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Relationship of Fetal Gender with Maternal and Neonatal Pregnancy Outcomes

Noora Nasir Jamil[1] Sewam Zainal Abdeen Ahmed[*2]

1,2, M.B.Ch.B., DGO, Department of Obstetrics and Gynecology, Kirkuk general hospital, Iraq

***Corresponding Author contact email:** sza_dgo1@gmail.com*

Original Article

ABSTRACT

The relationship between pregnancy outcomes and fetal gender is well reported from different areas in the world, but not from Iraq. Males and females show different adaptive mechanisms duringlife ,fromthe intrauterine environment to adulthood. A higher intrauterine vulnerability of male fetus has been shown as well as a gender difference in intrauterine growth and perinatal morbidity and mortality. This study aimed to evaluate the impact of fetal sex on maternal and fetal pregnancy outcomes. Hence an observational prospective comparative study was performed during a period of one year at Sulaimani Maternity Teaching Hospital. The study included 200 primigravid term pregnant women, 100 women who delivered male babies and other 100 women who delivered female babies . All women were monitored during labour until give birth and followed up regularly. Maternal and neonatal pregnancy outcomes were reported. Results of the study revealed that postdate pregnancy was significantly higher in those who delivered male babies (54%) than those who delivered female babies (34%). Preterm rupture membrane was more with male babies (52%) than with female babies (29%). However, adverse fetal outcomes were more frequent generally with male than female babies. In conclusion, primigravid women are more likely to encounter com p lications during delivery when the infant is a boy. Males have more NCU admissions and other adverse outcomes. There is a higher incidence of instrumental delivery and C/S in term male group than female group.

Keywords: Fetal Gender; Labour; Neonatal Outcome

1.INTRODUCTION

The sentence "Being male or female is one of the most important predictors of an individual's health" by Kajantie and Phillips, addresses the fundamental aspects of human and animal lives. In fact, males and females show different adaptive mechanisms during life, from the intrauterine environment to adulthood. A higher intrauterine vulnerability of male fetuses has been shown as well as a gender difference in intrauterine growth and perinatal morbidity and mortality. (1-3). Even when maternal diseases occur, male and female neonates institute different mechanisms to cope. The coping abilities of male fetuses may be inferior to those of females leading to increased risks of intrauterine death. (4). Since Hall and Carr-Hill. First described the relationship between fetal gender and pregnancy outcomes 20 years ago, several studies investigating this phenomenon in different parts of the world has been published. Most work was carried out in western countries. Significant evidence points toward an adverse effect of a male fetus on the outcome of pregnancy in terms of higher rates of fetal macrosomia, failure to progress during the first and second stages of labour, cord prolapse, true umbilical cord knots, and pre-term pre-labour rupture of membranes. Cesarean sections and instrumental deliveries were also more frequently found among male neonates compared with females. Meanwhile, only theories have been proposed to explain these findings without providing a full understanding for the etiology (5,6).

Pregnancies with a male fetus in many cases are much more complicated, said Prof. Glezerman. He added that male babies are at a higher risk of growing very big in the womb, compared to female babies. Also, boys are at risk of early rupture of membranes, abnormal fetal heart rate, and delivery by vacuum, forceps or cesarean sections (7-9). Male versus female babies had different outcomes according to some criteria; previous studies referred that male babies are born with a bigger package of associated risks than their female counterparts (7,8). Also previous studies mentioned that male fetus contribute to poor progress during labour and the major risk factors for failure of labour to progress during the first stage are PROM, null parity, induction of labour, male fetus and older maternal age (10). Additionally, An association between the outcome of labour at term and fetal gender has been described in particular; nulliparous women going into labour spontaneously are more likely to encounter complications when the infant is male, However, it is still unknown whether a different delivery outcome exists between postdate women carrying male or female fetuses (11,12).

