

Perinatal Mortality at King Fahd University Hospital, Eastern Province, Saudi Arabia

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Objective: To investigate perinatal mortality rate, stillbirth rate and early neonatal mortality rate, to identify various causes of perinatal deaths, and to find out ways and means to reduce such rates.

Methods: A retrospective study, where all perinatal deaths occurred at King Fahd University Hospital, Eastern province, Saudi Arabia, between 1 January 2002 and 31 December 2002 were reviewed. The most frequent causes of mortality were determined.

Results: The total number of births was 2,596. Perinatal mortality rate was 26.2 per 1000, stillbirth rate 15.4 and early neonatal death rate 10.8 per 1000. The most important causes of death were antepartum stillbirths (58.8%), lethal congenital malformations (22.0%) and prematurity (17.6%).

Conclusion: Reduction in the perinatal mortality rate in Saudi Arabia is likely to be possible only with the coordination of the government, universities, obstetricians and neonatologists and improvement of prenatal, delivery and postnatal care and prevention of lethal malformation and prematurity.



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Introduction

The perinatal period covers the late antenatal period, the delivery period and the early neonatal period. The perinatal mortality rate (PNMR) is thought to be a good indicator determining prenatal, delivery and early postnatal health care as well as maternal and child health, thus indicating the developmental status of a country. The PNMR, which means number of perinatal deaths per 1,000 births, has been regarded as an indicator of the quality of prenatal, obstetric and neonatal care in an area,

which also reflects the maternal health and socioeconomic environment.

According to the World Health Organization's (WHO) 1998 estimations, the PNMR is 57 per 1000 in the world. 1 This rate is below 10 per 1000 in the developed countries. 2 Although it is below 6 per 1000 in northern European countries such as Finland, it rises to 80-100 per 1000 in African countries. 1,3,4 The efforts to reduce perinatal and maternal mortality are outlined in the "Mother-Baby Package" of WHO with an integrated approach, recognizing that all pregnancies are at risk of obstetric com-

plications, not just the 'high-risk' group⁵. Still, risk factors detectable at antenatal clinics may identify women who may benefit from targeted interventions during pregnancy, particularly for infections and nutritional problems. This study aims to determine the PNMR and analyze perinatal deaths at King Fahd University Hospital (KFUH) in the Eastern province of Saudi Arabia. This is a tertiary teaching hospital.

Materials and Methods

All perinatal deaths among women who delivered at KFUH between 1st January 2002 and 31st December 2002 were the subject of this study. The records of these babies were obtained from the maternity and neonatal ward admission register. Case notes of both mothers and infants were reviewed and information about maternal demographic and obstetric details and type of perinatal death was reviewed. The classification method of perinatal deaths is based on pathological grouping that carry implications for clinical management. It is therefore useful in identifying the areas of perinatal care that should be focused on to reduce the perinatal mortality in an area.

Statistical analyses: Variables were compared by chi-square test and values were considered significant when $P < 0.05$

Results

The total number of deliveries in the study period was 2,596. Among these were 21 multiple pregnancies giving a total birth of 43 babies. Of the multiple pregnancies 20 were twins while one was triplet. There were 68 perinatal deaths during the study period giving a gross PNMR of 26.2 per 1000 births. The most important causes of death were antepartum stillbirths (58.8%), followed by lethal malformations which were responsible for 22% of perinatal deaths in this study. Hyaline membrane disease was responsible for 17.6% of perinatal deaths.

Birth related asphyxia was the cause of

Birthweight in grams	Total perinatal deaths	Asphyxia	immaturity	malformations	Macerated stillbirths
500-999	25	-	10	1	14
1000-1499	10	-	2	3	5
1500-1999	3	-	-	-	3
2000-2499	11	-	-	4	7
2500-2999	16	1	-	4	11
3000-3499	0	-	-	-	-
3500-3999	1	-	-	1	-
> 4000	2	-	-	2	-

