

Knowledge of mothers with premature births About Antenatal corticosteroid Therapy for fetal lung maturation

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Abstract:

Back ground: Antenatal corticosteroids therapy is beneficial to accelerate fetal surfactant production and lung maturation so this might reduce neonatal mortality and severe morbidity with no long-term side effects.

Objectives: To assess the knowledge of the mother with premature birth about antenatal corticosteroid for fetal lung maturation.

Methodology: A descriptive analytic study was conducted on a non-Probability (purposive sample) of fifty women who have preterm birth selected from neonatal intensive care unit, delivery room and obstetric wards in Baghdad Teaching Hospitals (Al-Elwia maternity Hospital, Al- Karkh maternity Hospital and Children Welfare Teaching Hospital) from 14th Feb. to 16th March 2016. Questionnaire was used as a tool of data collection to fulfill with objectives of the study and consisted of three parts: Demographic, Reproductive Characteristics and knowledge about antenatal corticosteroid therapy for fetal lung maturation. A pilot study was carried out to test the reliability of the questionnaire and content validity was carried out through 20 experts. Descriptive and inferential Statistical analysis were used to analyze the data.

Results: The results show that the highest percentage of the study sample (50%) at age group ranged between (20-29) years; with mean age and SD is 27.80 ± 6.265 . The highest percentage (32%) were graduated of primary school; the highest percentage of the study sample (84%) were house wife. The highest percentage is (62%) had enough to some extent. The study show that the means of scores is (1.66) in (Cortisone) corticosteroid secreted naturally in the body from the adrenal gland located above the kidney, while the means of scores is (1.8) in the most important functions of cortisone in the body regulate blood sugar levels and blood pressure, the means of scores is (1.28) in item do you have sufficient information about the treatment (corticosteroid) which is given during pregnancy to help fetal lung maturation. Also the highest means of scores is (1.98) for time to given corticosteroid during pregnancy in the third trimester (three last months), the means of scores is (1.44) in item all the pregnant women give them treatment of lung maturity of the fetus during pregnancy. The highest means of scores is (1.94) for reason for recommended treatment of lung maturation during pregnancy is premature birth; while the lowest mean of score is (1.54) as in C/S. About the Benefits of treatment of antenatal (corticosteroid) therapy the study show that the highest means of scores is (1.82) for to helps fetal lung maturation ; while the lowest mean of score is (1.38) in increase the weight of the fetus . The highest means of scores is (1.96) for the correct way to give treatment of lung maturity of the fetus during pregnancy via muscle injection. The highest means of scores is (1.88) for number of courses should be taken by the pregnant women two to three course and the means of scores is (1.26) in are there any risks or side effects to the mother or baby when you are using treatment of lung.

Conclusion: It was concluded that mother with premature birth have adequate knowledge about treatment (corticosteroid) that is given during pregnancy to help fetal lung maturation.

Keywords: Antenatal, Corticosteroid, Fetal lung maturation, Knowledge, Premature birth.

I. Introduction

One of the big challenge to obstetricians and pediatricians in managing neonates born premature is fetal lung maturity. So lung immaturity is the one of the most important problems handled the nurse worker in premature infants care unit and intensive care unit. Respiratory distress syndrome (RDS) in preterm babies is the main cause of neonatal death due to immaturity of fetal lungs which is a primary concern⁽¹⁾. Antenatal corticosteroids (ANCS) therapy is indicated for all women at high risk of preterm delivery and administration between 24 and 34 weeks of gestation. It has been demonstrated that a single complete course of antenatal corticosteroids administration intramuscular injection of 2 doses of 12 mg of betamethasone each 24 h or dexamethasone 6 mg given intramuscularly in four doses are the steroids of choice to enhance lung maturation to reduce neonatal mortality and severe morbidity with no long-term side effects^(1,2). They are also indicated over 34 weeks of gestation when there is evidence of pulmonary immaturity. If antenatal corticosteroids administration and pregnancies deliver 24 hours after and up to 7 days after administration of the second dose of antenatal corticosteroids the antenatal corticosteroids are most effective in reducing RDS. In most developing

countries neonatal mortality is as high as 30 per 1000 live births. Administration of corticosteroids during the antenatal period for pregnant women at high risk of premature delivery is one of the powerful interventions to reduce neonatal mortality⁽³⁾. So knowledge of the mother with premature birth about treatment (corticosteroid) that given during pregnancy is to help fetal lung maturation.

