deaths</td>
<td>82</td>
<td>56</td>
<td>86</td>
<td>69</td>
<td>76</td>
<td>369</td>
</tr>
<tr>
<td>Perinatal deaths</td>
<td>184</td>
<td>166</td>
<td>172</td>
<td>171</td>
<td>185</td>
<td>878</td>
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deaths. There was a gradual increase in the number of births, the births in 1983 being 12.1 per cent higher than in 1979. There were 509 stillbirths (necropsy rate 8.8%) and 369 early neonatal deaths (necropsy rate 47.2%). Perinatal mortality rate (PMR), stillbirth rate (SBR), and early neonatal mortality rate (ENMR) were determined.

As recommended by the British Pediatric Association/Royal College of Obstetricians and Gynaecologists' Liaison Committee, PMR, SBR and ENMR were also determined excluding 131 infants with lethal malformations, 92 other infants weighing less than 1000 gm at birth, and for 21,360 infants without lethal malformation weighing more than 1000 gm at birth.10

Every liveborn infant was given a separate patient status, and carefully examined by a pediatrician within 12 to 24 hours after birth. Gestational age, birth weight and other findings were recorded on an individual inpatient record sheet. Information for stillbirths was obtained from maternal records.* 11

High risk infants requiring special and intensive care, were admitted to two nurseries, each with a separate set of nurses. Uninfected infants were admitted to clean nursery and those with suspected perinatal infection were admitted to the second nursery located on the floor below. For these infants, information was obtained from individual inpatient records, birth, death and necropsy registers. Five infants weighing less than 500 gm; four stillbirths and one early neonatal death were not included in this study.

An integrated model of perinatal care was offered with human monitors. All staff were residential obstetric, pediatric anesthetist and nurses trained in neonatal care. In case of a risk pregnancy, obstetric pediatric consultation was obtained and a resident pediatrician attended the delivery. Intermediate technology was used for nursery procedures, paging system for doctors, barrier nursing and microbiological surveillance of nurseries. For preterm and low birth weight infants autoclaved linen was used. Early feeding was instituted with expressed breast milk. All supporting services—microbiology, clinical pathology and blood bank, clinical biochemistry, x-ray, medical records and equipment maintenance functioned round the clock. Basic equipment included laryngoscope fitted with infant size blade, water manometer, penlon resuscitation bag and mask, oxygen tent, electric suction, Vicker's 59 incubator and phototherapy lamp.

*All out-patient medical records are preserved for 5 years and in patient for 20 years.