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ORIGINAL RESEARCH

Maternal Age and Adverse Pregnancy Outcomes among Women Attended Kirkuk City Hospitals: A Comparative Study

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ABSTRACT

Background: Adolescent pregnancy is one of the most common public health issues in the world today, causing harm to the fetus, mother, and newborn. World Health Organization (WHO) defined adolescents as individuals between the age of 10 and 19 years old, and according to the, adolescents make up approximately 20% of the world's population.

Objectives: To identify and compare the adverse pregnancy outcomes among two age groups of pregnant women attended Kirkuk city hospitals.

Methodology: A Quantitative (descriptive) study design was carried out between October 2022 and May 2023 on a sample of 280women, aged less than or equal to 19years old & more than or equal to 35 years. Purposive sample selected from 3 main hospitals in Kirkuk City. A structured questionnaire was employed as an instrument for data collection. SPSS version22.0 was used for data entry and analysis. Both descriptive and inferential statistical methods used.

Results: A total of 280 mothers participated, both groups were primary school graduated, house wife with insufficient income. Adolescent group had 1-2 gravida & para, while advanced age had from 3-4 with delivery by CS for both groups. Significant relationship of maternal outcome found as complication before labor as placenta previa, gestational hypertension, eclampsia and olighydrominos. In addition, for neonatal outcome need to admission to neonatal intensive care unit and early neonatal death had significant relationship at $p < 0.05$.

Conclusion: No significant relationships were accounted for between the distribution of maternal outcomes among both groups, and the expectation for some complications before labor, a significant relationship at $P<0.05$ according to the need for neonatal intensive care unit admission & neonatal death among both age groups.

Keywords: Maternal age, adverse pregnancy outcomes, adolescent, elder age.

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INTRODUCTION

Adolescent pregnancy is one of the most common public health issues in the world today, causing harm to the fetus, mother, and newborn. World Health Organization (WHO) defines adolescents as individuals between the ages of 10 and 19 years old, and according to the, adolescents make up approximately 20% of the world's population. (UNICEF, 2005). About 16 million adolescents aged 15-19 years and 2 million adolescents under the age of 15 years give birth every year, accounting for around 11% of all births. About 95% of these births occur in developing countries (WHO, 2013). Complications of antenatal & postnatal pregnancy are more common in adolescents compared to pregnancies in adult women. Preterm birth, intrauterine growth retardation, neonatal death, abortion, chronic fetal distress, fetal congenital anomalies, placental abruption, and caesarean birth rate are more in adolescent pregnancies (Çift et al., 2017).

Women older than 35 years are known to beat “advanced maternal age" and are considered to be at risk of adverse pregnancy outcomes, Advanced maternal age. (AMA) is commonly defined as childbearing in a woman >35 years of age. Cultural, social, and economic changes, and reproductive technologies such as egg donation, contribute to the increasing incidence of pregnancies in women who are older than the usual biological reproductive age, for that reason, some studies use >40 years as the definition of AMA (Bréart et al.2003) rising trend in advanced maternal age has been observed over the last few decades, particularly in high-income countries. Several studies have examined the association between advanced maternal age and adverse pregnancy outcomes, including miscarriage, stillbirth, pre-eclampsia, gestational hypertension, gestational diabetes mellitus (GDM), preterm birth, delivery of a small- (SGA) or large- (LGA) for-gestational-age neonate and elective or emergency Cesarean section (Khalil et al., 2013).

AIMS OF THE STUDY

The purpose of this study is to identify and compare the adverse outcomes of pregnancy among adolescents and advanced age group women attending Kirkuk City hospitals.

METHODOLOGY

This descriptive study was conducted at maternity units in Kirkuk city hospitals, (Kirkuk General Hospital, Azadi Teaching Hospital, and Maternity, Gynecology and Pediatric (Al-Nasir hospital) from December 12th 2022 to March 10th 2023.

A sample of 280 inpatient women whose ages were less than or equal to 19 years old and more than or equal to 35 years old were included for the study by purposive sampling technique. Data were collected 24 hours after delivery by normal vaginal and caesarean section, the women were directly interviewed in the maternity units on the days when the researcher was attending the hospital (six days/week) with different shifts. patients' phone numbers were taken, and the researcher made a follow up for both the mother and fetus within a full week from the date of birth to identify any maternal complications, such as post-partum hemorrhage, puerperal sepsis, deep vein thrombosis and hypertension, as well as neonatal complications, such as low birth weight, hypothermia, respiratory distress, admission to neonatal intensive care unit and neonatal death between both age groups. A structured questionnaire was constructed for the purpose of the study throughout the review of literature and background experience and field tested before using it to obtain the relevant data. The validity of questionnaire is determined through a panel of (11) experts from different fields and a pilot study was

conducted to assess reliability of the questionnaire. Cronbach's alpha method produced a reliability score of 0.75, this outcome proved the questionnaire's internal consistency.