Objectives of the study: To assess the knowledge of the mother with premature birth about antenatal corticosteroid therapy and findout relationship between knowledge about antenatal corticosteroid therapy and demographic, reproductive variables and other studied variables.

II. Methodology

A descriptive analytical design was carried out throughout the study to identify the knowledge of the mother with premature birth about antenatal corticosteroid therapy that is given during pregnancy to help fetal lung maturation. A non-probability (purposive) sample consisting of (50) mothers with premature birth are selected from neonatal intensive care unit, delivery room and obstetric wards in Baghdad Teaching Hospitals (Al-Elwia maternity Hospital, Al-karkh maternity Hospital and Children Welfare Teaching Hospital). The questionnaire has been designed and constructed by the investigator to measure the variables underlying the present study. The questionnaire is comprised of (3) parts: Socio- demographic data, Reproductive characteristics and knowledge of the mother with premature birth about antenatal corticosteroid therapy. The approximate time interviewing for each women was (15-20) minutes during 14th Feb. to 16th March 2016. Determined validity and reliability of the questionnaire through of pilot study.. Descriptive and inferential statistic was used to analyze data. knowledge of the mother with premature birth about antenatal corticosteroid therapy were rated and scored for each item as two (2) for yes and one (1) for no while the numeric values for the negatives items of the scale one (1) for yes and two (2) for no. Rating the items of level of knowledge as accepted and unaccepted according to the following formula: No. of items × Cut off point.

Ethical consideration : Verbal consent from each woman of the study sample was obtained and the participation was confidential and voluntary, the information was for research purposes only.

III. Results

Table (1): Distribution of Study Sample According to Demographic Variables (N=50).

Demographic Variables	No.	%
Age group (years)		
20 >	8	16.0
20-29	25	50.0
30-39	14	28.0
40 and above	3	6.0
\bar{x} & SD = 27.80 ± 6.265		
Educational level of wife		
Illiterate (unable to read or write).	1	2.0
Read & Write	9	18.0
Primary school graduate	16	32.0
Intermediate school graduate	11	22.0
Secondary school graduate	1	2.0
Institute graduate	2	4.0
College graduate & more	10	20.0
Occupation of wife		
Employed	8	16.0
Non employed (housewife)	42	84.0
Economic status		
Enough	7	14.0
Enough to some extend	31	62.0
Not enough	12	24.0

Table (1) shows that the highest percentage of the study sample (50%) at age group ranged between (20-29) years; with mean age and SD is 27.80 ± 6.265. The highest percentage (32%) were graduated of primary school; the highest percentage of the study sample (84%) were house wife. The highest percentage is (62%) had enough to some extent.

Table (2): Distribution of Study Sample According to Reproductive Variables(N=50).

Reproductive Variables	NO.	%
Number of Gravid		
Primigravida	13	26.0
2-4 pregnancy	22	44.0
5 pregnancies and above	15	30.0
Number of Para		
Primipara	18	36.0
2-4 para	22	44.0
5 births and above	10	20.0
Number of abortion		
Nile	33	66.0
One abortion	11	22.0
Two abortion	4	8.0
3 times and above	2	4.0
Number of premature birth		
Nile	42	84.0
One premature birth	5	10.0
Two premature births	2	4.0
Three premature births and above	1	2.0
received steroids during pregnancy		
Yes	42	84.0
No	8	16.0

Table (2) shows that the highest percentage (44%) had two to four pregnancies; while lowest percentage is (26%) were primigravida. The highest percentage (44%) had two to four. The highest percentage (66%) didn't have any type of abortion. The highest percentage (84%) did not have a premature birth. The highest percentage (84%) were received antenatal corticosteroid; while lowest percentage is (16%) were not receive antenatal corticosteroid.

