

Risk Factors for Perinatal Deaths

*Intisar A.A. AL-Gafoor, **Gaula Taha

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Abstract

Perinatal mortality is significant health problem throughout the ward .it is prevalence is quite high specially in developing countries⁽¹⁶⁾ .most of the causes are treatable and fetal out come can be improved by recognizing the site of the problem and provision good health care facilities during ante partum and intrapartum periods. To investigate the fetal and maternal factors associated with perinatal deaths. Case control study was designed to study the main risk factors for perinatal deaths at AL-batool Teaching Hospital /SBCU from 1st January 2009 to 30th December 2009.505 registered perinatal deaths were considered as cases ,a sample of 505 controls obtained among the survivals of the perinatal period. The data collected by questionnaire form to assess main causes of perinatal deaths such as respiratory distress syndrome, sepsis, birth asphyxia ,low birth weight , congenital abnormality ,gender of new born .In addition maternal risk factors like history of pregnancy induced hypertension ,history of ante partum hemorrhage, women parity ,maternal age , maternal medical disorder, more over history of infertility ,mode of deliveries, ruptured uterus. Regarding causes of perinatal deaths; respiratory deaths syndrome, sepsis, birth asphyxia, low birth weight, congenital abnormality , all of them were found to be highly significant associated with the occurrence of perinatal deaths . According to maternal variable; maternal age<35 ,parity<5 pregnancy Induced hypertension ,history of ante partum hemorrhage ,ruptured uterus, unexplained causes of deaths were all found to be among the significant risk factors associated with perinatal loss. This study showed although there is clear reduction in the PNMMR after 2003, but still no changes in the main causes and risk factors for perinatal deaths and it is same to most of studies done in different countries in Iraq and world. The overall aim is to reduce the risk of perinatal death, effectively implementing the problems identified and solutions to the problems identified by application and designating practical clinical guide line.

Key words: Risk factors, perinatal deaths, Respiratory distress syndrome, Ante partum hemorrhage.

عوامل الخطورة لوفيات ما حول الولادة

الخلاصة

ويمكن تحسين معدل وفيات ما حول الولادة مهم مشكلة صحية في جميع أنحاء جناح هو انتشار عالية جدا وخاصة في البلدان النامية (16) معظم الأسباب يمكن علاجها ويخرج الجنين من خلال التعرف على موقع لهذه المشكلة وتوفير جيد : عودة الأرض. مرافق الرعاية الصحية أثناء الولادة، وفترات ما قبل المخاض . التحقيق في العوامل الجنين والأم المرتبطة الوفيات ما حول الولادة. تم تصميم دراسة حالة مراقبة لدراسة عوامل الخطر الرئيسية لوفيات ما حول الولادة في المستشفى التعليمي AL-بتول / SBCU from 1st يناير 2009 وحتى ديسمبر 2009.505S 30 registered اعتبارت وفيات ما حول الولادة وحالات، وشمل عينة من 505 الضوابط التي تم الحصول عليها من بين الأحياء لل فترة ما حول الولادة فترة . البيانات التي تم جمعها بواسطة استمارة استبيان لتقييم الأسباب الرئيسية للوفيات ما حول الولادة مثل متلازمة الضائقة التنفسية، وتعفن الدم والاختناق أثناء الولادة، وانخفاض الوزن عند الولادة، شذوذ خلقي، ونوع الجنس من المولود الجديد . وبالإضافة إلى ذلك عوامل الخطر الأمهات مثل تاريخ الحمل التي يسببها ارتفاع ضغط الدم وتاريخ نزف قبل الوضع، والنساء التكافؤ، عمر الأم، واضطراب طبي الأمهات، وأكثر على مدى التاريخ من العقم، وطريقة التسليم، وتمزق الرحم . بشأن أسباب وفيات ما حول الولادة، وفيات متلازمة الجهاز التنفسي، وتعفن الدم والاختناق أثناء الولادة، وانخفاض الوزن عند الولادة، شذوذ خلقي، تم

