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THE RISK OF STILLBIRTH IN ASSOCIATION WITH PARITY AND OTHER FACTORS

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Abstract

Purpose: The objective of the study was to determine the possible association between maternal age and rate of stillbirths at Mousl city Al-batool Maternity Teaching Hospital.

Background Stillbirths account for between one and two per cent of all births. The primary cause of death in the prenatal period is stillbirth. A stillbirth is the death of a foetus in the womb after 28 weeks of pregnancy. The reason for death in about two-thirds of such cases is not known. There are many possible maternal, foetal, placental, cord and intrapartum risk factors for stillbirth. Care providers target extreme parity groups for periconceptional counselling due to the substantially increased risk of stillbirth in this cohort. Diagnosis is made by ultrasound, clinical examination and patient history. There are two basic ways to treat stillbirth – induction of labour and cautious expectancy. Risk factors such as hypertension, diabetes, and Rh disease were reduced, antepartum foetal surveillance was improved, early delivery of at-risk foetuses was performed, and the rate of stillbirth was decreased. **Study Design and Setting** This is a prospective study carried out from 2008 to 2009 in Al-batool Maternity Teaching Hospital in Mosul city. We studied 343 pregnant women with a gestational age of 28 weeks or more. The study included primiparas and multiparas who were randomly chosen from the labour room. They were from fifteen to forty-five years old. A control group of 100 pregnant women at 28 weeks of gestation with healthy foetuses was selected. The remaining two hundred and forty-three women were allotted to the study group, which included pregnant women with intrauterine death. Both participant groups completed the same questionnaires regarding their ages, parities, blood types, Rh, and other possible risk factors. The pregnant ladies were classified into 3 groups according to their parity: Category 1 (primipara): very low parity... 'Parity moderate' is defined as 2 (paragraphs 1-4 of previous births)... Category 3 (grandmultipara): five or more previous births. **Results** The stillbirths were 43.6%, 12.4%, and 44.6% among the 343 women in groups 1, 2,

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and 3, respectively. Extreme parity increases the risk of SB, and other risk factors like hypertensive diseases, diabetes, maternal age, gestational age, increased body mass index (BMI), congenital anomalies and foetal sex were found to have a statistically significant relationship ($p\text{-value} < 0.001$) with the percentage of SB. All of these things could jeopardise SB. This conclusion is supported by the fact that other risk factors such as oligohydromnios, polyhydromnios, IPI, maternal education and smoking are part of the multivariate model. **Conclusion** SB is associated with substantially higher risk in Very low or high parity. This association is influenced by other risk factors. These populations may be considered by healthcare practitioners for more specific periconceptional advice.

Keywords: Stillbirth (SB) , Intrauterine death, Parity maternal, hypertension.

Introduction

Research on stillbirths (SB) has been limited, although they are common. SB accounts for approximately 1 to 2% of all US births. Two-thirds of SBs are unexplained. SB is the leading cause of perinatal mortality. (1) The reduction in the incidence is due to the following: This reduction is attributed to better management of diabetes and prevention of hypertension, prevention of Rh disease, improved antepartum foetal monitoring for women with risk factors, and early delivery for foetuses identified as at risk (e.g., due to growth restriction or maternal pre-eclampsia). increased caesarean sections for women at risk and early detection of congenital anomalies, followed by termination before these early foetal deaths are classified as SB. There has been a modest spike in SB rates in the UK lately. Important maternal risk factors for stillbirth, such as obesity, advanced maternal age, and nulliparity, may be contributing to the current increase in stillbirth rates. Most SB is associated with placental dysfunction in the first part of pregnancy, which is also linked to foetal growth restriction. (4, 5) .Too far, there are no viable screening tools. So far, researchers have not