Table (3). Knowledge of Study Sample about Antenatal Corticosteroid Therapy (N=50).

NO.	Knowledge about antenatal Corticosteroid Therapy	Yes		No		MS	Assessment
		No.	%	No.	%		
1	(Cortisone) corticosteroid secreted naturally in the body from the adrenal gland located above the kidney	33	33.0	17	17.0	1.66	Moderate
2	The most important functions of cortisone in the body regulate blood sugar levels and blood pressure regulation	40	40.0	10	10.0	1.8	High
3	Do you have sufficient information about the treatment (corticosteroid) which is given during pregnancy to help fetal lung maturation	14	14.0	36	36.0	1.28	Moderate
4	During pregnancy did she receive treatment for lung maturation						
4-1	First trimester (first three months)	2	2.0	48	48.0	1.04	Low
4-2	Second trimester (three months of moderation)	4	4.0	46	46.0	1.08	Low
4-3	Third trimester (three last months)	49	49.0	1	1.0	1.98	High
5	Are all the pregnant women give them treatment of lung maturity of the fetus during pregnancy	22	22.0	28	28.0	1.44	Moderate
6	Reason for recommended treatment of lung maturation during pregnancy						
6-1	Premature birth	47	47.0	3	3.0	1.94	High
6-2	Mothers bad obstetric history	37	37.0	13	13.0	1.74	Moderate
6-3	Twins	42	42.0	8	8.0	1.84	High
6-4	C/S	27	27.0	23	23.0	1.54	Moderate
7	Benefits of antenatal (corticosteroid) therapy						
7-1	Helps fetal lung maturation	41	41.0	9	9.0	1.82	High
7-2	Increase the weight of the fetus	19	19.0	31	31.0	1.38	Moderate
7-3	Reduce exposure to respiratory distress syndrome that affect Premature baby after birth	35	35.0	15	15.0	1.7	Moderate
8	What is the correct way of giving antenatal corticosteroid therapy						
8-1	By oral	3	3.0	47	47.0	1.06	Low
8-2	Via muscle injection	48	48.0	2	2.0	1.96	High
8-3	Via intravenous	3	3.0	47	47.0	1.06	Low
9	In case of giving treatment of lung maturation for pregnant mothers how many courses should be taken						
9-1	One course (two doses one dose every 24 hours)	39	39.0	11	11.0	1.78	High
9-2	Two to three course	44	44.0	6	6.0	1.88	High
9-3	Therapy is taken continuously during pregnancy	3	3.0	47	47.0	1.06	Low
10	Risks or side effects of antenatal corticosteroid therapy	13	13.0	37	37.0	1.26	Moderate

Table (3) shows the means of scores is (1.66) for corticosteroid secreted naturally in the body from the adrenal gland located above the kidney. while the means of scores is (1.8) for the most important functions of cortisone in the body regulate blood sugar levels and blood pressure regulation. Also the means of scores is (1.28) for do you have sufficient information about the treatment (corticosteroid) which is given during pregnancy to help fetal lung maturation. Concerning during pregnancy did she receive treatment for lung maturation in the: the highest means of scores is (1.98) for the third trimester (three last months); while the lowest mean of score is (1.04) for first trimester (first three months). Also the means of scores is (1.44) for all the pregnant women give them treatment of lung maturity of the fetus during pregnancy. Concerning reason for recommended treatment of lung maturation during pregnancy: the highest means of scores is (1.94) for premature birth; while the lowest mean of score is (1.54) as in C/S. Concerning benefits of treatment of antenatal (corticosteroid) therapy: the highest means of scores is (1.82) in item no.7-1 as in helps fetal lung maturation ; while the lowest mean of score is (1.38) for in increase the weight of the fetus . Concerning the correct way to prescribe treatment of lung maturity of the fetus during pregnancy: the highest means of scores is (1.96) as in via muscle injection; while the lowest mean of score is (1.06) as in by oral and via intravenous. Concerning number of courses should be taken by the pregnant women: The highest means of scores is (1.88) as in two to three course ; while the lowest mean of score is (1.06) for therapy is taken continuously during pregnancy. The table shows the means of scores is (1.26) in item no. 10; are there any risks or side effects of antenatal corticosteroid therapy

