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OBSTETRICS

Perinatal Mortality in Rajavithi Hospital and Queen Sirikit National Institute of Child Health 1993-1997

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ABSTRACT

Objective To analyse the incidence and causes of perinatal mortality in Rajavithi Hospital (RH) and Queen Sirikit National Institute of Child Health (QS) in 1993-1997.

Design Retrospective analysis.

Subject Perinatal mortality of whose mother delivered from January 1st, 1993 to December 31st, 1997.

Intervention Our collected data from various medical records is analysed. The causes of each perinatal mortality are classified.

Main outcome measures Rate and causes of perinatal mortality.

Result The perinatal mortality rate in RH and QS has declined from 9.34 per 1,000 total births in 1993 to 6.52 per 1,000 total births in 1997 while the total births was also reduced from 15,621 births in 1993 to 14,728 births in 1997. The major causes of perinatal mortality were asphyxia (2.44 per 1,000 total births), marcerated death (1.96 per 1,000 total births), and congenital malformations (1.74 per 1,000 total births).

Conclusion The average perinatal mortality rate in RH and QS from January 1st, 1993 to December 31st, 1997 was 7.48 per 1,000 total births. The most common cause of perinatal mortality was asphyxia (2.44 per 1,000 total births)

Key words: Perinatal mortality, Rajavithi Hospital Queen Sirikit National Institute of Child Health

Pregnancy and delivery of a healthy baby without maternal and perinatal complication in the antepartum, intrapartum and postpartum period is the main aim of each pregnancy. Perinatal mortality, the grief event to the mother and her family, is an excellence indicator of the maternal and neonatal health care. Rajavithi Hospital (RH), one of the biggest maternity center in Thailand, carries about 12,000 deliveries per year. There are 36 Obstetric and Gynecological staffs and 36 Obstetric and Gynecological residents working in the department of Obstetrics and Gynecology in RH. Queen Sirikit National Institute of Child Health (QS), one of the biggest children hospital in Thailand, provides for the neonatal health care for RH. The previous name of QS was Children's Hospital. Many neonatologist and pediatric residents are working in QS. The purpose of our study is to analyse the incidence, trends and causes of the perinatal mortality in RH and QS.

Material and methods

Retrospective analysis of the data was carried out on medical records of patients delivered at Rajavithi Hospital (RH) from January, 1993 to December 31, 1997. All births with birth weight 1,000 gm and above were included. Following deliveries, the newborn were observed for the first 6-12 hours for temperature control, respiration and first feeding. If their physical examinations revealed no abnormality, the infants were sent to the postpartum ward to stay with their mothers. Those who were sick or weighed below 2,000 gm, were transferred for further treatment at Queen Sirikit National Institute of Child Health (QS) located adjacent to RH. Medical records and reports collected during departmental academic activities, such as perinatal morbidity and mortality conferences, obstetric monthly reports, were used to gather the data for analysis. The World Health Organization defines perinatal mortality as a total of all stillbirths occurring at or over 28 weeks of gestation and neonatal deaths during the first week.[1] Wigglesworth classification for perinatal deaths is used in this study.[2,3]

Results

There were 79,115 births during this five years period. The annual data of perinatal mortality and the perinatal mortality rate are shown in Table 1. There was a total of 592 perinatal mortalities in five years, of which 446 deaths were stillbirths and 146 were in the first week of neonatal life, giving the perinatal mortality rate of 7.48 per 1,000 total births. The birthweights of perinatal deaths are demonstated in Table 2. The causes of death was demonstrated in Table 3. The most common causes of death was asphyxia (32.6%). In our study, some minor data such as parity, number of antenatal care, maternal age and gestational age at delivery were not available, however we collect the main data of all cases and did not reject any incompleted data from the study. The autopsy rate in our study was 16 out of 592 (2.70%).

Table 1. Perinatal mortality rates at Rajavithi Hospital and Queen Sirikit National Institute of Child Health between years 1993-1997

Years	1993	1994	1995	1996	1997
1. Number of total births	15,621	16,304	16,905	15,557	14,728
2. Stillbirths	101	97	92	81	75
3. Stillbirths rate (per 1,000 total births)	6.47	5.95	5.44	5.21	5.09
4. Early neonatal death	45	32	29	19	21
5. Early neonatal mortality rate (per 1,000 live births)	2.90	1.97	1.72	1.23	1.43
6. Perinatal mortality rate (per 1,000 total births)	9.34	7.91	7.16	6.43	6.52

Table 2. PMR: RH and QS 1993-1997 Percentage distribution of birth weight

Birth weights	No. of Death	Percent
1,000-1,499	115	19.43
1,500-1,999	125	21.12
2,000-2,499	116	19.59
2,500-2,999	120	20.27
3,000-3,499	75	12.67
3,500-3,999	25	4.22
4,000	6	1.01
Unknown	10	1.69
Total	**592**	**100.00**