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identified any effective screening tools that can lower or reduce SB rates in the general population. (4, 5) It is important to confront the fact that foetal death during pregnancy causes long-term psychological pain for some women and their families. (6) The Definition of stillbirth will be now. In the United Kingdom, a foetus is regarded as having been born when it has not shown any signs of life, such as a heartbeat or respiration, after the twenty-fourth week of pregnancy (seven, eight, nine, or ten). The international criteria include only foetuses that are 28 weeks' gestation or older. Foetal mortality occurring at or after 20 weeks of gestation is considered a medical emergency in the US. ^{4, 6, 7, 13-15} The World Health Organization (W.H.O.) defines SB mostly by foetal weight, which is defined as the death of a foetus weighing at least 500 grams before complete ejection or extraction from its mother. But in large parts of the world, correct gestation is difficult to define. The W.H.O. has decided to use 22 weeks as the dividing line. six, seven)

Late fetal loss If any SB weighing 500 grams or more at birth is reported, the mother is classified as having died between 20 weeks and 0 days and 24 weeks and 6 days, even if the exact date of gestation is not known. ^{6, 9, 16, 17.}

Unexplained Antepartum Stillbirth

'Diagnostic emergency' is the absence of pathology in the mother, placenta and foetus before labour. The explanation is wrong; it starts around 39 weeks into the pregnancy. Risk factors include post-term pregnancies, low educational level, low and high Body Mass Index (BMI), maternal age (35 and higher), the number of children born to her, and the order of delivery. The weakest correlation is for female gender and the winter season. (1 number

Extreme Parity

Parity is the total number of pregnancies carried to term by a woman, including those in which the foetus was born alive or dead (the age of viability changes from country to country) provided that the gestation lasted 28 weeks or longer. in

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the years (19, 20, 21, 22, 23, 24). Extreme parity is related to a higher risk of perinatal death and prenatal maternal medical problems and so deserves special attention throughout pregnancy. 25 and 26 include mothers of primiparas and grandmultiparas (27) aged 16 and up to 35 [19, 28, 29]. Some of the factors associated with extreme parity at birth are advanced maternal age, hypertension, gestational diabetes, anaemia, meconium-stained amniotic fluid, lower socioeconomic and educational status, poor antenatal care, smoking, alcohol consumption, higher body mass index (BMI), chronic perinatal disease (CPD), macrosomia, primary caesarean section, foetal abnormalities, placenta praevia and abruption.

Incidence of Stillbirth ..SB causes around half of all perinatal deaths. The incidence rate of SB is 5-12 per 1,000 live births, while in the UK it is 5 per 1,000 births. (17) when male foetuses have a higher mortality rate. SB was approximately twice as common in multiple pregnancies than in singleton pregnancies. [49, 50, and 51] The SB rate in the US is 6.8 per 1,000 live births, while in the UK it is 5 per 1,000 live births. There is not enough information about SB in our region or in the Middle East. In 2009 it accounted for approximately 13% of all births at Al-Batool Hospital. Low birth weight (<2500 grams) was correlated with a higher foetal mortality rate (52, 53). The risk of SB increased with extreme parity and maternal age (52, 53). At term, 49% of SB occurred and 64% of SB happened prior to delivery. (54) .

Patients and Methods

Study Design and Setting The data of the case-control prospective study were obtained from Al-Batool Maternity Teaching Hospital, which is the first-class obstetrics and gynaecology hospital in the Mosul area and has a capacity of 266 beds. The study was done in the city of Mosul. The study was approved by the committee of obstetrics and gynecology of the Iraqi commission for medical specialization (2008–2009). The study included 343 pregnant women at or more

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than 28 weeks of gestation. The control group consisted of a hundred healthy babies and pregnant women 28 weeks and above and other women who met the same age and parity criteria. The remaining two hundred and thirty-three pregnant women included in the study group experienced intrauterine death and were delivered at 28 weeks or later, irrespective of their parity. Each and every one of them had been handpicked from the labor chamber and admitted as a patient with labor symptoms or to be induced into labor. Some were from peripheral centers or consultant clinics; others were from private practices or general practitioners.