The Statistical Package for the Social Sciences (SPSS) version 22.0 was used for the statistical analysis. Both descriptive (frequency and percentage) and inferential statistical methods (contingency coefficients test, one sample Kolmogorov-smirnov and Mann-whitney test were used. A p value ≤0.05 was considered statistically significant. Ethical agreements were obtained from scientific research committee at college of nursing with an approval from Kirkuk Health directorate. Verbal concent was obtained from the sample to participate in the study.

RESULTS

Table (1) shows that most of the sample in both groups were primary school graduates, mostly housewife and coming from insufficient economic status. According to para, adolescent women had from 1-2, while the advanced age had from 3-4 with mostly giving birth by caesarean section for both groups. Table (2) shows the distribution of maternal outcomes among both comparison groups. No significant relationships are accounted for at P<0.05, between the distribution of "Maternal Outcomes" based on the adolescents and elderly pregnant women, exceptional for "Complications before labor, placenta preva, Oligohydramnios, gestational hypertension and Eclampsia. no significant relationship was accounted for among both groups for complications after delivery. Table (3) shows no significant relationship at p>0.05 among both comparisons group regarding neonatal outcomes, except for highly significant relationship of early neonatal death and significance of the need of admission to the neonatal intensive care unit.

DISCUSSION:

The results of the current study showed that most of women in both groups had graduated from primary school. Educational level considers one of the important issues that affect the quality of life so it returns positively on the mother and their infant outcomes and this finding is agree with that obtained from the United States which found that higher rate of adolescent pregnancy was associated with adverse pregnancy outcomes among women with low educational level (Tetsuya, et al, 2015). In regard to occupation, the results found that majority of both adolescent and elder age pregnant women were assigned housewife. This result ıs agree with the study done by Shawky & Milaat (2000) who indicate that the majority of their study sample was house wife (92.4%). According to the finding of the Iraqi Women Integrated Social and Health Survey (I-WISH) study done by the central Statistical Organization (CSO) (2011) reported that one of every five girls planning to be housewives in future represent (21.9%).

Regarding, monthly income the results shows that majority of adolescent pregnant women were assigned a monthly income not more than one Million Iraqi Dinar (MID), while pregnant women of older age were assigned more than three quarters, Most adolescent women were of weak economic status, while most adult women were of middle economic status. This was related because the majority of adolescent women were housewife, and more than one third of their husbands had no job, compared to elder age women, where the percentage of government employees was 31%. This result is comparable to that study conducted in Sudan, Which found that most adolescent women have poor income earners, and most adult women have middle-income earners (Kheir et al., 2017).

Regarding Parity, the results shows that most studied adolescents pregnant women having (1 _ 2), while pregnant women of elder age had (3-4). A study conducted in Romania shows that adolescents are more likely to have one kid than adults (Suciu et al., 2016). In regard to the mode of delivery results found

that half of studied adolescent pregnant women had caesarean section (CS) compared to 109 (56.2%) of elder age pregnant women, and 26 (30.2%) vaginal delivery with episiotomy among adolescent pregnant women compared to 3 (1.5%) of elder age women. It has been suggested that due to the immaturity of their pelvis, adolescent pregnancy is associated with an increased risk of longer labor and cesarean delivery indicated for failure to progress or descent. (Ganchimeg et al., 2014). Those who had (CS), 40 (90.9%), and 4 (9.1%) of studied adolescent pregnant women had general and spinal anesthesia respectively, while the pregnant women of oder age were assigned 85 (78.0%), and 24 (22.1%) respectively this due to the anesthetist decision who depend on women health status before cesarean section.

Regarding gestational diabetes, the results showed that 4 (4.7%), of studied adolescent pregnant women were among those who were exposed, while the pregnant women of elder age were assigned 11 (5.7%), as well as no significant relationship at P>0.05 are accounted between the distributions of the two comparison groups. This agrees with Abdelsattar, M. (2016) who showed a significant increase in the gestational diabetes in the old group (1.8%) this also agrees with that reported by Rasheed et al. (2011) compared to the teenage group (0.6%).