Table 1 - Causes of Perinatal deaths during the year 2002

	Total number of babies		Perinatal deaths (n) %		Perinatal mortality/1000 births	P value
	N	%				
Birth-weight						<0.00001
<2.5	272	10.5	49	72.1	180.0	
> 2.5	2324	89.5	19	27.9	8.2	
Antenatal care						<0.00001
Booked	764	29.4	39	57.4	51.0	
Un-booked	1832	70.6	29	42.6	15.8	
Number of fetuses,						0.00001
Singleton	2553	98.3	60	88.2	23.5	
Twins	40	1.5	8	11.8	200.0	
Higher order gestation	3*	0.2	0	0	0	
Parity						<0.005**
0	472	18.2	12	17.6	25.4	
1-4	1198	46.1	43	63.2	35.9	
>4	926	35.7	13	19.2	14.0	
*3 Triplet						
** When compared, P1-4 with P>4						

Table 2 - Effect of birth-weight, antenatal care, multiple pregnancy and parity on perinatal mortality for the year 2002 (n=2,596)

perinatal deaths in one case only (1.5%). Table 1 shows the detailed classification of the perinatal deaths. The incidence of low birth weight babies in the study was 10.5% and they were responsible for 72.1% of the perinatal deaths. Babies from unbooked mothers (those who did not receive antenatal care at our hospital) constitute 29.4% of total births but were responsible for 57.4% of the perinatal deaths.

As expected PNMR for babies born as a result of multiple pregnancies was nearly 10 times the rate for singleton

pregnancies and this is comparable with other reports⁶. Perinatal mortality rate was highest among babies born to women of Para 1-4 compared to those born to nulliparous and grand multiparous women.

Table 2 shows the effect of birth weight, antenatal care, parity and multiple pregnancies on perinatal mortality.

Discussion

The determination of PNMRs and classification of the causes is very important

in evaluating the performance of an institution as well as the quality of health services of a nation in comparison with

According to the WHO, all live or stillbirths with weight 500 g or 22 completed weeks should be included in the determination of perinatal mortality

other countries. However, the variability in the definition of the perinatal period makes it difficult to compare the results from different countries or even different institutions. While Australia includes the whole newborn period to determine perinatal mortality rate, USA and some other countries include infants born after the 20th, 22nd or 24th weeks of gestation in their perinatal statistics. 7,8

On the other hand, Denmark and Sweden include only infants born after 28 weeks of gestation.⁹ According to the WHO, all live or stillbirths with weight

500 g or 22 completed weeks should be included in the determination of perinatal mortality. We included only infants born after 24 completed weeks because our neonatal services cannot deal with infants at less gestational age. The PNMR found by the present study is 26.2/1000, which is lower than the 57/1000 PNMR of the whole world, but higher than that of developed countries. 1,2,10,11 This University hospital usually gets high-risk pregnancy referrals, and some of the referrals became pregnant as a result of in vitro fertilization treatment, both of which result in a high rate of preterm birth and perinatal mortality. According to WHO reports, the stillbirth rate is higher than the early neonatal mortality rate in underdeveloped countries. The results of our study show that the stillbirth rate is 15.4/1000, while the early neonatal mortality rate is 10.8/1000. Recent studies have shown that stillbirth rates have increased in developed countries; however, this high rate is not related to macerated stillbirths as in developing countries, but is because of medical terminations for congenital anomalies. 3 The fact that antepartum stillbirths are at the top of the list of 'causes' of perinatal mortality in our study is evidence of lack of sufficient antenatal care. The inadequacy of the

post-mortem and genetic evaluations, and inability to determine maternal reasons for perinatal mortality. The second most common cause of perinatal deaths is congenital malformation which are incompatible with life and this represented 22% of all deaths, and this may remain as a major cause of perinatal deaths because the Islamic law prohibits termination of pregnancy for congenital malformations. In our study prematurity and its complications are the third reason for death (17.6%), which might be reduced by prevention of preterm delivery. Therefore, although this number may not reflect Saudi Arabia PNMR precisely, we believe that it provides very important data.

In conclusion, to reduce the PNMR in Saudi Arabia, it seems to be possible

Perinatal mortality studies should be extended and better organized regionally in Saudi Arabia

only with the coordination of the government, universities, obstetricians and neonatologists and the improvement of prenatal, perinatal and postnatal care and prevention of prematurity. Perinatal mortality studies should be extended and better organized regionally in Saudi Arabia.

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