Inclusion Criteria

This source provides the official data of birth and death for Al-Batool. As there was no specific institution in our area, we opted to conduct our study with pregnant women having delivered a singleton as a control group and in utero fetal death at 28 weeks or more of gestational age as a case group. Gestational age is the time between the first day of the LMP and date of birth in completed weeks. Where the LMP date was not reported or the LMP date did not correspond to the birth weight, the clinical estimate of gestation was used to determine the gestational age. It was also based on early ultrasound measurements of crown-rump length, BPD, and femoral length up to 14 weeks gestation. The study included both primipara and multiparous.

We classified the parity into three categories:

Category 1 primipara is designated as having exceptionally poor parity.

Category 2 (moderate parity) comprises births 1-4 years ago.

Group 3: Grandmultiparas, defined as five or more previous births.

SBs grouped by gestational age

-Delivery of a baby at term (after 37 weeks of gestation?).

A premature stillbirth is when a baby dies before 37 weeks of pregnancy.

The SB can be divided into the period a person has been dead:

The SB macerated.

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-New SB (deaths during labor).

Exclusion Criteria

1. Pregnant women with more than one child.
- 2.5 Stillbirth during labor.
3. Gestational age is <28 weeks.
4. Live birth.

Assessment Method

Comparison of mothers of each of the three parity groups according to the following sociodemographic factors. All SB patients admitted to the hospital in each group were subjected to the same questionnaire, clinical examination, and investigations by a senior resident or medical officer. A thorough history is contained in the following information sheet:

1. Name, age, and educational level (years of schooling completed) of patient.
2. The patient's and her husband's sectors of employment.
3. The wife's and mother-in-law's Rh and blood types.
4. The patient's previous obstetric history was reviewed to better understand gravidity, parity, and any pregnancy-associated issues such as hypertension or diabetes.
5. History of pregnancy, specifically involvement in antenatal care in high-risk populations, is important. The number of prenatal visits, expected date of birth, number of trimesters in which care was initiated, findings of any previous ultrasounds or early pregnancy exams, and information on the patient's last menstrual cycle were all used to determine
6. Past operations and medical conditions.
7. Things that make you vulnerable, such as urinary tract infection, polyhydramnios, misrepresentation, and frequent smoking.

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8. Social class is low, moderate, and high. It is based on family income, level of education of husband and wife, place of dwelling, and socioeconomic standing.

9. All the therapy she was getting.

10. Other information is helpful, such as the patient's history of intrauterine devices (IUDs), intravenous PIs (IVIs), and body mass index (BMI) (as weight in kg divided by height in m²).

Then all patients were thoroughly examined, including a physical examination including temperature, blood pressure, pulse, and abdominal girth. [Appendix 1] details the observed and reported features of the newborn, such as weight, sex, gestational age, and any obvious congenital abnormalities, together with the outcome of the labor and whether there were any complications for the mother or baby itself.

Laboratory Investigation

After the clinical evaluation, all women were submitted to the following tests:

- 1) Platelet count and hemoglobin or packed cell volume (PCV).
2. Total and differential count of white blood cells.
3. Urine for protein to screen for PE and midstream urine for general examination with culture and sensitivity if there were significant pus cells in the urine.
4. Further evaluations were done for patients with increased random blood sugar.
5. Rh and antibody titers as indicated and blood groupings.
6. Ultrasound of the abdomen to determine the size of the baby, the amount of fluid, and if there are any congenital anomalies.
7. Indirect Coomb's test.
8. The Kliehauer-Betke test and serum bile acids were not performed, as they are not available in the region.

She had to remain in the hospital to complete her testing. A normal hospital stay might be anywhere from 3 days to 2 weeks. Fetal delivery can take place through the following:

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1. Observational surveillance: spontaneous onset of labor occurred in roughly 60% of the patients, with weekly monitoring of blood fibrinogen levels, hematocrit, and platelet counts. In rare cases of membrane rupture, oxytocin is injected to assist with labor.