Male infants have a significantly larger head size than female infants, and this may contribute to the duration of labour and the higher incidence of operative delivery. However, this factor would not fully explain the sex difference, as duration of labour alone would not account for the increased incidence of suspected fetal distress in males (as evidenced by their increased need for fetal blood sampling). What this study does show is that when we say "it must be a boy" as a humorous. Explanation of complications of labour and delivery we are scientifically more correct than that previously reported (13). In some pregnancies with male fetus, the progress of labour remains unsatisfactory despite adequate augmentation of contractions. Mechanical factors such as malposition or deflection of the head may be found to contribute to the observed delay (14,15). Rather than the presentation of the optimal suboccipitobregmatic diameter (9.5 cm) in an 'average' term fetal in a well flexed occipito-anterior position, the large occipito-frontal diameter (11 cm) or other position will result in relative CPD. (16,17). Fetuses that are suspected of being LGA may simply be large secondary to constitutional factors. Large maternal stature should be considered as contributing to macrosomia because birth weight tends to correlate more closely with maternal height than maternal weight. Male gender fetuses are more likely to be considered LGA because male fetuses are on average150g heavier than appropriately matched female fetuses at each gestational week during late pregnancy. Series addressing fetal macrosomia generally report an increased incidence of male fetuses, usually approximately 60-65%. One recent study showed that male fetuses were twice as likely to be diagnosed with macrosomia as compared with female fetuses (18-20). The effect of gender on mode of delivery and its risk factors is also investigated in previous studies. Earlier studies demonstrated that the risk of fetal distress was higher in pregnancies carrying male fetuses. Several possibilities were suggested at various studies, in order to explain the reason of this association, however, the most possible reason seemed to be the fetal birth weights of male fetuses being higher than female fetuses. (21-23)· Although important new strategies have improved outcomes for labour, males have greater mortality/morbidity than females. Male baby is an important risk factor for poor neonatal outcome and poor neurological and respiratory outcome at follow-up. (24). However, the reason for the impact of fetal sex on birth outcome is unclear. Therefore we tried to assess the maternal and neonatal outcomes according to gender of baby.

2. PATIENTS and METHODS

This study is an observational prospective comparative study performed on 200 primi gravida women admitted to the delivery suite, observed and followed during labour until delivery of their babies. Observed fetal outcomes are then analyzed according to neonate sex taking in consideration other maternal and obstetric factors. The study conducted at the Labour ward in Sulaimani maternity teaching hospital in Sulaimani governorate in Kurdistan region, during a period of one year; October 2016 to October 2017.

Sampling technique was eligible patients admitted to the study setting (labour ward) during the period of data collection, who were accidentally met by the investigator were asked to participate in the study.

Inclusion criteria

1. Primi gravida
2. Singleton pregnancy
3. Pregnant lady who starting active labour.
4. Term pregnancy. (37 completed weeks to 42weeks).
5. Vertex presentation and
6. Active phase of first stage of labour with at least 3 regular painful uterine contractions over IO minutes with 4 cm cervical dilatation.

Exclusion criteria :

1. Previous uterine scar (other than cesarean section like myomectomy).
2. Use of any kind of pain relief methods prior to admission to the ward.
3. Any obstetrical complications or illness such as: pregnancy with medical problems like (cardiac disease, hypertensive disorder (pre-eclampsia), diabetes mellitus, and thyroid problems).

The studied groups were :

Group (1): Included 100 pregnant women who delivered a male fetus.

Group (2): Included 100 pregnant women who delivered a female fetus

Data Collection :

After taking full history from each women including age, occupation, address, and gestational age (which is calculated on the basis of either last menstrual period confirmed by early ultrasound or by early U/S alone when last menstrual period was unknown),asking about

number of pregnancies and history of previous abortion(s), and doing thorough physical examination including vital signs(PR, BP, RR, and TEMP) ,detailed systemic and obstetrical examination to exclude any disease or risk factors, women who fit the inclusion criteria when allocated to follow up her labour and its c o m plication .

Duration of active phase of first stage, and duration of 2nd and 3rd stage of labour and their complication(s) were observed and recorded. The state of the membrane whether ARM done or if it was SR O M (either pre labour or starting active labour), Color of liquor (clear, bloody or meconium stained liquor) and its amount. The needs for augmentation of labour by oxytocin drug, mode of delivery(normal vaginal delivery, instrumental vaginal delivery using ventouse or cesarean section) were also recorded. Maternal general condition and complications such as post-partum haemorrhage, and if patient need blood transfusion and number of blood units. Afterbirth, neonatal examination performed, weight and sex of baby also recorded, APGAR score at one minute and 5 minutes were recorded similarly any indication for admission to neonatal care unit recorded. Women with their neonates after vaginal delivery were observed for a minimum 3 hours post deliver y to overcome any early complication to mothers or their babies.

Statistical analysis:

The obtained data were coded, entered and analyzed using the statistical package for social sciences version 20 (SPSS 20) and then tabulated. Chi square test for independence used to test the significance of association between discrete variables. t -test for two independent samples used to test the significance of difference in mean and whenever then normality of distribution was under question; it was replaced by Mann-Whitney test. All P values were asymptotic and two-sided. Findings with P value less than 0.05 were considered significant.