Table (4): The Association Between Pregnant Women Knowledge about Antenatal Corticosteroid Therapy and Study Variables .

Study Variables :	Pregnant Women Knowledge about Antenatal Corticosteroid Therapy			
	x ²	Df	p-Value	Sign.
Mothers Age in years	17.520	15	0.289	NS
Educational level Of wife	12.476	6	0.052	S
Number of Gravidity	6.786	8	0.560	NS
Number of parity	8.740	8	0.365	NS
Number premature birth	1.802	3	0.614	NS
Did the pregnant woman receive steroids during pregnancy	0.009	1	0.923	NS
Did you attend regular antenatal clinic	0.786	1	0.375	NS
Healthcare facility	3.235	2	0.198	NS

The Table(4) shows that there is no statistical significance between women knowledge about antenatal corticosteroid therapy and mothers age in years , number of parity, number of gravidity ,number of premature birth, the pregnant woman receive steroids during pregnancy ,if the pregnant woman attend regular antenatal clinic and health care facility ;While there is statistical significance between women knowledge about antenatal corticosteroid therapy and educational level of study sample.

IV. Discussion

The findings of the present study have indicated that the highest percentage of the study sample (50%) at age group ranged between (20-29) years; while the lowest percentage is (6 %) their age group was ranged between 40 years and above ; with mean age and SD is 27.80 ± 6.265 as shown in table (1). Other Study show that the mothers' age who have preterm birth was ranged from less than (20) years to over than (40) years at the present study, mothers within the age group of (20-29) years were forming the bulk of the study population (52%), however (36%) of mothers were age group of (30-39) years (5%) in (40) years and over, while (7%) were of age (20) years. The age of the mother is considered a important factor in the pregnancy outcome due to physiological differences at different stage during the years of child bearing⁽⁴⁾. It was stated that there was no statistical difference in the socio-demographic characteristics between those exposed to ACS and those not exposed. Those above 26 years formed the bulk of those who received ACS while those in the 21-25 year bracket formed the majority of those who did not receive ACS⁽⁵⁾. Concerning educational level: The highest percentage (32%) were graduated of primary school; while the lowest percentage is (2%) were illiterate (unable to read or write) as shown in table(1). This result is agree with other Study who reported that the median age of the participants was 27 years with a range of 15 - 40 years. Majority had primary education (65.5%) and 0.9% had no formal education⁽¹⁾.

Concerning occupation of wife the highest percentage of the study sample is (84%) were house wife; while the lowest percentage is (16%) were employed as shown in table (1). Other Study reported that more than half (86%) of the mother were housewives, (14%) of them were workers and officers⁽⁴⁾. Concerning monthly income: The highest percentage is (62%) had enough to some extend; while the lowest percentage is (14%) enough as shown in table (1). Other study certain demographic factors also increase the risk of preterm labor.

These are (black race, extremes of age below 17 or older than age 35 years of age and low socioeconomic status) ⁽⁵⁾.

WHO (2015) stated that preterm births occur in the lower-income countries, on average, 12% of babies are born too early compared with 9% in higher-income countries. within countries, poorer families are at higher risk for preterm birth⁽⁶⁾.