2. Prostaglandin induction can be used to achieve cervical ripening. Misoprostol, a synthetic counterpart of PGE₁, was given orally or as vaginal pessaries. The dose is regulated according to the gestational age, the parity, and the history of uterine scar disease, starting from low dosages and increasing them progressively. There have been few or no reports of deleterious effects at doses between 25 and 800 micrograms per day. An intravenous oxytocin infusion may be delivered either prior to or following PG cervical ripening.

3. Caesarean section for delivery as required by the circumstances.

Antibiotic therapy was given to patients with positive amnionitis testing. There were no documented cases of DIC or postpartum hemorrhage over the course of this investigation.

Material Used in this Study are Arranged into

The resources in this study are organized into the following:

a) example item

1. Urine for a full checkup, including tests for glucose, protein, and sensitivities.
2. All study participants had their blood collected upon admission to the hospital. Blood (2 mL) was used for hemoglobin and platelet counts, and 1 mL was transferred to a fluoride tube containing sodium fluoride to halt glycolysis for glucose measurement.

All the analysis was performed in the biochemical laboratory of AL-Batool Hospital, Mosul City.

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Statistical Analysis

The statistical approaches employed for the analysis of the data collected were

- * The SB rate was calculated by dividing the total number of SBs by the amount of live births and SBs and multiplying by 1000.
- * The generalized estimating equation framework is used to approximately estimate relative risks, taking account of intracluster correlations among siblings using the odds ratio.

The associations between extreme parities and the probability of stillbirth are determined by the chi-square test statistic, using maternal variables as covariates. Additionally, we included each person's propensity scores in the multivariable models.

To get the percentage and total, we employed standard statistical procedures.

- * Differences between observations were considered significant at a P value of 0.05 or below.

Results

Univariate analysis were performed to evaluate the influence of some characteristics as; age, education, and parity on the risk of SB, during the study period (2008-2009), 243 patients who fulfilled the previous mentioned criteria were admitted to the study group, and with 100 patients as a control group. The causes of SB in those (243) patients after complete investigations in the four groups of parity showed that the commonest cause of SB in this study was increasing in blood pressure 56.5%, the next was abnormal baby in 19.6%, preterm labor 15.2%, diabetes mellitus 6.5% and malpresentaion 2.2% as shows in figure 1.

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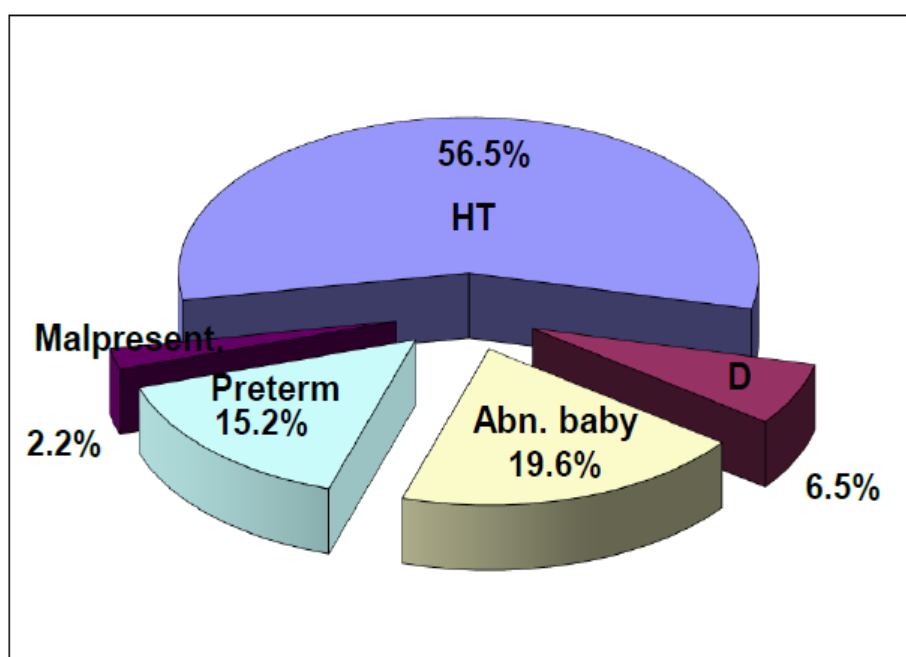


Figure (1) Distribution of SB in pregnancy according to their causes.