العثور على كل منهم أن تكون كبيرة للغاية المرتبطة حدوث وفيات ما حول الولادة . وفقا لمتغير الأم، عمر الأم >35، والمساواة >تم العثور على 5 كل ارتفاع ضغط الدم الحمل المستحثة، والتاريخ من نزف ما بعد الولادة ما كان عليه سابقا، انفجار الرحم، والأسباب غير المبررة من وفاة لتكون من بين عوامل الخطر لا بأس بها مع خسارة في الفترة المحيطة بالولادة. وأظهرت هذه الدراسة بالرغم من وجود انخفاض واضح في PNMMR بعد عام 2003، ولكن لا تزال هناك تغييرات في الأسباب الرئيسية وعوامل الخطر لوفيات ما حول الولادة، وأنه هو نفسه في معظم الدراسات التي أجري ت في بلدان مختلفة في العراق والعالم . أقسام رئيسية هي : عوامل الخطر، وفيات حديثي الولادة، ومتلازمة الضائقة التنفسية، نزف قبل الوضع . ويتمثل الهدف العام للحد من خطر الموت قبل الولادة، والتنفيذ الفعال للمشاكل التي تم تحديدها وحلول للمشاكل التي تم تحديدها من قبل التطبيق العملي وتعيين خط دليل السريرية، ومراجعة الحسابات

Introduction

Five million annual neonatal deaths (98% of the world's total) occur in developing countries. South Asia has the highest PMR and NMR as well as the highest number of live births¹. Its NMR of 51 per 1000 live births is the highest of all the geographical regions in the world. West Asia divided in to three groups, the group with the highest PMR and NMR includes Yemen, Turkey, Syria and Iraq (PMR of 40-70 per 1000 and NMR of 30-45 per 1000).² In Iraq under-five child mortality is one of the highest in the Middle East region; deaths during the neonatal period accounted for more than half of under-five children deaths highlighting an urgent need to introduce health interventions to improve essential neonatal care^{1,3}. It says that in the 1980s, before the sanctions, the average perinatal mortality in Iraq was estimated at 28 per 1000 live births, but that the average mortality in the 1990s was an estimated 107 per 1000 live. It could be explained by the deterioration of the health services and the socioeconomic conditions of the population at large during the nineties. After the end of sanction in 2003 the PNMR drop to 67 per 1000 live births⁴. This may be explained by the changes in the project of WHO due the assessment of newborn care undertaken in 35 Maternal and child hospitals in Iraq showed that policies and guidelines on newborn care are non-existent. Only 46.7% of the doctors in these hospitals were trained on newborn resuscitation, with 51.6% receiving practical training for less than one hour on the procedure. Of the nurses working in the delivery rooms, 22.5% were trained on newborn resuscitation, and 36.7% of the medical and nursing staff still practiced

holding the baby upside-down to stimulate breathing⁵. Although there is a clear drop in the PNMR in late 2003, there were no changes in causes for perinatal deaths, respiratory distress syndrome (66% of deaths), sepsis (20%), and asphyxia (10%), followed by congenital malformation (3%) and congenital infection (just under 2%) are the main direct causes of perinatal deaths, it is same as during the nineties in Iraq and same as in the ward were the primary direct are preterm birth (28 percent), severe infections (26 percent), and asphyxia (23 percent)^{4,6}. Fetuses die during or after birth because they are severely malformed, are born very prematurely, have low birth weight, suffer from obstetric complications before or during birth, have difficulty adapting to extra uterine life^(7,8,10). illiteracy and gender is one of indirect causes of neonatal deaths⁽¹¹⁾. Maternal factors in form of age, parity, past medical can share collectively in increasing perinatal mortality and morbidity⁽¹²⁾. older maternal age and high parity is associated with substantial increases in hypertensive disorders, diabetes mellitus, other chronic medical disease, placenta praevia, placental abruption and gestational diabetes^(12,8). Many previous studies concluded that stillbirths are difficult to prevent because the risk factors had not been adequately identified. Despite efforts to identify the etiological factors contributing to fetal death, a substantial part of fetal deaths are still classified as unexplained⁽¹³⁾. Unexplained causes account for 25-60% of all fetal demise⁽¹²⁾. All these factors regarded as risk for perinatal deaths, the aim of this study was to high light on the main fetomaternal risk factors affecting perinatal deaths.

Materials and Method

In order to achieve the aim of presented study, a case control study design with ethical consideration was adapted. 505 perinatal deaths (all perinatal deaths registered at baby care unit in Al-Batool Maternity Teaching Hospital) were enrolled in this study as cases according to the following criteria:

- Perinatal deaths is defined as a death of the fetus from 22 weeks of gestation, or >500

Mg birth weight to 7 completed day of life .

- Early neonatal deaths (END) : the delivery of a live births weighing ≥ 500 g at birth

who dies during the first 7 completed days of life.

- Still births :the complete expulsion of a fetus weighing ≥ 500 g and/or gestational age

> 24 weeks with no sign of life at birth or after birth.

