Original Article

موضوع أصيل

INCIDENCE AND RISK FACTORS OF PREMATURITY IN BASRAH, IRAQ

نسبة حدوث وعوامل الخطورة للولادة المبكرة (الخداج) في البصرة - العراق

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ABSTRACT:

Objective: *This is a study of factors influencing prematurity at the Basrah Maternity Hospital.*

Methods: *This is a prospective case-control study, which was conducted over a 6-month period. Infants considered suitable for the study were examined on the basis of the Dubowitz scoring method. Those born as a result of induced labor or surgical delivery without prior labor were excluded. Control infants were selected randomly. Chi-square and Fisher exact tests were used to determine significance and the odds ratio test was used to compare risk factors in the two groups.*

Results: *During the study period 175/5674 deliveries were premature, giving an incidence of 3.1%. Significant risk factors included maternal age of 30 years or older, nulliparity, low socioeconomic status, antepartum hemorrhage, cervical incompetence, pulmonary disease, diabetes mellitus, urinary tract infection, multiple pregnancy, and a history of previous preterm delivery.*

Conclusion: *The incidence rate of prematurity was unexpectedly low in comparison with other countries. Further research is needed and should focus on known risk factors and others not included in this study such as genital tract infection, general morbidity, stress and anxiety, and antenatal care.*

ملخص البحث

هدف البحث: دراسة العوامل المؤثرة على الخداج في مشفى البصرة للولادة

طريقة الدراسة: هذه دراسة مستقبلية لحالات مراقبة أجريت على مدى ستة أشهر.، حيث اعتبر الرضع ملائمين لهذه الدراسة وفحصوا على أساس طريقة Dubowitz Scoring method.

تم عزل حديثي الولادة الذين أنجبوا بعد حدوث مخاض أو بدون مخاض مسبق، كما اختير الرضع عشوائياً. وقد استخدمت اختبارات Fisher وChi-square لتحديد الأهمية واستخدم اختبار النسبة المحتملة للمقارنة بين عوامل الخطورة في المجموعتين الاثنتين.

النتائج: أثناء فترة الدراسة، كانت هناك 175 حالة ولادة مبكرة من أصل 5674 معطية خطر حدوث ذلك بنسبة 3.1%. اشتملت عوامل الخطورة الهامة على عمر الأم البالغ 30 سنة أو أكثر وعلى عديمة الولادة والحالة الاجتماعية الاقتصادية المتدنية والنزيف قبل الوضع واللا كفاية العنقية والداء الرئوي والداء السكري وانتان المسالك البولية والحمل المضاعف بالإضافة إلى الولادة المبكرة.

الخلاصة: كانت نسبة حدوث الخداج منخفضة بشكل غير متوقع بالمقارنة مع بلدان أخرى. ومازال هناك حاجة لإجراء أبحاث أخرى تركز على عوامل الخطورة المعروفة والعوامل الأخرى التي لم تشملها هذه الدراسة مثل أنتان الجهاز التناسلي ومعدل الوفيات الإجمالي والكرب والقلق بالإضافة إلى الرعاية قبل الولادة

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INTRODUCTION

Liveborn infants delivered before 37 weeks of gestation are termed premature by the WHO. Prematurity is also often used to denote immaturity.[1] Perinatal mortality and morbidity and their sequelae are strongly lined to gestational age.[2] Low birth weight and premature delivery are reportedly more common among non-white women, women with twin pregnancies, women with a previous history of pregnancy loss and preterm delivery, women of low socioeconomic status, and cases of maternal illnesses or complications of pregnancy.[3] In over 30% of cases of premature birth, however, there is no obvious cause.[4] The over-all public health importance of low birth weight is determined not only by the risks of subsequent morbidity and mortality, but also by how prevalent it is in a given population.[3] The aim of this study was to determine the incidence of prematurity in Basrah, and, in addition, to define the factors associated with an increased risk of preterm delivery in this region.

PATIENTS AND METHODS

This study is a prospective case-control study that was conducted in the Basrah Maternity and Child Hospital from the beginning of January 1996 until the end of June 1996. Over this 6-month period, there were 5674 deliveries. All infants who were considered to be suitable for inclusion in the study were examined on the basis of the Dubowitz scoring method[6] to determine gestational age. Those infants who were born as a result of an induced or surgical delivery without prior labor or spontaneous rupture of membranes were excluded. Control infants were those who were delivered at 37 weeks of gestation or later. The gestational ages of the infants in the control group were also assessed on the basis of the Dubowitz scoring method. During this period, 175 preterm infants were born and included in the study. The 400 live births with gestational age ≥ 37 weeks at birth who were used as controls were randomly selected. Chi-square and Fisher exact tests were used to determine significance. The odds ratio test was used as the parameter for comparison of the risk factors in both groups.