Study of the social class in the four parity groups with SB show that (92.6%) of those patients were of low social.

higher percentage of SB among uneducated mother (51.03%), and lower in those who were educated (40.7%), Illiterate and primary schooled mother are risky groups for SB.

Labor of ensued vaginally in (90%) of the patients and (10%) by cesarean section as shown in figure (2). vaginal delivery occurs in 131 spontaneously (53.5%) of the births, and it was induced in the other 45 (18.5%) births while augmentation of labor in 67 (27.6%) births, as shown in figure (3). In 40 cases were cesarean section performed for different causes like hypertension (19), malpresentation (19) and (2) of them for fetal distress.

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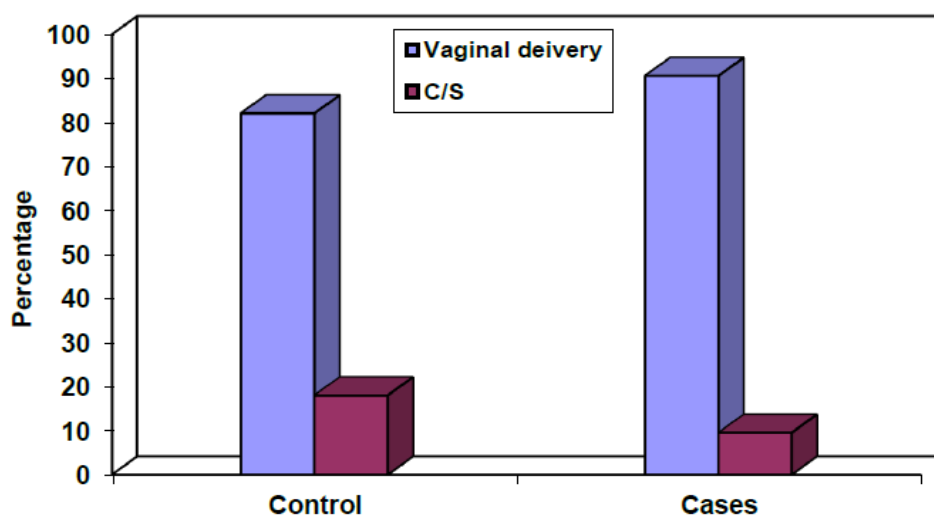


Figure (2) Distribution of cases and controls according to the mode of delivery.

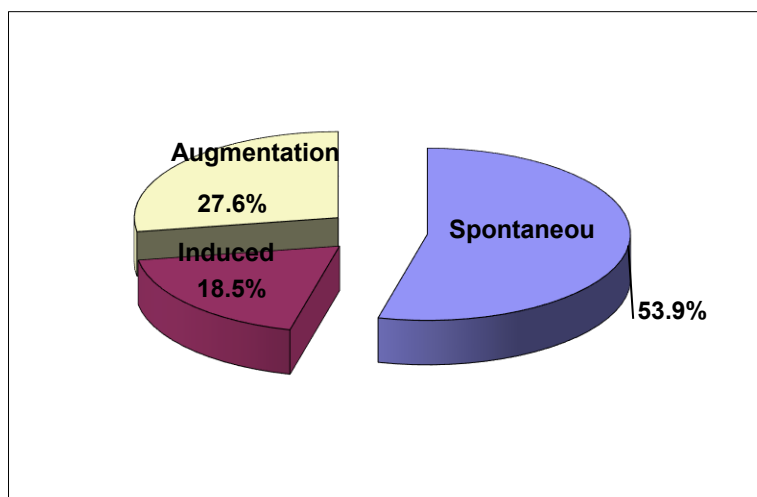


Figure (3) Distribution of stillbirth according to the vaginal mode of delivery.