All neonates were assessed by the attending neonatologist senior using a new balled score for gestational age estimation .Both birth weight and gestational age are recorded in the mother's case notes and in the labor room on case sheet . The method of delivery, specific delivery complications, and birth outcome, including stillbirths, are also recorded. all Neonates are examined in the first hour after birth and full-term babies are then discharged. Those who need special care according to the recorded guide line with neonatal department are admitted to the SBCU .

Perinatal data for one year 2009-2010 were obtained from the labor ward and SBCU data by specially designated questionnaire form . Another 505 new born(who survive the perinatal period admitted to the SBCU and discharge well).were chosen as control for this study with the following criteria:

- The control must be healthy newborn (full term and preterm) admitted to SBCU and discharged well.

- The pregnancy proved to be healthy with no fetomaternal risk factors.

Un-paired sampling technique was used in this study. Every perinatal deaths in this study was interviewed by the researcher and the following question were answered.

The questioners including assessment of main causes of perinatal deaths such as respiratory distress syndrome, sepsis, birth asphyxia, low birth weight, congenital abnormality ,gender of new born, in addition history of pregnancy induced hypertension , history of antepartum hemorrhage, parity ,maternal age, maternal medical disorder ,more over history of infertility medical disorder, moreover history of infertility, Rh incompatibility, and mode of deliveries (normal vaginal delivery, cesareans section, assisted vaginal delivery). Then Odd ratio was calculated for every risk factors of concern in this study with it p-value.

Results

The main fetal risk factors affecting early perinatal deaths are appeared as followings:

Table (1) show prematurity was found to be significantly associated with perinatal deaths (OR=5.72,P-value =0.000,and 95% CI =4.36-7.49). Neonatal sepsis is found to be highly associated with perinatal deaths (OR=2.15, P-value =0.000,and 95% CI =1.65-2.78). The same thing is applied to congenital abnormality (OR=2.84 ,P-value =0.000,and 95% CI =1.97-4.079). Further more birth asphyxia and Low birth weigh were again found to highly associated with perinatal deaths(OR=1.81,P-.value =0.009,and 95% CI = 1.15-2.90), (OR=1.67,P-.value =0.039,and 95% CI = 1.02-2.71) respectively.Gendre on the new born baby is also found to be associated with perinatal deaths (OR=1.92, P-value =0.000,and 95% CI =1.44-2.55).

Table (1):- Distribution of perinatal deaths according to Neonatal variable.

Fetal variable	Perinatal Deaths		Control		OR	X ²	p-value	95% C.I
	n=505		n =505					
	No	%	No	%				
Gestational < 37weeks	363	71.9%	156	30.9%	5.72	169.83	0.000	4.3628-7.4968
Neonatal sepsis	233	46.1%	144	28.5%	2.15	33.524	0.000	1.6548-2.7869
Congenital abnormality	116	22.9%	48	9.7%	2.84	33.661	0.000	1.9758-4.0797
Birth asphyxia	54	10.7%	31	6.1%	1.8188	6.795	0.009	1.1556-2.9003
Low birth weight	45	8.9%	28	5.5%	1.67	4.267	0.039	1.0221-2.7172
Sudden deaths.	59	11.7%	49	9.7%	1.23	1.037	0.309	0.8247-1.8378
Gender of new born baby	165	32.7%	102	20.2%	1.92	20.207	0.000	1.4405-2.5521

Table (2) indicates that women with PIH is found highly and significantly associated with perinatal loss (OR=2.36, p-value 0.000, and 95% CI 1.802-3.086). Women who developed antepartum hemorrhage is also found to be highly associated with perinatal loss (OR=1.54, P-value 0.004, and 95% CI 1.149-2.069). Unexplained causes for perinatal deaths is found to be significantly associated with perinatal loss (OR=1.60, p-value 0.024, and 95% CI 1.06-2.41). The occurrence of perinatal deaths is found highly significant in women >35

years, with parity >5 were (OR=1.48, p-value 0.003, and 95% CI 1.14-1.90), (OR=1.44, p-value 0.019, and 95% CI 1.06-1.69) respectively. Assisted vaginal delivery is found to be highly and significantly associated with perinatal loss (OR=14.78, p-value 0.000, and 95% CI 5.89-37.01). Ruptured uterus is found to be highly associated with perinatal loss (OR= 5.08, P-value 0.020, and 95% CI 1.10-23.30).

Table (2):-Distribution of perinatal loss according to different maternal variable.