3. RESULTS

A total of 200 primigravid women were included in this study, and were assigned into two groups with 100 participants in each. Regarding the age all were at age ranged 17 to 41 years with a mean of (25.5 ± 4.6) years with no significant difference in mean age between groups (P. value > 0.05). Out of the, 200 women (55 .5%) of women were housewives, (31.5%) were at office work, and (8.5%) of women had heavy work jobs and student contributed to only (4.5 %).There was no significant difference between both groups

regarding occupation .

Almost three quarter (74 .5%) of mothers were of urban residence and remaining with no significant association between nature of residence and baby's sex ($p > 0.05$).A large proportion (75.0%) of sampled women had antenatal care and visits with no significant association between having antenatal care with the sex of baby($P>0.05$). Gestational age for male babies (mean of 39.3 ± 1.2 weeks) was significantly higher than female babies (mean 38.8 ± 1.1), (P. value < 0.05). About 54.0% of women who delivered male fetus were postdating compared to 39.0% of women who delivered female fetuses. This different in gestational age was statistically significant with (P. value < 0.05), (**Table 1**)

There was a significant association between child sex and the mechanism of membrane rupture, that women bearing male babies have higher probability to have PROM than those bearing female babies, (52.0%, 29. 0% respectively), (P. value < 0.05). Also PROM was either pre-labour in 38 male and 12 female babies or in active labour in 14 and 17 male, female babies, respectively. Regarding the amount of liquor, more cases of oligohydramnious was observed in women who delivered male fetus (11 cases) than those women who delivered female babies (3 cases), (11 % versus 3% respectively). (P. value < 0.05). The majority of women had clear liquor. Women with male babies had significantly higher frequency of clear liquor (88 cases) than female babies (65 cases). Meconium stained liquor was significantly higher in group (2) compared to group (l) (35.0% versus11.0% ,respectively, (P. value <0.05) .Only one case with bloody liquor which was carrying male baby. (**Table 2**).

From other point of view, artificial rupture of membrane is dominated over spontaneous rupture, and there was a significant association between child sex and the mechanism of membrane rupture women bearing male babies have higher probability (52.0%) to have spontaneous membrane rupture than those bear female babies (29.0%) ($P < 0.05$) The artificial rupture of membrane showed to be higher with female babies (71.0%) than male babies (48.0%) ($P < 0.05$), (**Table 2**).

Regarding fetal heart, no significant association between fetal heart dysarrhythmias and sex of fetus, (P. value> 0.05), (**Table 3**). Majority of cases delivered by normal vaginal delivery (44 cases delivered male babies and 55 cases delivered female babies). There was no significant association between normal vaginal delivery and child sex (P. value > 0.05). Women who delivered by instrumental vaginal delivery using ventouse (37 cases delivered male baby and

26 cases with female babies). It was statistically significant (P. value < 0.05). The remaining women delivered by cesarean sections (19 cases delivered male babies and 17 cases with female babies). There was no significant association (P- value>0. 05, as shown in (**Table 4**).

Regarding the duration of labour , for pregnancies ended with vaginal delivery, (**Table 5**);

For those who delivered male babies, first stage of labour took from 2 to 8 hours with a mean of 4.2 ± 1.8 hours. In those who born female babies the mean was 4.1 ± 1.0 hours. There was no significant difference in mean duration between both groups (P. value > 0.05). The duration of second stage of labour took from 30 to 80 minutes with mean of 50.9 ± 12.6 minutes in group 1, and about 20 to 70 minutes with a mean of 42.8 ± 15.4 minutes in group 2. Second stage was significantly 9.1 minutes longer in average in male than female baby deliveries. It is statistically significant (P- value< 0.05). Third stage of labour varied from 10 to 15 minutes regarding both groups with a mean of 12.1± 2.5 minutes. There was no significant difference in mean duration of third stage between women born male or female babies, (P>0.05). Regarding abnormal progress in the 1st and 2nd stage of labour. Female babies more to have non-complicated labour (88.0%) than male babies (68.0%). Failure of progress in first stage, prolonged second stage, and failure in decent of head of baby in second stage of labour are significantly more frequent in male babies (8.0%, 15.0%, and 6% respectively) compared to female babies (2.0%, 5.0% and 0.0% respectively).there is a significant difference in p-value (p-value 0.058, 0.025, 0.038 respectively) (**Table 6**). Distribution of study sample according to sex of newborn, mode of assisted delivery and indication for selected mode of delivery, (**Table 7**). Among male group, 37 cases delivered by instrumental vaginal delivery using ventouse and 19 cases with cesarean section. Regarding those with female babies 26 cases delivered by ventouse and 17 cases by cesarean section. Most of ventouse assisted deliveries were frequently due to prolonged second stage in male babies and fetal bradycardia in female babies, and most frequent indication for caesarian section was failure of progress in first stage in male babies and meconium stained liquor in female babies (**Table 7**).