The highest percentage was (44%) having two to four pregnancies; while lowest percentage is (26%) were primigravida as shown in table (2). Concerning number of para: The highest percentage is (44%) having two to four; while lowest percentage is (20%) having five and above as shown in table (1). Other study stated that the higher percentage (55%) of the pregnancies women's with preterm labor have (1-3) pregnancies during their reproduction, (25%) having (4-5) pregnancies, and (20%) having (6 and over)⁽⁴⁾. It was reported that median age of the participants was 27 years with a range of 15 - 40 years. About forty six percent of the women in the study population were primipara with only 8.5% having delivered more than four times in their lifetime ⁽¹⁾. Concerning number of abortions: The highest percentage is (66%) not having abortion; while lowest percentage is (4%) having three abortion and above as shown in table (2). It was stated that the preterm labor was associated independently with young maternal age, low pre-pregnant weight, low weekly weight gain, nulliparity, previous preterm birth, histories of two or more induced abortions, spontaneous abortions, or stillbirths, incompetent cervix, uterine anomaly, and pyelonephritis⁽⁷⁾. Concerning number of premature birth: The highest percentage is (84%)no having premature birth; while lowest percentage is (2%) having three preterm birth and above as shown in table (2). [Pheeters](#) et.al (2005) stated that the incidence of first-time hospitalization for preterm labor was 9%, with most episodes not resulting in preterm birth. Previous preterm birth was associated therefore with a preterm labor diagnosis⁽⁹⁾. [Gregor](#) et .al (1990) stated that a history of prior preterm birth was the single best historical predictor of both preterm labor (relative risk, 3.6; 95% confidence interval, 1.92 to 6.83) and preterm birth (relative risk, 6.7; 95% confidence interval, 2.2 to 20.4)⁽⁸⁾.

Concerning pregnant woman receive steroids during pregnancy: The highest percentage is (84%) were receive antenatal corticosteroid; while lowest percentage is (16%) were not receive antenatal corticosteroid as shown in table (2). Other study stated that the seventy two (34.9%) mothers received antenatal steroids while 134 (65.1%) did not receive ACS⁽⁶⁾.

The means of scores is (1.66) for corticosteroid secreted naturally in the body from the adrenal gland located above the kidney. while the means of scores is (1.8) for the most important functions of cortisone in the body regulate blood sugar levels and blood pressure regulation. Also the means of scores is (1.28) for do you have sufficient information about the treatment (corticosteroid) which is given during pregnancy to help fetal lung maturation as shown in table (3). This agree with Nussey (2001) that reported the **Corticosteroids** are a class of steroid hormones that are produced in the adrenal cortex of vertebrates, as well as the synthetic analogues of these hormones. Corticosteroids are involved in a wide range of physiological processes, including stress response, immune response, and regulation of inflammation, carbohydrate metabolism, protein catabolism, blood electrolyte levels, and behavior⁽¹⁰⁾. Concerning during pregnancy did she receive treatment for lung maturation in the: the highest means of scores is (1.98) for the third trimester (three last months); while the lowest mean of score is (1.04) for first trimester (first three months)as shown in table(3). This is agree Royal College of Obstetricians and Gynecologist's Guideline Recommendations for use of Antenatal Corticosteroids. It was stated that all fetuses between 24 and 34 weeks' gestation at risk of preterm delivery should be considered candidates for antenatal treatment with corticosteroids^(6,11,5). Also the means of scores is (1.44) for are all the pregnant women give them treatment of lung maturity of the fetus during pregnancy. Concerning reason for recommended treatment of lung maturation during pregnancy: the highest means of scores is (1.94) for premature birth; while the lowest mean of score is (1.54) as in C/S. This agree with RCOG (2004) that Repeated the Indications for antenatal corticosteroid therapy every effort should be made to initiate antenatal corticosteroid therapy in women between 24 and 34 weeks of gestation with any of the following: threatened preterm labour ; antepartum haemorrhage; preterm rupture of membranes and any condition requiring elective preterm delivery^(12,15).

