Clinical Audit of Perinatal Mortality – A Reapprisal of Major Determinants and its prevention

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Summary

The purpose of this audit is to evaluate the P.N.M.R (Perinatal mortality rate) its major determinants, accountability of the healty care personnel and socio-biological hinderance on the part of the pregnant women to avail the facilities of the present health care delivery system.

The study included 25,351 babies born between Jan-1995 to Dec 2000 at North Bengal Medical College, Susrut Nagar, Darjeeling, West Bengal.

Perinatal Mortality is alarming, still birth rate 73.21% per 1000 births, early Neonatal Mortality Rate 34.43 per 1000 births and Perinatal Mortality Rate is 107.64 per 1000 births.

Mothers from teagarden area, rural and city slum dwellers living below poverty line, inadequate and infrequent A.N.C, multipartiy, multiple-pregnancy and abnormal delivery are often associated with low-birth weight babies which accounts for significant perinantal loss.

Intranatal asphyxia during labour caused 43.35% perinatal loss reflecting poor Antenatal care and inefficient obstetric supervision.Decreasing trend in perinatal death observed in post audit period of study proves its rationality.

Introduction

Clinical audit is the process of comparing individual practice with accepted guidelines and standard Maresh et al (1999). If the care falls below the accepted standards, action is required to implement changes in the clinical practice. In the western country National Confidential Enquiry into maternal and perinatal death is the key audit to improve maternal and perinatal outcome.

Perinatal mortality is the sensitive index to assess the M.C.H. care and the socio-biological features of an area in a developing country like India.

Repeated evaluation or periodic audit is essential to study its magnitude and causative factors to reduce perinatal death which is still alarming.

Audit Cycle

A departmental audit team was constituted with H.O.D., senior teachers, senior residents, and nursing personnel of Department of Gynaec & Obstetrics. The purpose, methodology, outcome and difficulty in implementation was discussed and a sensitive index like perinatal death was selected for study.

Set Standards

Perinatal Mortality Rate (P.N.M.R.) is defined as total number of still births plus Early Neonatal Deaths (E.N.D. –death up to 7 days) per 1000 total births.

All births weighing less than or upto 1000 gm(<=1000) during the study period were excluded as most of them were unsalvageable.

Neonates were followed for a period of 7 days in case of prospective birth. Gestational age was assessed by L.M.P.Autopsy study was excluded.

Data Collection

Data was collected in two phases from the

hospital records of indoor admitted patients for retrospective study from Jan 1995 to Dec 1997 (Pre Audit period) and for prospective study from Jan 1998 to Dec 2000 (Audit period) for comparative study using similar protocol, at N.B.M.C. (Gynae & obst) Dept. Susrut Nagar Darjeeling, West Bengal.

During the study period total births were 25,351 and total perinatal loss was 2729.

Perinatal death was assigned as per Wigglesworths classification (1980) into 4 major groups.

Fresh still born, traumatic death and neo-natal death at term were included in asphyxial group, death associated with immaturity, death due to congenital malformations and death due to specific causes.

Interpretation of Data and Audit Analysis :

Data so collected, was tabulated and subjected to statistical analysis. When developed countries are able to achieve a P.N.M.R of < 10 (WHO – 1977) rural India is experiencing high perinatal loss even in rural medical colleges, 75 per 1000 total births.

From table I it is obvious still birth rate is 73.21 per 1000, Early Neonatal Mortality rate 34.43 per 1000 and Perinatal Mortality Rate is 107.64 per 1000 total births in the overall 6 years period of study.

Marked improvement was noticed in prospective study when monthly audit was implemented S.B.R was 60.3 per 1000 E.N.M.R was 18.9 per 1000 and P.N.M.R was 79.37 per 1000 total births. In the audit cycle perinatal mortality has clearly declined.

Table – II & Table – III shows increased perinatal mortality in preterm and lowbirth weight babies 258.74 per 1000 and 243.3 per 1000 respectively.

In term babies P.N.M.R. is 75.54 per 1000 and it is alarming in post-dated babies 144.44 per 1000. Whereas in babies weighing upto 3500 gm and more P.N.M.R. is 45.3 per 1000 total births.

Audit reflects that perinatal mortality could be reduced by preventing pre-term and low birth-weight delivery.

P.N.M.R. in various leading institutions reflects the alarming situation. Varanashi – 95 (Agarwal et al 1995) Udaipur – 105.78 (Bhandari and Mandowara – 1983, Bombay – 34; 16 (Mehta – 1994) Kerala – 38.5 (Pradeep et al 1995), Karnataka – 49.37 (Pillai et al 1995). West Bengal 52 (as per S.R.S. Data for W.B. (1999)

Table – IV represents the socio-biological factors affecting perinatal mortality. Rural and city slum-dwellers living below poverty line are associated with high perinatal loss. Audit speaks to involve political personnel and community workers to improve living status.

Table – I
Perinatal Mortality in Retropective and prospective period of study.