Maternal Variable	PERINATAL DETHS n=505		CONTROL n=505		OR	x ²	P Value	95%CI
	No	%	No	%				
Pregnancy induced hypertension	218	43.2%	123	24.4%	2.36	39.957	0.000	1.8029-3.0868
Ante partum hemorrhage	138	27.3%	99	19.6%	1.54	8.385	0.004	1.1490-2.0696
Unexplained causes	64	12.7%	42	8.3%	1.60	5.101	0.024	1.0612-2.4118
Maternal age								
<20	98	19.4%	123	24.4%	0.75	3.620	0.057	0.5541-1.0093
20-35	68	13.5%	89	17.6%	0.73	3.326	0.068	0.5161-1.0250
> 35	339	67.1%	293	58.0%	1.48	8.946	0.003	1.1435-1.9093
Parity								
Primi gravida	152	30.1%	151	29.9%	1.01	0.005	0.945	0.7713-1.3213
1-5	235	46.5%	266	52.7%	0.78	3.806	0.051	0.6108-1.0013
>5	118	23.4%	88	17.2%	1.44	5.488	0.019	1.0610-1.9676
Mode of delivery								
Assisted vaginal delivery	65	12.9%	5	1.0%	14.78	55.258	0.000	5.8955-37.0168
Cesarean section	189	37.4%	219	43.4%	0.78	3.701	0.054	0.6072-1.0048
NVD	251	49.7%	281	55.6%	0.79	3.575	0.059	0.6150-1.0089
Medical disorder								
Anemia	10	2.0%	3	0.6%	3.38	3.818	0.051	0.9248-12.3565
Essential hypertension	6	1.2%	4	0.8%	1.51	0.525	0.404	0.4224-5.3692
Cardiac disease	176	34.9%	153	30.3%	1.23	2.385	0.123	0.9455-1.6021
Diabetes	22	4.4%	13	2.6%	1.72	2.397	0.122	0.8586-3.4611
Infertility	45	8.9%	31	6.1%	1.50	2.789	0.095	0.9301-2.4055
Rh incompatibility	19	3.8%	16	3.2%	1.19	0.266	0.606	0.6073-2.3509
Ruptured uterus	10	2.0%	2	0.4%	5.08	5.397	0.020	1.1076-23.3061

Discussion

Perinatal deaths are the principal subject of concern among obstetricians and pediatricians. It is an important indicator of population health in a country. It is associated with several health determinants, such as maternal health, access to high-quality health care, socioeconomic conditions, and public health policy and practices.^(12,13) In this study the highest and significant risk for perinatal death is prematurity, it is same as in the ward were the primary direct causes of neonatal death worldwide are preterm birth (28percent)⁽¹⁴⁾, globally Prematurity associated (39.6 per cent) with perinatal deaths^(11,15). Multinational studies proved Prematurity is the main cause of early neonatal deaths (62%)⁽¹⁶⁾. Our result comparable to the figures from others studies in Iraq during 1994-1999 were prematurity result in 86% of perinatal deaths and the leading cause was difficulty in breathing in (RDS 42.3%) because of prematurity⁽¹⁷⁾. Another study during (2003) prematurity contributed to 66% of perinatal deaths⁽¹⁸⁾. In study at Tunisia the risk factors directly related to neonatal mortality were prematurity (OR=6.03-95%CI:(2-18.13) p=0.001), neonatal respiratory distress (OR=16.12 -95%CI: (5.67-45.78) p<10(-3)⁽¹⁹⁾. Although there is variations in the percentage between the local and national studies, prematurity is the highest and significant risk factors for perinatal deaths through out our hospitals in Iraq, this reflect the size of the prematurity problem in our locality. Unavailability of intensive care facility and surfactants therapy for preterm neonate in our center and most of baby care unit may explain this high rate of preterm loss. Sepsis is the commonest cause of neonatal mortality and is responsible for 30-50% of total neonatal deaths each year in developing countries⁽²⁰⁾. It is estimated that up to 20% of neonates develop sepsis and approximately 1% die of sepsis related cause, the most common infection are septicemia, pneumonia, meningitis⁽²¹⁾. In our study sepsis is found to be statistically significant risk factor for perinatal deaths it is similar to the result of many studies performed in different places in Iraq like a study at Diyala University Hospital sepsis accounted for 35.2% of deaths in VLBW and 39% in LBWI⁽²²⁾. In Basra a study (2004) was reported that (44.2%)