Regarding gestational hypertension current study results showed no significant relationship at P>0.05 between the distributions of the two comparison groups. This is agree with the finding of Abdelsattar, M. (2016) who find that gestational hypertension was significantly higher in the older group than the adolescent group The finding is in disagree with the finding in a study at a university hospital in Jordan (Al- Ramahi and Saleh, 2006). The incidence of pregnancy-induced hypertension is significantly higher in adolescent pregnant women with 9.9% when compared to 4% in adult pregnant (Bildircin et al., 2014).

The results regarding birth weight shows that a small percentage of studied adolescent pregnant women came to their distribution within low birth weight, and Macrosomia, as well as for the pregnant women of older age. In addition to that, no significant relationship at P>0.05 was accounted for between the distributions of the two comparison groups this is consistent with Abu-Heija et al., (2016) who find that Both groups had similar birth weights (P = 0.87), low birth weights, (P = 0.55), and very low birth weights babies (P = 0.56 %). As well as study by Adhikari et al., (2016) found that the adolescent mothers delivered more number of LBW infants as compared to adult mothers (70% vs. 38 %). The more number of Extreme low birth weight (ELBW) infants were born to adolescent mothers than the adult mothers (12% vs. 2%, p value).

Apgar Score showed no significant relationship at P>0.05 were accounted between the distributions of the two comparison groups and according to preceding results, it could be concluded that pregnant women of elder age were more adverse pregnancy outcomes due to "Apgar Score" compared with the adolescent pregnant women this also in continence with study done by Aslan et al., (2020) who find that lower Apgar score are frequently observed in adolescent group than in adult group. As well as found that 5th minute Apgar scores found to be higher in adolescent than adult group. Bildircin et al., 2014.

No significant relationship at p>0.05 were accounted between the two comparison studied group regarding congenital abnormalities and respiratory distress syndrome (RDS).

A highly significant relationship was found among the two comparisons studied group at p<0.01 regarding early neonatal death, as well as a significant relationship was found in need to admission to the neonatal intensive care unit (NICU), the results showed that more than half, of both studied group pregnant women neonate has admitted to the NICU, this result is incontinence with the that

finding of Abdelsattar and laxami (2016) that percentage of babies who were admitted to neonatal care unit (NICU was significantly higher in the adolescent group compared to those in the adult group and significant association of neonatal complications like still birth, fetal distress, and meconium aspiration with the adolescent pregnancy.

CONCLUSIONS:

No significant relationship were accounted for between the distribution of maternal outcome among both groups exceptional for placenta previa, olighydrominos, gestational hypertension and eclampsia complications before labor, showing a significant relationship at P<0.05 according to the need to the neonatal intensive care unit admission &neonatal death among both age groups.

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TABLES

Table (1): Distribution of study sample by socio-demographic and reproductive characteristics

Socio-demographical and reproductive characteristics			Groups			
			< 20 yrs.		> 34 yrs.	
			No.	%	No.	%
1.	Educational levels	Illiterate	10	11.6	15	7.7
		Read and write	8	9.3	39	20.1
		Primary school graduate	47	54.7	94	48.5
		Intermediated school graduate	7	8.1	5	2.6
		Secondary school graduate	13	15.1	0	0.00
		Institute	0	0.00	12	6.2
		College	1	1.2	19	9.8
		Postgraduate	0	0	10	5.2
2.	Occupations	Housewife	79	91.9	156	80.4
		Student	7	8.1	0	0.00
		Government employee	0	0.00	30	15.5
		Private job	0	0.00	8	4.1
3.	Monthly Income ID	< 500000	53	61.6	83	42.8
		500000 – 1000000	27	31.4	47	24.2
		> 1000000	6	7.0	64	33.0
4.	Para	1 _ 2	82	95.3	38	19.6
		3 _ 4	4	4.7	95	49.0
		5 _ 6	0	0.00	36	18.6
		> 6	0	0.00	25	12.9
5.	Mode of delivery	Vaginal Delivery (VD)	16	18.6	82	42.3
		Vaginal delivery with Episiotomy	26	30.2	3	1.5
		Caesarean Section (CS)	44	51.2	109	56.2