Regarding the **fetal outcome, m**ajority of the neonates were with good general condition and high APGAR score at 1 and 5 minutes after delivery. APGAR score at first minute were varying from two to ten with average of (6.5 ± 1.6), and the mean was significantly higher in female babies (6.9 ± 1.5) than male babies (6.1 ± 1.7) (P< 0.05table 8). While APGAR score at five minutes varied from five to ten with a mean of (9.3 ± 0.9); with no significant difference in

between male and female babies (P. value > 0. 05), (**Table 8**). Body weight for babies of both groups varied from 2.5 to 4.3 Kg with average of 3.4 Kg. Male significantly larger birth weight (mean weight of 3.7 Kg and the median weight is 3.9 Kg) than female(mean weight of 3.1 Kg and median of 3.l Kg), (P<0.05), (**Table 9**). Among the babies that need admission to neonatal care unit, male babies are significantly more admitted to the NCU than female babies, (71.0%) vs. (57 . 0%), respectively, (P. value <0.05). Furthermore, the conditions associated with admission to NCU that are had significant associations with baby sex arc summarized in (**Table 10**). Regarding other conditions which are less frequent in general, big fetus reported in 6 cases and congenital anomalies in 2 cases and both were more in male babies, where only one female baby had congenital anomaly. Respiratory distress was seen in 4 female cases and 2 male cases. Intrauterine growth retardation (IUGR) was reported in 5 female and 3 male babies.

Table 1. Demographic characteristics of the studied women

Variables	**Group(1) (N =100)**		**Group(2) (N =100)**		**P. value**
	No.	**%**	**No.**	**%**	
Age (year)					
Mean ± SD	25.9 ±4.6		25.1±4.5		0.253
Range	19 - 41		17 - 37		
Occupation					0.942
Housewife	54	54.0	57	57.0	
Office	33	33.0	30	30.0	
Heavy work	9	9.0	8	8.0	
Student	4	4.0	5	5.0	
Resident					0.871
Urban	74	74.0	75		
Rural	26	26.0	25		
Had antenatal care	74	74.0	76	76	0.744
Gestational age (weeks)					
Mean ± SD	39.1 ± 1.2		38.8±1		< 0.001
Post-date	54	54.0	34	34.0	< 0.001

Table 2. Mechanism of membrane rupture, status and color of liquor, of both groups.

Variables	Group 1 (n = 100)		Group 2 (n = 100)		P. value
	No.	%	No.	%	
Rupture of membrane					
Spontaneous	52	52.0	29	29.0	
Pre-labour	38	38.0	12	12.0	0.001
Starting active labour	14	14.0	17	17.0	
Artificial	48	48.0	71	71.0	
Amount of liquor					0.027
Normal Amount	89	89.0	97	97.0	
Oligohydramnios/Scanty	11	11.0	3	3.0	
Color of liquor					<0.001
Clear	88	88.0	65	65.0	
Meconium stained	11	11.0	35	35.0	
Blood stained	1	1.0	0	0.0	

Table 3. Fetal heart rate during labour in both groups.

Fetal Heart Monitoring	Group 1 (n = 100)		Group 2 (n = 100)		P. value
	No.	%	No.	%	
Rhythm Types					0.092
Normal fetal heart rate	84.0	84.0	82.0	82.0	
Fetal Bradycardia	9.0	9.0	16.0	16.0	
Fetal Tachycardia	7.0	7.0	2.0	2.0	

Table 4. Mode of delivery in both groups

Mode of delivery	Group 1 (n = 100)		Group 2 (n = 100)		P. value
	No.	%	No.	%	
Normal Vaginal Delivery	44	44.0	55	55.0	0.371
Ventouse Assisted Delivery	37	37.0	26	26.0	0.006
Caesarian Section	19	19.0	17	17.0	0.739

Table 5. Duration of labour for normally delivered mothers of both groups.