	Retrospective period Pre-Audit Cycle			Pre-audit Cycle	Prospective period Audit cycle			Post audit cycle	Pre and Post Audit Total (Over all study period)
	1995	1996	1997		1998	1999	2000		
No of Birth	3936	4306	4109	12,351	4217	4349	4435	13001	25,351
Live Birth	3570	3910	3800	11,280	3936	4134	4222	12292	23572
Still birth	366	396	309	1071	281	291	213	785	1856
Early Neo-Natal death	216	206	204	626	103	79	65	247	873
F.N.D's	582	602	513	1697	384	370	278	1032	2729
S.B.R	93	92	75.2	86.71	66.6	67	48	60.3	73.21
E.N.M.R.	55	48	49.64	50.68	24.4	18.1	14.6	18.9	34.43
P.N.M.R.	147	139	124.84	137.39	91	85	63	79.37	107.64

Pre-Audit Average
S.B.R-86.71 per 1000
E.N.M.R.-50.68 per 1000
P.N.M.R. 137.39 per 1000

Post-Audit Average
S.B.R.-60-3 per 1000
E.N.M.R – 18.9 per 1000
P.N.M.R – 79.37 per 1000

Table II
Perinatal Mortality in the whole study period in relation to Gestational age

Gestational age in Weeks	No of Births.	P.N.D.	P.N.M.R.
Less than 37 weeks.	4375 (17.26%)	1132	258.74
More than 37	20795 (82.03%)	1571	75.54
More than 42	180 (0.71%)	26	144.44

Table – III
Perinatal Mortality in the whole study period in relation to birth weight

Birth weight in grams	No. of Births	P.N.D.	P.N.M.R.
1000 to 1500	1344 (5.3%)	327 (24.33%)	243.3
1501 to 2500	8214 (32.4%)	1689 (20.56%)	205.6
2501 to 3500	13994 (55.2%)	634 (4.53%)	45.3
more than 3501	1800 (7.1%)	79 (4.38%)	43.8

Table – IV
Different causes of Perinatal Death

Causes	Perinatal Death	Percentage (%)
Intranatal Asphyxia	1183	43.35
Death due to immaturity	960	35.11
Macerated – still born	227	8.32
Congenital Malformations	88	3.22
Specific causes	271	9.93

Increased maternal age and multiparity was associated with high perinatal loss whereas in teenage pregnancy and pregnancy above 30 years of age perinatal mortality was alarming.

Audit suggests marital and child bearing age should be within 20 to 30 years.

Less than 3 Ante-natal visits was associated with 91.34% perinatal loss and it was only 8.66% with more than 3 visits.

Audit recommends compulsory Ante-natal care for reproductive mothers.

Abnormal Mode of delivery was associated with P.N.M.R. of 119.34 per 1000. Significant perinatal loss was found in multiple gestation P.N.M.R. was 288.51 per 1000 while it was only 105.06 per 1000 total birth in singleton pregnancy.

Audit highlights, close monitoring during the course of labour and mode of delivery should be under strict supervision of the obstetrician.

Table – V reflects the common cause of perinatal loss and incidence of perintal death due to intranatal asphyxia is 43.35%.

Audit signifies it is due to poor M.C.H. facilities available at peripheral health-centre and failure of referral system, since those deaths were noticed in unbooked and emergency cases.

Effective Changes and Audit Remarks :

Audit analysis susgests apart from periodical audit following measures should be taken and implemented immediately.

1. The study reflects in reducing P.N.M.R. we are far away from national goal and also reducing P.N.M.R. less than 30 by 2000 A.D.
2. High perinatal loss, because of L.B.W. babies and A.N.C. and inefficient co-ordination in existing system.
3. Socio-biological factors highrisk pregnancy and prevalent medical disorders like Malaria, Tuberculosis and H.I.V should be detected at the beginning to reduce P.N.M.R by implementing high risk approach from primary to tertiary health care level under guidance of professional experts.
4. Audit suggests involvement of community health workers, political commitment and political will of administrative personnel from the panchayat level to apex institution at state level.
5. Audit emphasizes the key role of the head of the family to avail M.C.H. services by the family

Table – V
Socio-Biological Factors affecting Perinatal Mortality

		No of Birth and Percentage	P.N.D. and Percentage	P.N.M.R.
1)	Residential place	14559 (57.43%)	2330 (85.37%)	160
	Rural & City Slum Dwellers			
	Urban	10792 (42.57%)	399 (14.63)	36.97
2)	Economic status below povert y line	10974 (43.29)	2384 (87.34)	217.2
	Above poverty line	14377 (56.71)	345 (12.66)	24
3)	Maternal Age in years Teen ages	3719 (14.67)	669 (24.52)	180
	20-35	21,632 (85.33)	2060 (75.48)	95.2
4)	Parity			
	Above 3	5448 (21.49)	800 (29.32)	146.8
	Less than 3	19903 (78.51)	1929 (70.68)	96.92
5)	Antenatal care			
	Infrequent and Inadequate	17662 (69.67)	2493 (91.34)	141.15
	Adequate	7689 (30.33)	236 (8.66)	30.69
6)	Labour			
	Abnormal	8044 (31.73)	960 (35.19)	119.34
	Normal	17307 (68.27)	1769 (64.81)	102.21
7)	Multiple pregnancy			
	Multiple	357 (1.41)	103 (3.77)	288.51
	Singleton	24994 (98.59)	2626 (96.23)	105.06

members so that illiteracy and social prejudice should not be an obstacle.

6. The role of obstetrician is of a team leader of the Maternal and Child Health Care delivery system at all levels.
7. Lastly institutional audit highlights the magnitude of the problem, accountability and negligence in the identification and management of high-risk cases associated with perinatal loss.

Conclusion

1) High perinatal loss is due to the fault of the system.
2) Incidence of L.B.W. babies has to be reduced by proper A.N.C.
3) All M.C.H and delivery centres must be equipped with obstetric personel and neo-natal care unit.
4) Female Literacy is the contributing factor in reducing perinatal loss as observed in Kerala since 85% of women are literate whereas it is 3 times higher in Orissa & U.P. since female literacy level is less than 15 – 25% (Ratnam et al 1991).

Lastly we should not oppose audit or should not victimize any one for failure, it is a team work and it should be implemented in various aspects of obstetrics. Finally we should audit the developing agenda too (Saha and Maresh 1995).

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