of sepsis associated with perinatal deaths, the same high result was reported again in Basrah (Iraq) by Radhy H. in 2001 (43.5%)^(20,23), similar results were obtained in Abha (Saudi Arabia) by Asindi A et al, (44%)⁽²⁴⁾. It has been found that a significantly higher mortality rate due to sepsis among premature neonate (69.7%) and those with intrauterine growth retardation (70.8%). In 3.5% cases, chorioamnionitis/ neonatal septicaemia was the underlying cause^(22,23). Again unavailability of intensive care unit in our hospital with lack antibiotic and most laboratory investigation needed to deal with sepsis may explain the high rate of sepsis. Around 1% of infants have a major congenital anomaly. These anomalies are more common in developing than in developed countries⁽²⁵⁾. It was concluded that the higher perinatal mortality was determined mainly by the nature of the anomaly, it varies from country to country. In our study congenital malformation is found to be highly significant risk factor for perinatal deaths. The rate of congenital malformation as a cause of perinatal deaths varies between studies in Iraq a study during 1994-1999 study during 2003, the rate of congenital abnormalities as 10.3%^(20,24). A study by Dr Al-awkati found Children in the middle Euphrates died because of congenital malformation more than in other regions of the country⁽²⁶⁾, this result correlate with study a Saudi Arabia were Congenital abnormalities are the leading cause of perinatal and late neonatal mortality at the National Guard King Khalid Hospital in Saudi Arabia⁽²⁷⁾. In EUROCAT the overall recorded rate of late fetal deaths/stillbirths with congenital anomaly is 0.47 per 1,000 births for 2004, and of deaths in the first week 0.46 per 1,000 births, for a total perinatal mortality rate associated with congenital anomaly of 0.93 per 1,000.⁽²⁸⁾ Birth asphyxia due to fetal hypoxia important causes of perinatal death, our study found that fetal hypoxia is significant risk factors for perinatal deaths, this risk factors proved in many studies, "report on perinatal deaths in Iraq says (23 percent) of perinatal deaths due to asphyxia, Many of these deaths can be avoided with simple, practical and affordable interventions⁽²⁹⁾. Intrapartum-related neonatal deaths account for almost 10% of deaths in perinatal period. In study in Tunisia the perinatal asphyxia (OR=11.49 - 95%CI: 3.68-35.92) p<10(-3) is a

main direct cause for parental deaths⁽¹⁹⁾. Intrapartum stillbirths are a huge and invisible problem, but are potentially preventable. Programmatic attention and improved information are required. Global estimates for asphyxia-related neonatal deaths vary from 0.7 to 1.2 million⁽³⁰⁾. Estimates for intrapartum stillbirths are not available. Around 15% of newborn infants weigh less than 2500 g, the proportion ranging from 6% in developed countries to more than 30% in some parts of the world.³¹ around four million neonatal deaths around the world every year associated with is low growth and mostly in developing countries.⁽³¹⁾ In this study Low birth weight is found to be significant risk factors for perinatal deaths. The result confirmed by study for perinatal deaths in Diyala university to study the outcome of low birth weight in infant in Diyala Province of Iraq, the mortality rate in very low birth weight infant (VLBWI) increased from 12/80 (15%) in 2003 to 51/152 (33.6%) in 2009, ($p=0.003$). In LBWI, 10/116 (8.6%) died in 2003 compared to 33/152 (13%) in 2009 ($p=0.29$).⁽²⁾ Study in Bangladesh found eighty four per cent of neonatal deaths occurred in infants whose birth weights were under 1500g, in the first seven days; half within 48 hours. In Tunisia preterm delivery was implicated in three-quarters of neonatal deaths, but was associated with only one-third of LBW neonates. Small for gestational age OR=7.11 - 95% CI: (2.23-22.69) $p=0.001$ is important risk factors for perinatal deaths⁽³⁰⁾. More boys than girls are born in the world. The sex ratio at birth 105-106 boys to 100 girls — is a natural phenomenon and has been stable or decreasing slightly, as has been observed in some European countries⁽³²⁾. It is well known that mortality rates for boys in the early neonatal period are higher than those for girls. However, it is less well known that differences in attitude towards boys and girls affect their future lives. Gender preference and its consequences vary throughout the world. Most societies including our societies prefer sons, and the strong preference for boys observed in some settings is also reflected in neonatal mortality. Neonatal mortality among girls may be up to one third higher than that registered among boys, thus counteracting the biological differences observed in societies without strong gender preference⁽³³⁾. In our study the boy newborn at risk for perinatal