Stage of Labour		Group 1 (n = 100)	Group 2 (n = 100)	P. value
First Stage Duration (hour)	Mean ± SD	4.2 ±1.8	4.1 ±1.0	0.759
	Range	2 - 10	3 - 8	
Second Stage duration(min)	Mean ± SD	50.9 ±12.6	42.8 ±15.4	0.006
	Range	30 - 80	20 - 70	
Third Stage duration(min)	Mean ± SD	12.2 ± 2.5	12.2 ± 2.6	0.868
	Range	10 - 15	10 - 16	

Table 6. Progress in labour in both studied group

Events	Group 1 (n = 100)		Group 2 (n = 100)		P. value
	No.	%	No.	%	
None	68	68.0	88	88.0	0.042
Failure of progress in 1st stage	8	8.0	2	2.0	0.058
Prolonged Second Stage	15	15.0	5	5.0	0.025
Failure of Decent in 2nd stage	6	6.0	0	0.0	0.038

Table7. Indication for assisted delivery and cesarean section in both groups

Indication for mode of delivery	Group 1 (n = 100)		Group 2 (n = 100)	
	VAD n (%)	CS n (%)	VAD n (%)	CS n (%)
Fetal Bradycardia	9 (24.3)	0 (0.0)	12 (46.2)	4 (21.1)
Fetal Tachycardia	7 (18.9)	0 (0.0)	0 (0.0)	2 (10.5)
Failure of progress in first stage	0 (0.0)	8 (47.1)	0 (0.0)	2 (10.5)
Prolonged Second Stage	14 (37.8)	1 (5.9)	5 (19.2)	0 (0.0)
Failure of Decent in Second Stage	1 (2.7)	5 (29.4)	0 (0.0)	0 (0.0)
Meconium Stained Amniotic Fluid	3 (8.1)	1(5.9)	7 (26.9)	8 (42.1)
Blood Stained Amniotic Fluid	0 (0.0)	1 (5.9)	0 (0.0)	0 (0.0)
Total	37 (100.0)	19 (100.0)	26 (100.0)	17 (100.0)

VAD: vaginal delivery, CS: cesarean section

Table 8. APGAR score at I" and 5th minute in both groups.

APGAR score	Group 1 (n = 100)	Group 2 (n = 100)	P. value
At one minute			
Range	2 -10	3 - 10	0.001
Mean ± SD	6.1 ± 1.7	6.9 ± 1.5	
At Five minute			
Range	5 - 10	6 - 10	0.302
Mean ± SD	9.3 ± 1.0	9.4 ± 0.8	

Table 9. Comparison of body weight between both studied groups

Fetal Birth Weight (kg)	Group 1 (n = 100)	Group 2 (n = 100)	P. value
Range	3.0 - 4.3	2.5 - 4.0	
Mean ± SD	3.7 ± 3.3	3.1 ± 2.9	<0.001
Median	3.9	3.1	

Table 10. Indications of admission to NCU in both groups

Variables	Group 1 (n = 100)		Group 2 (n = 100)		P. value
	No.	%	No.	%	
Admitted to neonatal care unit	71	71.0	5.7	57.0	0.039
Causes of admission to NCU					<0.001
Ventouse delivery	24	24.0	19	19.0	
Delay in crying	19	19.0	8	8.0	
Meconium stained liquor	8	8.0	25	25.0	
Big Fetus	6	6.0	0	0.0	
Respiratory distress	4	2.0	4	4.0	
Congenital Anomaly	4	2.0	1	1.0	
IUGR	3	3.0	5	5.0	
Follow up after CS	3	3.0	1	1.0	

DISCUSSION

Primi gravida women who go into active labour and at term are more likely to encounter complication during labour and delivery when the infant is a boy. The present study evaluates the impact of fetal sex (male or female) on labour duration, its complications, delivery and neonatal outcome. In this study is consistent with Maeve A Eogan et al (2003) (25). That there are no biases in data studied that could account for the difference specifically, demographic details of the mothers were similar. Furthermore, the possible confounding effects of parity was removed by confining this analysis to spontaneously labouring primigravid women in the active phase of first stage of labour, either she was in spontaneous labour or case of induction of labour.(p-value >0.05). We did not found studies that not achieve these results. While this was not achieved in study prepared by P. Astolfi et al (1999) (26) from Italy, showed that a higher risk was associated with male than female babies, with older mothers, and with less educated mothers. The relative weights of the factors examined were evaluated through logistic regression analyses and the highest and the lowest risks were found to be associated with advanced maternal age and male fetal gender respectively. Regarding gestational age of pregnancy, we found that the increase rate of post-date pregnancy occurs in women who have had a male fetuses (54%) comparing to those who have had female fetuses (34%). Which was statically significant (p-value<0.05). This study is agreed with study of Galal et al (27) in 2010 in which a higher incidence of pre-