Table 3. PMR: RH and QS 1993-1997 (Percentage distribution by causes of death)

Causes of death	Perinatal death : years					Total
	1993	1994	1995	1996	1997	
1. Marcerated death	40	34	29	30	22	155
	(2.56)	(2.08)	(1.72)	(1.93)	(1.49)	(1.96)
2. Congenital malformations	33	30	33	16	26	138
	(2.11)	(1.84)	(1.95)	(1.03)	(1.77)	(1.74)
3. Immaturity	10	12	10	8	9	49
	(0.64)	(0.74)	(0.59)	(0.51)	(0.61)	(0.62)
4. Asphyxia	47	43	38	33	32	193
	(3.01)	(2.64)	(2.25)	(2.12)	(2.17)	(2.44)
- Stillbirth	20	22	18	18	17	95
	(1.27)	(1.34)	(1.06)	(1.15)	(1.15)	(1.20)
- Neonatal death	27	21	20	15	15	98
	(1.73)	(1.30)	(1.19)	(0.97)	(1.02)	(1.24)
5. Specific causes	16	10	11	13	7	57
	(1.02)	(0.61)	(0.65)	(0.84)	(0.48)	(0.72)
Total	**146**	**129**	**121**	**100**	**96**	**592**
	(9.34)	**(7.91)**	**(7.16)**	**(6.43)**	**(6.52)**	**(7.48)**

( ) = mortality per 1,000 total births

Discussion

The perinatal mortality rate in Rajavithi Hospital during 1993-1997 ranged from 6.43 to 9.34 total birth (overall perinatal mortality rate was 7.48.) Those in fourteen selected hospitals and three provincial medical schools reported by Isarangkura Na Ayudthaya et al ranging from 7.5 to 18.8/1,000 total births (overall perinatal mortality rate was 11.3/1,000 total births).[4] The national perinatal mortality rate has declined from 11.7 per 1,000 live births in 1994 to 9.8 per 1,000 live births in 1997.[5] The cause of this decline is mainly due to safe motherhood program. The overall

perinatal mortality rate in the study of Sri-Smith in Chiang Rai Prachanukroh in 1992-1994[6] and those study of O-Prasertsawat et al[7] in Ramathibodi Hospital in 1978-1985 were 13.77 and 9.0 respectively.

During the period of our study there were 79,115 total births in Rajavithi Hospital and our perinatal mortality rate was reduced from 9.34/1,000 total births in 1993 to 6.52/1,000 total births in 1997. When we analysed in detail about the cause of perinatal death, we were surprised to find asphyxia, as the constant most common cause of deaths in each year of the study eventhough the decreasing incidence of asphyxia from 3.01/1,000 total births in 1993 to 2.17/1,000 total births in 1997. But the other studies showed the most common cause of the perinatal death was marcerated death ranging from 15.9 to 28.9% of total perinatal mortality rate[4,6]

In the national perinatal mortality rate demonstrated that the most common cause of perinatal death was macerated death (29%) in 1994, asphyxia (29.7%) in 1995 and specific causes (31.3%) and (33.5%) in 1996 and 1997 respectively.[5] However only in our study and Sri-Smith's study excluded the babies whose birth-weight below 1,000 gm from the studies. Ratriswadi[8] reported the reduction in perinatal mortality rates in our hospitals from 27.46/1,000 total births in 1976 and 14.08/1,000 total births in 1986 to 9.09/1,000 total births in 1996.

The other previous study of perinatal mortality in our hospitals reported by Horpaopan et al[9] during 1983-1987 showed a decreasing trend of perinatal mortality rate from 15.45 per 1,000 total births in 1983 to 13.69 per 1,000 total births in 1987 while the annual total births also showed a decreasing trend from 22,521 total births in 1983 to 16,873 total births in 1987. They supposed that the decline was mainly due to improvement in obstetrics and the early neonatal care. We thought that the same reduction in the total births may be one cause of perinatal mortality decline like our study. Horpaopan et al[9] also demonstrated that perinatal asphyxia was the most common cause of early neonatal deaths (total 2.02 per 1,000 livebirths) eventhough there was a decreasing trend from 2.28 per 1,000 livebirths in 1983 to 2.02 per 1,000 livebirths in 1987. There was no data about marcerated cases. But unlike our study, Horpaopan et al[9] and Ratrisawadi et al[8] included the early neonatal mortality rate of the babies whose birthweight below 1,000 gm.

However, the perinatal mortality rate in our hospitals appeared in the lower end of the range in the other studies ranging from 6.7-19.6.[4,6,7,10] We had very low autopsy rate in this study (2.70%). We did not routinely perform autopsy in every perinatal death. However, Boonpasat[11] reported the most causes of death during the fetal period are still unknown in all birth-weight groups of the autopsy perinatal deaths in Ramathibodi Hospital from 1980 to 1987. Prospective study should be introduced to complete analysis of the perinatal mortality in the future.

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