Concerning benefits of treatment of antenatal (corticosteroid) therapy: the highest means of scores is (1.82) as in helps fetal lung maturation ; while the lowest mean of score is (1.38) as in increase the weight of the fetus as shown in table (3) . this agree with study reported that antenatal treatment with corticosteroids has been used to accelerate lung maturation for more than three decades, and its effectiveness and safety is well established for pregnancies of up to 34 weeks. A possible extension of the benefits of corticosteroids beyond this gestational age^(12,13,15). Concerning the correct way to give treatment of lung maturity of the fetus during pregnancy: the highest means of scores is (1.96) in item as in via muscle injection; while the lowest mean of score is (1.06) in item as in by oral and in item as in via intravenous. This agree with RCOG (2004) that repeated the betamethasone is the steroid of choice to enhance lung maturation. Recommended therapy involves two doses of betamethasone 12 mg, given intramuscularly 24 hours apart^(12,15). Concerning number of courses should be taken by the pregnant women: The highest means of scores is (1.88) in item two to three course ;

while the lowest mean of score is (1.06) in item therapy is taken continuously during pregnancy as shown in table (3). This agree with RCOG (2004) that if repeat courses of antenatal corticosteroids are contemplated then senior opinion should be sought as, at present, there is a lack of evidence to show significant benefit. Obstetricians should consider enrolling their patients in randomized controlled trials if repeat corticosteroid therapy is contemplated. Women may be advised that the use of a single course of antenatal corticosteroids does not appear to be associated with any significant maternal or fetal adverse effects^(12,15). Concerning are there any risks or side effects to the mother or baby when you are using treatment of lung: The table shows the means of scores is (1.26) there are not any risks or side effects to the mother or baby when you are using treatment of lung. This agree with study that reported that the women may be advised that the use of a single course of antenatal corticosteroids does not appear to be associated with any significant maternal or fetal adverse effects^(12,15).

The study shows that there is no statistical significance between women knowledge about antenatal corticosteroid therapy and mothers age in years, number of parity, number of gravidity, number of premature birth, the pregnant woman receive steroids during pregnancy, if the pregnant woman attend regular antenatal clinic and healthcare facility; While there is statistical significance between women knowledge about antenatal corticosteroid therapy and educational level of study sample as shown in table (4). Other study shows that were significantly associated with the use of prenatal corticosteroids were age, parity, number of prenatal visits, previous hospital admission during the pregnancy, gestational age at delivery, type of PTB, and time from admission to delivery⁽¹³⁾. Other study reported that there are high significant association between the use of dexamethasone and both education level and occupation. The number of women given antenatal corticosteroids increased with increasing level of education. Although there are many other factors influencing the use of antenatal corticosteroids, educating women helps them make correct decisions such as early seeking of medical care. Also educated women will make relevant consultation when they experience pregnancy complications. Women who had preterm delivery with prior admission in the antenatal wards during pregnancy were more likely to receive antenatal corticosteroids. The same finding was observed in a study done in France and Latin America. Better identification of the potential risk for preterm birth by healthcare providers may have contributed to the increased use of antenatal corticosteroids⁽¹⁾.

V. Conclusion

The study was concluded that mother with premature birth have high knowledge about the most important functions of cortisone in the body regulate blood sugar levels and blood pressure regulation, time to receive corticosteroid during pregnancy, reason for recommended treatment during pregnancy, benefits of treatment of antenatal (corticosteroid) therapy, the correct way to give treatment for lung maturity of the fetus during pregnancy, number of courses should be taken for fetus lung maturity; while have moderate knowledge concerning (Cortisone) corticosteroid secreted naturally in the body from the adrenal gland located above the kidney, information about the treatment (corticosteroid) which is given during pregnancy to help fetal lung maturation.

VI. Recommendations

Educational programs and health booklets for all pregnant women regarding women at risk for premature birth and the importance of antenatal corticosteroids therapy in reducing respiratory distress syndrome for newborn baby after birth to awareness pregnant women to know the signs and symptoms of premature birth, women at risk of premature birth and the importance of antenatal corticosteroid in the case of premature birth in the reduction of neonatal respiratory distress syndrome among premature newborn babies.

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