Table (1) show a statistically significant relationship was recorded (p-value <0.001) between parity and risk of SB. There was higher percentage of SB in

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category 1,3 (43.6%, 44% respectively), 12.4% in category 2. This mean that extreme parities are significant risk factors for stillbirth.

Table (1) Distribution stillbirth in cases and controls according to parity.

Parity	Cases (n=243)		Control (n=100)		p-value
	No.	%	No.	%	
0	106	43.6	16	16.0	<0.001
1-4	30	12.4	63	63.0	
5 and more	107	44.0	21	21.0	
Total	243	100	100	100	

Using Chi-square test

Table (2) shows the relationship between SB percentage and maternal age. Although 18.9% of SB in mothers under the age of 20 years old. 63% of SB in mothers between the age of 20-35 years and 17.3% of SB in mothers over the age of 35 years old but it is not significant statistically.

Table (2) Distribution of cases and controls according to maternal age.

Maternal Age (yr)	Cases		Control		OR	95% C.I.	p-value
	No.	%	No.	%			
<20	106	43.6	16	16.0	1.24	0.67-2.30	0.250 (NS)
20-35	30	12.4	63	63.0	1	-	-
>35	107	44.0	21	21.0	1.63	0.80.3.23	0.092 (NS)
Total	243	100	100	100			

Non-significant using χ^2 test

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Table (3) Distribution of stillbirth and controls according to risk factors.

Risk factors	Cases (n=243)		Control (n=100)		p-value
	No.	%	No.	%	
HT					
Yes	129	53.1	24	24.0	<0.001
No	114	46.9	76	76.0	
DM					
Yes	18	7.4	0	0.0	0.005
No	225	92.6	100	100	
Cardiac					
Yes	1	0.4	0	0.0	0.709 (NS)
No	242	99.6	100	100	
History C/S					
Yes	40	16.5	17	17.0	0.452(NS)
No	203	83.5	83	83.0	
RH-isoimmunization					
Yes	6	2.5	0	0.0	0.124(NS)
No	237	97.5	100	100	

NS= not significant using χ^2 test Fisher Exact test

Table (3) shows relationship between different multiple risk factors for SB in cases and control, there were a statistically significant relationship (p-value <0.001) between hypertension and the percentage of SB which is (53.1%) in the cases, as compared to the control group which is 24%. This mean that hypertension could be a significant risk factor for SB.

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There is a statistical significant relationship between SB and DM (p -value <0.001). 7.4% of SB had history of DM with no cases of DM reported in the control group. This mean that Diabetes mellitus could be a significant risk factor for SB. So pregnant women with history of hypertension and diabetes are more prone to exhibit SB than those with non-hypertensive diseases and non-diabetic pregnant women.

Although the percentage of SB is (0.4%) in pregnant women with cardiac diseases. (16.5%) of SB have history of previous C/S and (2.5%) of pregnant women were Rh-immunized. They are not significant statistically.

Table (4) shows a statistically significant relationship between weight and the risk of SB (p -value <0.001). It is evident that birth weight below 1000 grams was associated with increase chance of SB. LBW defined as the weight of the fetus below 2.25 kg. 56.8% of SB were LBW while 43.2% were normal weight. LBW have high risk for SB.

Table (4) Distribution of cases and controls according to birth weight.