deaths more than girls newborn. Because there is no sex-specific global estimates of neonatal, early neonatal or stillbirth mortality were available that is why it is important to monitor the proportion of multiple births and the ratio of boys to girls at birth for both live born and stillborn babies⁽³²⁾. The finding of such generalized male over mortality in the early extra uterine period of life, together with the patterns shown by the temporal sex ratio in stillbirths and in early deaths, supports the hypothesis of a postponement of male risk from late fetal into neonatal life⁽²⁵⁾. Maternal factors in form of age, parity, past medical can share collectively in increasing perinatal mortality and morbidity. Studied confirmed Ninety per cent of patients had high risk factors in the antenatal period like pregnancy induced hypertension, antepartum hemorrhage and cord complications at increased risk for perinatal deaths. In our study hypertension and antepartum hemorrhage were found highly significant risk factors for perinatal deaths. PIH-related stillbirth was higher in women (OR = 2.2 [95% confidence interval = 2.1–2.4]) compared with women having no PIH (OR=1.5 [1.4–1.6]). Patterns were similar for neonatal death (1.3 [1.2–1.4]). Another study shows Commonest risk factors was followed by hypertensive disorders of pregnancy, ante partum hemorrhage (27.67%), (23.21%) and mechanical factors affecting labor (14.28%)³⁶. At Hyderabad still birth due to hypertensive disorders of pregnancy (23.21%)^(20,21) and due to APH (27,6%)⁽²⁰⁾. At Jinnih hospital in pakistan the rate of perinatal deaths due to antepartum hgemorraghe is (25%)⁽¹⁵⁾. A study at Kenya confirmed that complications of labour such as hemorrhage, premature rupture of membranes/premature labour, hypertension and obstructed labor/ malpresentation increased the risk of death between 8- and 62-fold, and 53% of all perinatal deaths were attributable to pregnancy complications^(36,30). Maternal age is another risk factors for perinatal deaths in this study .our result similar to study Compared to women aged 25–34, women aged 40 and above had a twofold risk of delivery-related perinatal death at term (adjusted OR 2.20, 95% CI 1.42 to 3.40). The excess was explained by increased risk of death due to intrapartum anoxia. Among women in labour at term, age greater than 40 was independently associated with risk of anoxic

death among primiparous (adjusted OR 5.34, 95% CI 2.34 to 12.20) and multiparous women (adjusted OR 2.14, 95% CI 0.99 to 4.60). There is 50% increased the risk of neonatal deaths for mothers over age 35 years in compares with mothers 20 to 35 years of age^(24,33). The frequency of diabetes and hypertension during pregnancy fivefold increased with increasing age. Anemia is regarded as a major risk factor for an unfavorable outcome of pregnancy, it is associated with low birth weight, preterm birth and perinatal mortality. Maternal anemia in our study is found to significant risk factors for perinatal deaths. many studies analyzed different combinations of these measures, iron and folic acid supplementation provided the main protective effect⁽³⁹⁾. Early neonatal deaths were still significantly reduced among infants whose mothers received iron and folic acid supplements but no other form of antenatal care (HR: 0.10; 95% CI: 0.01-0.67), or the supplements.¹ Subsequent analysis showed that 20% of early neonatal deaths in Indonesia could be attributed to a lack of iron and folic acid supplementation during pregnancy⁽⁴⁰⁾. The relation between maternal risk factors and perinatal deaths studies are not available in our locality and more studies needed to focus on this important aspect. The increase in the operative delivery rate has been matched by a decrease in mortality in patients thus delivered, the maternal and perinatal mortality rates changing from 5.5 and 88.9 per 1,000 to 0 and 7.6 per 1,000 respectively in the case of forceps delivery and from 24.7 and 162.5 per 1,000 to 0.15 and 10.6 per 1,000 respectively in the case of Caesarean delivery⁽⁴¹⁾. This result against the result of our study were use of forceps and vacuum highly associated with perinatal deaths but our result is assisted by study for perinatal deaths after use of forceps and vacuum were perinatal mortality was nearly three times higher than the overall hospital group, perinatal death and serious fetal scalp trauma were associated with deflexing cup applications, making more than three pulls and failed vacuum extractions^(34,42). Uterine rupture is one of the most serious obstetric complications, with an increased risk of maternal and perinatal morbidity, and even mortality. in our study loss of new born after deaths. This result same a result done at Duhuk were the perinatal mortality rate was 62%⁽⁴⁴⁾. Perinatal

mortality was significantly increased for vaginal birth after C/S at 1.3 per 1,000 versus 0.5 per 1,000 for ERCD Neonatal morbidity occurred in 48.8% of the newborns. Perinatal mortality was also significantly increased for trial of labor (0.13% compared with 0.05% for elective repeat cesarean delivery)⁽⁴⁵⁾.