RESULTS

With 175 of the 5674 deliveries fitting the definition of prematurity, the incidence rate was 3.1%. These 175 preterm infants and 400 controls were the subjects of the study. Table 1 shows the distribution of preterm infants according to gestational age.

Gestational age (weeks)	Number of cases	%
<28	3	1.7
28-31	68	38.8
32-34	88	50.2
35-36	16	9.1

Table 1. Distribution of cases according to gestational age.

Table 2 summarizes the selected maternal characteristics of the cases and controls. It shows that there is a significant relationship between maternal age, birth order, and social class and preterm delivery. (P value > 0.05 is not statistically significant.)

Characteristics	Cases	Controls	P Value
Age			
<20	9	54	<0.05
20-29	100	213	
30-34	38	77	
≥35	28	56	
Birth Order			
1	54	78	<0.05
2	37	104	
3 and 4	38	104	
≥5	46	114	
Socioeconomic status			
Low	105	150	<0.01
Middle	67	244	
High	3	6	

Table 2. Distribution of cases and controls by selected maternal characteristics

Table 3 summarizes the prevalence of medical and obstetrical problems in both cases and controls. It shows that pulmonary disease (e.g. asthma), diabetes mellitus, cervical incompetence, antepartum hemorrhage, multiple pregnancy, previous preterm delivery, and urinary tract infections were significant risk factors that might lead to preterm delivery.

Problem	Cases		Controls		Probability	Odds Ratio	
	+	-	+	-		+	-
Smoking	4	171	3	398	>0.05	4.655	0..84-24.5
Preeclampsia toxemia	13	162	16	384	>0.05	1.926	0.9-4
Cardiovascular disease	2	173	2	398	>0.05	2.30	0.32-16.4
Pulmonary disease	6	169	2	398	<0.05	7.06	1.41-35.3
Diabetes mellitus	7	168	1	399	<0.01	16.6	2-134.69
Polyhydramnios	3	172	2	398	>0.05	3.74	0.57-20.92
Cervical incompetence	6	169	2	398	<0.05	7.06	1.41-35.34
Antepartum hemorrhage	13	162	10	390	<0.01	3.13	1.34-7.27
Closely spaced pregnancies	24	151	51	349	>0.05	1	0.64-1.83
Multiple pregnancy	11	164	3	397	<0.01	8.8	204-32.2
Urinary tract infection	7	168	2	398	<0.01	8.29	1.70-40.31
Previous preterm delivery	15	160	4	396	<0.01	9.28	3.03-28.33

Table 3. Medical and obstetrical problems in cases and controls

DISCUSSION

The present study has demonstrated a relatively low incidence of prematurity in Basrah (3.1%). Prematurity in Iraq was previously estimated at 6.1%.[7] the analysis by Villar and Belizan[8] of data from 11 developed countries and 25 developing countries indicated that in the developing countries, low birth weight is mainly due to intrauterine growth retardation, whereas in the developed countries, low birth weight is mostly due to prematurity. This incidence is lower than that reported in Saudi Arabia,[9] Nigeria,[10] and the USA.[11]

As reported in other studies, [5,10,11] first births were at a significantly higher risk of preterm delivery. Although many studies in Iraq[12] and other countries such as the USA[3] and Nigeria[10] show that young maternal age is an important risk factory for prematurity, a recent study from the USA[11] showed that maternal age of 30 or older is a risk factor. The problem of preterm births seems to be reinforced by the widespread perception that social differences, more specifically social inequalities are a major factor in its etiology. These factors were found to be significant in our study, in other studies in Iraq[12] and the USA.[3] Recent studies in the UK[13] have shown that these social factors are only significant in young women (<20 years of age) and in women delivering for the first time.

In terms of medical and obstetrical problems, antepartum hemorrhage and multiple pregnancy were significantly associated with preterm delivery. This result is in agreement with other studies.[3,10,11] Other important medical problems with a significant association with preterm labor include diabetes mellitus and urinary tract infections. This is in contrast to the results of a study done in Baghdad[12] which did not show any significant association. It is similar to the results of a study done in the USA[11] which indicated that the presence of a positive urine culture was the highest risk factor for premature rupture of membrane-induced prematurity. A history of a previous preterm delivery was found to be a very significant risk factor as was the case in other studies.[3,14] In about 47% of the cases of preterm delivery, no obvious cause was found. More than one third of them were carrying a first live birth. This is in agreement with another study[11] in which it was found that the cause of prematurity in low risk pregnancies is due to unknown factors associated with carrying a live first birth in the majority of cases.

CONCLUSION

We concluded from this study that the incidence rate of prematurity was unexpectedly low in comparison with the results from other developing countries. Prematurity is an important factor in infant and child morbidity and mortality and it may affect subsequent development. Further research is needed and should focus on known risk factors and others not included in this study such as genital tract infection, general morbidity, stress and anxiety, and antenatal care.

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