

A Study of Outcome of Management of premature babies born in Vivekanand Hospital, Latur during the period from Jan 1994 to April 1998.

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Summary:

A study of premature neonates & their management in our special neonatal unit is presented. From Jan 94 to April 98 (52 months), there were total 2500 deliveries & 2460 live births; 93 babies had birth wt. less than 2000 gms. (3.78%). There were 17 deaths - (18.2%). In VLBW with gestational age 26-30 wks 33% babies succumbed. In LBW with gestational age 30-34 wks mortality was 25% & in LBW with 35-38 wks it was 5.7%. Intensive special training for nursing these premature babies was given to selected girls who had formal training in general nursing. An important role is played by these young enthusiastic staff in bringing out results on par with established premature care units. Scrupulous antenatal, intranatal & postnatal management also accounted for the result.

Introduction

Prematurity is defined as live born infants delivered before 37th wk from 1st day of last menstrual period. Also, infants weighing less than 2500 gms at birth, irrespective of gestational age, are called premature babies. IInd group includes I.U.G.R. babies. Both prematurity & I.U.G.R. are associated with increased neonatal morbidity & mortality. SGA infants generally have lower neonatal & postnatal mortality than AGA infants. Our study evaluates the neonatal care taken for premature babies & its outcome in our institution.

Material & Methods

In Vivekanand Hospital at Latur, we had total 2500 deliveries in the period from 1994 Jan to 31st April 1998. Total live births were 2460. Our study includes

babies born alive with birth wt. < 2000 gms. It is usually observed that Indian babies with birth wt. > 2000 gms irrespective of gestational age, thrive well with routine care & may not require intensive care in specialised neonatal unit.

Out of 2460 live births 93 babies had birth wt < 2000 gm. i.e. the incidence was 3.78%.

Analysis of these 93 babies

Table I
According to Birth Wt.

Birth wt gms.	No.	Percentage
Extreme prem 850-1000 gms.	3	3.2
VLBW 1050-1500	55	59.2
L.B.W. 1550-2000	35	37.6
	93	100

Table II
According to Gestational Age.

Wks.	No.	Percentage.
< 32 wks.	19	20.0
32-34	44	47.3
35-36	16	17.2
> -36	14	15.0

Table III
Apgar Score at Birth

Score	No	Percentage
0-2	10	10.0
2-5	20	21.5
5-8	31	33.3
7-8	32	34.5

Table IV
According to Sex

Sex	No	Percentage
M	57	61.3
F	46	38.7

Table V
Factors Associated with Premature Birth

Factors	No.	Percentage
1) Incompetent OS (Circlage done)	6	6.4%
2) PIH - Mild	15	16%
Severe	11	11%
3) Eclampsia	5	5.3%
4) APH	12	13%
5) Twins	8	8.9%
6) Mother suffering from mitral valve disease.	1	1%
7) Severe urinary tract inf.	1	1%

Table VI
Mode of Delivery

Mode of Delivery	No	Percentage
Vaginal N/D.	56	60.3
Vacuum/ D.	5	5.3
Breech	8	8.6
L.S.C.S	24	25.8

Table VII
Age Distribution of Mothers

Age	No	Percentage
< 20 yrs.	29	31.1
21-25	43	46.2
26-30	19	20.5
> 30	2	2.2

Table VIII
According to Parity

Parity	No	Percentage
Primipara	45	48.4
IIInd	22	23.6
III	16	17.2
IV	3	3.3
> IV	7	7.5

There were 17 neonatal deaths. 18.2% incidence.

Table IX
Deaths According to Birth Wt.

Birth wt gms.	Died	Total	%	in 18.2%
< 1000	1	3	31%	1.1%
1050 - 1500	14	55	25%	15%
1550 - 2000	2	35	5.7%	2.1%
Total	17	93		18.2%

Table X
Causes of Neonatal death

Various causes for neonatal death were observed. In many babies, multiple factors were responsible for the death.

Causes of death	No	Percentage
1) Extreme prematurity and VLBW Wt. 850 - 1100 gms.	5	29.4%
2) Birth asphyxia after breech delivery	1	5.8%
3) Pulm. Insufficiency apnoec spells & Pulm. Heamorrhage	5	29.4%
4) Icterus & septicaemia	4	23.5%
5) Possible intracranial hemorrhage after vacuum dely.	1	5.8%
6) Hydramnios & retroplacental clot	1	5.8%

Treatment Protocol.