Conclusion

The finding of this study suggest that the burden of perinatal mortality in our population is high but preventable and need to be carefully assessed to understand the main risk factors for deaths. Our finding call for increased health facilities and improve quality care, Prematurity, sepsis, low birth weight, may require greater attention, and further studies are needed to understand the relation between perinatal loss and these factors.

Recommendation

1. Designating practical clinical guide line, audit application is an important aspect to search for the weakness in health problem and facilities affected perinatal deaths.
2. increased of health facilities and improve quality health care specially for those preventable factors like sepsis, prematurity, low birth weight, maternal complication during pregnancy by improvement of antenatal care.

References

1. Coroson SL.; International Family planning perspectives. DIGEST2006; 32(4): 432-443.
2. Alessandri LM. Stanly FJ. Pregnancy and Child Birth, trends and risk factors for early Neonatal mortality. British medical journal 2004 ; 329(24):124-135.
3. Danittola H., Asmasam N.I. Perinatal mortality review. Obstetrics & Gynecology 2005; (105):1410-1418.
4. Donnez J., Mudadi G. Primary causes of total perinatally wastage at child Research project report 1999 ;75(5): 55-59.
5. Hanson M. Haid K.; Health Statistics from the centers for disease and factors affecting fetal mortality prevention/national health statistics medical and life style factors perinatal deaths. Acta Obs Gyn Scand. 1989;90-,2005;7.

6. Strategic Directions for Strengthening Nursing and Midwifery Services 2002-2008, WHO, Geneva 2002.
7. Imtiaz J., Hillary . Epidemiology, Causes and Consequences of Low Birth weight. Eur J C11998 ;52(S1):523-535.
8. Moore P., Gregg AR. Clinical value of postnatal autopsy and genetics Consultation in fetal death . Am J Med Genet 2001;104(2):165-8.
9. Amna Zeb. Naushaba M .perinatal mortality attributable to Complication of child birth in matalab. Acta Obs Gyn Scand 2000 ;79:371-378.
10. Omrana P., Elizabeth k. perinatal deaths assessment. International Journal of Epidemiology 2002;(93):661-668.
11. O'leary CM, Bower C.; Changing risks of stillbirth and neonatal mortality associated with maternal age in Western Australia . Acta Obstet Gyneco 2006 ; 14 (18): 429– 452.
12. Knuiman M, Stanley FJ. perinatal mortality in developing country: high risk or improve labor management? healthy policy and planning .National de Statistic health:Health 1993 ;(8):360-368.
13. Nasheit N.A.;Perinatal and neonatal mortality and morbidity in Iraq. Journal of Maternal-Fetal and Neonatal Medicine 2003 ; 1(13):64-67.
14. Johns Hopkins ;Child Health Research Project Special Report. World Health Organization. Geneva 27-2005; 2:0. .
15. Lindsey. Perinatal Mortality in Developing Countries. ENMJ 2005 ;(19) 352:2047-2048.
16. Mamun AA ; Maternal health during pregnancy and perinatal mortality in Bangladesh: evidence from a large-scale community-based clinical trial . Pediatrics Perinatal Epidemiology 2006 Nov ; 20(6):482-90.
17. Padmadas V. perinatal deaths . J Ayub Med. 2007 ; 19(3):P.211-214.
18. jawadi AL. Maternal and fetal factors related to perinatal mortality.5thScientific conference women and child health. 2008 ;(5):161-171.
19. Sajida Yousfani; Perinatal Mortality and Related to Obstetric Complication Tertiary Care Hospital of Hyderabad. Pediatri Perinat Epidemiol 2006 Nov; 20(6):482-90 .
20. Seema Q.; trends and risk for early neonatal mortality at Muhimbili Hospital ,Tanzania. BMC Pregnancy and Childbirth 2005 ;(34):445-449.
21. Bower C. Review of perinatal deaths. American J Obs Gyn. 2009 ;(95):215-129.
22. bocalttie De . Perinatal mortality in northern rural Tanzania . J health popul 2003 March;21(1): 8-17.
23. Heydanus R, Santema JG, Stewart PA, Mulder PG, Wladimiroff JW. Birth as preterm Delivery rate and fetal outcome in structurally affected twin pregnancies: a retrospective matched control study. PMID: 8506216.
24. Zonta, L. A. Advanced maternal age and the risk of perinatal death due to intrapartum anoxia at term. Epidemiol Community Health 2009;(97):170 -181.
25. Zaid R Al-Ani; Sahar J Al-Hiali; Waleed S Al-Mashhadani Perinatal mortality rate in Al-Ramadi Maternity and Children's Hospital, western Iraq. Saudi medical Journal 2009 ;(30):379-399.
26. Yolanda Ogbolu, MS . Neonatal Mortality: A Critical Global Health Issue Neonatal Network 2007 ; 26(6).
27. M.A. Yalda1 and A. Munib1. Uterine rupture in Dohuk, Iraq. Eastern Mediterranean Health Journal 2009 ; 15(5).
28. F ouzia Sheikh, Sabreena Abbas Khokhar."Maternal and prenatal out come " Gynec & Obestetrics 2010;16(2):356-367.
29. Anne CC. Lee, , Luke C. Mullany, James M. Tielsch. Factors for Neonatal Mortality Due to Birth Asphyxia in SouthernNepal: A Prospective, Community-Based Cohort Study Pediatrics 2008 ; 121(5):1381-1390.
30. Dolk H, Loane M, Garne E. The prevalence of congenital anomalies in Europe. EUROCAT 2010 ;(686):349-64. h.dolk@ulster.ac.uk.
31. Ohana O, Holcberg G, Sergienko R, Sheiner E. Risk factors for intrauterine fetal death (1988-2009). J matern feta neonatal Med 2011 Feb ;(3): 121-134
32. Titaley CR, Dibley MJ, Roberts CL, Hall J, Agho K. Iron and folic acid supplements and reduced early neonatal deaths in Indonesia. BULL WORLD HEALTH ORGN 2010 Jul1; 88(7):500-8.
33. Hossain N, Khan N, Sultana SS, Khan N. Abruptio placenta and adverse pregnancy outcome; J Pack Med Assoc 2010 Jun; 60(6):443-6.