labour rupture of membranes has been observed among mothers of male fetus compared with mothers of females (38% and 12%) respectively, which was statistically significant (p-value<0.05). This result agreed with studies performed by Di Renzo al (2007) (28) (38), and Melamed et al (2010) (29). The rate of oligohydramnios in male babies is higher than female babies (11%) and (3%), respectively), it's statistically significant with p-value <0.05 in this study which also same as a result found in Wolf Lebovic et al (2012) (30). The incidence of meconium stained liquor was significantly of higher proportion in pregnancies with female babies in this study (35%) comparing to male babies (11%) and statistically significant with p-value of <0.05. This result agreed with previous study was conducted by Welsh et al (2007) (31) and Khalil et al (2013) (32) in Libya. Regarding mode of delivery, higher rate of instrumental vaginal delivery found among mothers of male babies than female babies, (p-value < 0. 05). This result is in agreement with previous two studies of Khalil et al (2013) in Libya (32) and Divon et al. (2012) (33), In this study, it has been found that failure of descent of head in second stage of labour which may lead to increase rate of C/S is more in male babies (5%) as agreed with our finding. Male infants were significantly more likely to deliver by cesarean sections, than female babies. Khalil et al (2013) (32) in Libya and Divon et al (2012) (33) do not agree with this study that there is no statistically significant difference between sexes in gestation, progress in labour, or the number of infants with no liquor in labour. Regarding the monitoring of fetal heart rate, our study agreed with Doganay et al (2008) (34) in that no significant association between fetal sex and fetal heart rhythms although we noticed that tachycardia is more related to male fetuses (7%) in opposite to female fetuses that more related to bradycardia (16%). This result is in contrast to Dawes et al (2009) (35) with respect to heart rate rhythm of fetus. Regarding fetal outcome, this result was similar to Altman et al (2013) (36) and Dunn et al, (2015) (37) that both studies showed significant higher mean of the first minute APGAR score related to female newborns than in male newborns. While very similar high APGAR score obtained to both groups at 5 minutes , while Al-Shahrani et al (2007) (38) disagreeing with us, where he found that higher APGAR score obtained to both groups in the first minute while at 5 minute it was same mean for both groups. From this study, it can be noticed that rate of intrauterine growth restriction rate(5%) in female babies higher than (3%) in male babies, this findings is in agreement with Melamed et al (2010) (29) and Al-Shahrani et al (2007) (38). In this study, the studied neonatal factors included classical risk factors for morbidity and mortality, such as birth weight, APGAR score, delay crying, using instrumental

vaginal delivery and sex, were as expected strongly related to neonatal admission to neonatal care unit, which were statically significant (P. value < 0.05). And this is similar to what found by Wilcox AJ (2001) (39). Although the causal effect of birth weight is controversial, low birth weight is a good predictor of need for neonatal care. This study also found a very high admission rate of newborns with a birth weight above 4000 g. from male babies (6%), and babies with respiratory distress were more from female babies (4%) rather than male babies As Akin et al (2010) (40) agreed with us. In general, this study agrees with Zeitlin J et al (2002) (41) as they said that male neonatal morbidity exceeds female neonatal morbidity, partly due to high neonatal risk factors.

Despite, the intensive literature review and our findings further studies are highly suggested as the relationship between pregnancy outcomes and fetal gender are not completely understood and this subject yet under debate and need further investigations.

CONCLUSIONS

Prirnigravid women who go into labour actively and at term are more likely to encounter complications during labour and delivery when the infant is a boy. Males have more NCU admissions and labour complications. There is a higher incidence of instrumental delivery and C/S in term male group than female group. We confirm the existence or an adverse effect of a male fetus on pregnancy and labour in our population. This is indicating that there is a male disadvantage with respect to neonatal morbidity and mortality, pregnant carrying male fetus can be classified as risk group pregnancy.

Ethical Clearance

Ethical approval for this study was obtained from the ethical committee in Maternity Teaching Hospital in Sulaimanya city. Verbal consent preceded data collection from each patient after clarifying the purpose of the study. And ass u ring confidentiality of data and anonymity.

Conflict of interest: Authors declared no conflict of interest

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