- All babies weighing < 1800 gm. were immediately put on I/V fluids, for maintenance. Total amount calculated according to birth wt. Immediately they were provided incubator care. Strict asepsis was observed in the separate premature neonatal unit. Specially trained staff was appointed round the clock. The paediatrician visited daily and SOS, during critical period. Incubator was discontinued at the safe earliest possible time, to avoid hospital cross infection. Maximum stay for VLBW baby was 55 days & minimum 8 days. Average babies stayed for 2-4 wks.
- Parenteral higher antibiotics like IIIrd generation cephalosporines were started from 1st day. Supportive other drugs like I/V calcium gluconate aciloc, deriphyline, kaplin as & when necessary were administered. Antibiotics were given for minimum 5 to maximum 10 days.

3. Nasogastric tube was passed after birth for gastric aspiration & then for feeding. Gavage feeding was routinely given once gastric aspiration revealed minimal retained gastric contents, & normal passage of meconium was established.

Feeding was first started with dextrose solution & then replacing it with either breast milk or Formula milk, every 2-2 ½ hrly in calculated quantity. The volume was increased gradually according to baby's need & response. Baby was put to the breast, only when it was vigorous & not exhausted. This period ranged from 10-30 days depending on birth wt.

Before discharge from the hospital, the baby was kept with mother for 48 hrs. to assess how it thrives in natural atmosphere. Mother & close relatives were trained in handling of these delicate dear ones, their feeding schedule & prevention of infection. They learn it very easily & acquire the skill rapidly, occasionally better than the staff, due to their intense affection & love towards the tiny infant. They are advised to come for regular follow up, & for any suspicious signs they could notice such as weight loss, or no weight gain, loose motions, refusal of feed etc. Immunization programme is discussed at the same time.

Discussion

Generally speaking for any given duration of gestation the lower the birth wt, the higher the neonatal mortality. Similarly for any given birth wt, shorter the gestational duration, higher the neonatal mortality. Highest risk of neonatal mortality occurs amongst infants who weigh < 1000 gms. & whose gestation is < 30 wks. As birth weight increases from 500 to 3000 gms, a logarithmic decrease in neonatal mortality occurs. Similarly for every week increase in gestational age from 25th to 37 wk the neonatal mortality rate decreases approximately one half. Most neonatal mortality occurs within the first hours & days after birth. The outlook improves dramatically with increasing postnatal survival. In our study out of 17 deaths, 10 occurred within 72 hrs; 2 each on 5th, 6th & 8th day & one on 10th day.

According to Cloherty & Stark (1980) neonatal mortality occurs as below

Wt.	Gestation	Percentage of mortality	Vivekanand Hospital, Latur Percentage
VLBW	26 - 30 wks.	30 - 100%	33%
L.B.W.	30 - 34 wks.	10 - 40%	25%
L.B.W.	34 - 38 wks.	5 - 10%	5.7%

This study is reported to show that better perinatal outcome of premature neonates can be achieved even at relatively underprivileged place like Latur. Our results are similar to those of Cloherty & Stark (1980).

This could be achieved due to multiple factors.

- i. Meticulous antenatal & intranatal care in patients with PIH, eclampsia, APH cervical encirclage & twin deliveries.
- ii. Timely doppler evaluation in patients with past h/o IUD due to severe PIH & timely terminating the pregnancy
- iii. Administration of injectable glucocorticoids in mothers along with tocolysis in some who were anticipated to have premature labour
- iv. Presence of paediatrician along with second anaesthesiologist at the time of anticipated child birth for immediate resuscitation.
- v. Trained Staff – This has really great importance in management. They are incharge of the unit for 24 hrs round the clock. Specialist would visit again only in critical period. So special training for the staff is given in our department for following things.
 - i) Maintenance of I/V line,
 - ii) O₂ administration, adjusting rate of flow
 - iii) Giving different injections I/V – I/M.
 - iv) Watching for cyanosis, convulsions, tremors, apnoeic attacks, aspiration, vomiting.
 - v) Gavage feeding at regular intervals.
 - vi) Changing of autoclaved linen.
 - vii) Practicing strict antisepsis.

Thus with complete co-operation of this locally trained staff & relatives of the little one, we can achieve creditable neonatal outcome.

References

1. John P. Cloherty. ANN R. Stark. Manual of neonatal care; Asian Edition 78; 82: 1980.