34. Ratten GJ. Changes in obstetric practice in our time. *Aust NZJ Obste Gynecol* 1995; Nov 25(4):241-4.
35. Mola GD, Amoa AB, Edilyong. Factors associated with success or failure in trials of Vacuum extraction. *Aust N Z J Obstet Gynaecol* 2002 Feb;42(1):35-9.
36. Guise JM, Denman MA, Emeis C, Marshall N, Walker M, Fu R, Janik R, Nygren P, McDonagh M. Vaginal birth after cesarean: new insights on maternal and neonatal outcomes. *Obstet Gynecol* 2010 Jun;115(6):1267-78.
37. Guise JM, Eden K, Emeis C, Denman MA, Marshall N, Fu RR, Janik R, Nygren P, Walker M, McDonagh M. Vaginal birth after cesarean: new insights. *Evid Rep Tecnol* 2012Mar;(191):1-397
38. Heydanus R, Santema JG, Stewart PA, Mulder PG, Wladimiroff JW. Preterm s delivery rate and fetal outcome in structurally affected twin pregnancies: a retrospective matched control study. *Journal of Maternal-Fetal and Neonatal Medicine* 2003;13:64-7.
39. M ,Jeeva Sunkar,Ramesh Agarwal,Ashok K:Sepsis in the new born. *Indian journal of pediatrics* 2008March; 75 (3).
40. Jawad K. Al-Diwan, Tariq S. Al-Hadithi, Abdul Hussein M. Al-Hadi. Low Birth Weight and Prematurity in the Neonatal Unit of a Maternity and Pediatrics Hospital in Iraq . *Journal of Tropical Pediatrics* 2005; 52 (2): 148-150.
41. Imtiaz Jehan, Hillary Harris, Sohail Salat. Neonatal mortality, risk factors and causes: a prospective population-based cohort study in urban Pakistan. *Bull World Health Organ* 2009;87:130–138.
42. Milaat, Waleed. Perinatal mortality in Jeddah, Saudia Arabia. *International Journal of Epidemiology* 1992 March ;21(1).
43. A.I. Benjamin, Paramita Sengupta , Shavinder Singh. Perinatal mortality and it is risk factors in Ludhiana: Apopulation –based prospective cohort . *Health and Population* 2009 ;32(1):12-20.
44. Akello B Nabiwemba E Zirabamuzaale C Orach CG. Risk factors for perinatal mortality in Arua regional referral hospital, West Nile, Uganda. *BMC Pregnancy Childbirth*. 2009 May 7; 9 Suppl 1:S7.
45. Caughey AB, Sundaram V, Kaimal AJ, Cheng YW, Gienger A, Little SE, Lee Wong L, Shaffer BL, Tran SH, et al. *Evid Rep Technol Assess* 2009 Mar; (176):1-257.