Table (2): Maternal Outcomes among adolescents and advanced age women

	Maternal Outcomes	Groups	< 20 yrs.		> 34 yrs.		C.S. (*)
		Classes	No.	%	No.	%	P-value
1.	Gestational Diabetes	No	82	95.3	183	94.3	CC= 0.021
		Yes	4	4.7	11	5.7	P= 0.727 (NS)
2.	Gestational Hypertension	No	78	90.7	163	84	CC= 0.089
		Yes	8	9.3	31	16	P= 0.137 (NS)
3.	Medical condition: Hypertension	No	85	98.8	187	96.4	CC= 0.068
		Yes	1	1.2	7	3.6	P= 0.257 (NS)
4.	Medical condition: Diabetes mellitus	No	83	96.5	192	99	CC= 0.085
		Yes	3	3.5	2	1	P= 0.152 (NS)
		Yes	0	0	4	2.1	
5.	Complications before labor:	No	84	97.7	190	97.9	CC= 0.008
	Pre rupture of membrane (PROM)	Yes	2	2.3	4	2.1	P= 0.888 (NS)
6.	Complications before labor:	No	86	100	186	95.9	CC= 0.113
	Placenta previa	Yes	0	0	8	4.1	P= 0.056 (S)
7.	Complications before labor:	No	86	100	193	99.5	CC= 0.040
	Abruption placenta	Yes	0	0	1	0.5	P= 0.505 (NS)
8.	Complications before labor:	No	77	89.5	186	95.9	CC= 0.122
	Oligohydramnios	Yes	9	10.5	8	4.1	P= 0.040 (S)
9.	Complications before labor:	No	86	100	189	97.4	CC= 0.089
	Polyhydrominous	Yes	0	0	5	2.6	P= 0.113 (NS)
10.	Complications before labor:	No	83	96.5	184	94.8	CC= 0.037
	Gestational diabetes	Yes	3	3.5	10	5.2	P= 0.541 (NS)
11.	Complications before labor:	No	81	94.2	165	85.1	CC= 0.128
	Gestational hypertension	Yes	5	5.8	29	14.9	P= 0.031 (S)
12.	Complications before labor:	No	85	98.8	194	100	CC= 0.090
	Pre Eclampsia	Yes	1	1.2	0	0	P= 0.132 (NS)
13.	Complications before labor:	No	84	97.7	194	100	CC= 0.126
	Eclampsia	Yes	2	2.3	0	0	P= 0.033 (S)
14.	Complication after labor:	No	82	95.3	188	96.9	CC= 0.039
	Postpartum hemorrhage (PPH)	Yes	4	4.7	6	3.1	P= 0.517 (NS)
15.	Complication after delivery:	No	84	97.7	193	99.5	CC= 0.081
	Admission to the intensive care unit.	Yes	2	2.3	1	0.5	P= 0.175 (NS)

Table (3): Neonatal outcomes among adolescents and advanced age women

	Neonatal Outcomes	Groups	< 20 yrs.		> 34 yrs.		C.S. (*)
		Classes	No.	%	No.	%	P-value
1.	Birth weight	Low BW	13	15.1	17	8.8	CC= 0.126
		Normal BW	71	82.6	176	90.7	P= 0.104 / NS
		Macrosomia	2	2.30	1	0.50	
2.	Apgar Score	0 _ 3	8	9.3	5	2.6	CC= 0.151
		4 _ 6	28	32.6	65	33.5	P= 0.087 / NS
		7 _ 10	50	58.1	124	63.9	
3.	Need to admission to neonatal intensive care unit	No	39	45.3	65	33.5	CC= 0.112
		Yes	47	54.7	129	66.5	P= 0.058 / S
4.	Congenital abnormalities	No	84	97.7	192	99	CC= 0.050
		Yes	2	2.30	2	1.00	P= 0.400 / NS
5.	Respiratory distress syndrome (RDS)	No	72	83.7	166	85.6	CC= 0.033
		Yes	14	16. 3	28	14.4	P= 0.859 / NS
6.	Neonatal Hypoglycemia	No	84	97.7	192	99	CC= 0.050
		Yes	2	2.30	2	1.00	P= 0.400 / NS
7.	Intrapartum Fetal Death	No	86	100	191	98.5	CC= 0.069
		Yes	0	0.00	3	1.5	P= 0.246 / NS
8.	Early Neonatal Death	No	81	94.2	193	99.5	CC= 0.166
		Yes	5	5.80	1	0.50	P= 0.005 / HS
9.	Assisted Ventilation	No	52	60.5	113	58.2	CC= 0.021
		Yes	34	39.5	81	41.8	P= 0.728 / NS

(*) HS: Highly Sig. at P<0.005;NS: Non Sig. at P>0.05; Testing based on One-Sample Chi-Square test, and Binomial test