BWt	Cases (n=243)		Control (n=100)		p-value
	No.	%	No.	%	
LBW	138	56.8	21	21.0	<0.001
Normal LBW	105	43.2	79	79.0	
Total	237	100	100	100	

Using χ^2 test

Table (5) shows a statistical significant relationship between gestational age and risk of SB (p -value <0.001), the longer and the shorter gestational age the higher percentage of SB. (41.6%) in gestational age between 28-32 weeks, (36.6%) in 33-36 weeks, and (21.8%) in 37 weeks and more

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Table (5) Distribution of stillbirth in cases and controls according to gestational age.

GA (wk)	Cases		Control		OR	95% C.I.	p-value
	No.	%	No.	%			
28-32	101	41.6	8	8.0	16.67	7.5-37.2	<0.001
33-36	89	36.6	22	22.0	5.34	2.97-9.62	<0.001
≥37	53	21.8	70	70.0	1	-	-
Total	243	100	100	100			

Using Chi-square test

Table (6) shows a significant relationship were detected between patients with history of previous IUD and the risk of SB percentage, (32.9%) had history of SB which is statistically significant (p-value 0.003).

Table (6) Distribution of stillbirth in cases and controls according to previous history of IUD.

previous history of IUD	Cases		Control		OR	95% C.I.	p-value
	No.	%	No.	%			
Yes	80	32.9	17	17.0	2.40	1.33-431	0.003
No	163	67.1	83	83.0			
Total	243	100	100	100			

Significant according to Chi-square test

Table (7) display the contribution of PPRM (defined as preterm pre labor rupture of membrane) and the risk of SB, patients with history of PPRM had

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(35.4%) risk of SB, while it was (64.6%) in patients with out history of PPRM which is (P-value 0.003). a statistically significant.

Table (7) Distribution of stillbirth in cases and controls according to PPRM

previous history of IUD	Cases		Control		OR	95% C.I.	p-value
	No.	%	No.	%			
Yes	86	35.4	19	19.0	2.34	1.33-4.11	0.003
No	157	64.6	81	81.0			
Total	243	100	100	100			

Table (8) detect the relationship between SB and history of vaginal bleeding, patient with history of vaginal bleeding had (17.3%) risk of SB which is a statistically significant (p-value 0.008).

Table (8) Distribution of stillbirth in cases and controls according to vaginal bleeding.

previous history of IUD	Cases		Control		OR	95% C.I.	p-value
	No.	%	No.	%			
Yes	42	17.3	8	8.0	2.40	1.09-3.32	0.008
No	201	82.7	92	92.0			
Total	243	100	100	100			

Using Chi-square test

Table (9) shows a statistically significant relationship(p-value <0.001) between increase in the BMI and risk of SB. There is an increase in SB percentage (85.2%) in obese women (BMI is 30 and more), while 14.8% of SB were over weight (BMI is 25-29.9). This mean that increase in the BMI could be a risk factor for SB.

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Table (9) Distribution of stillbirth in cases and controls according to BMI.

BMI	Cases (n=243)		Control (n=100)		OR	95% C.I.	p-value
	No.	%	No.	%			
Obese	207	85.2	55	55.0	4.71	2.77- 7.99	<0.001
Over weight	36	14.8	45	45.0			
Total	243	100	100	100			

Using Chi-square test

Table(10) illustrate a statistical significant relationship(p-value<0.001) between SB percentage and the presence of UTI in our locality, (97.1%) of SB have UTI, this mean that UTI could be a risk factor for SB.

Table (10) Distribution of stillbirth in cases and controls according to UTI.

UTI	Cases (n=243)		Control (n=100)		OR	95% C.I.	p-value
	No.	%	No.	%			
Yes	236	97.1	70	70.0	14.4	6.1-34.3	<0.001
No	7	2.9	30	30.0	5		
Total	243	100	100	100			

Using Chi-square test

Table (11) shows a statistical significant relationship (p-value<0.037) between poor ANC and risk of SB. The higher the parity status of a mother the lower the likelihood that she received adequate ANC. Good ANC defined as the mother should at least have monthly check-up until 28 weeks, fortnightly check-up until 36 weeks, and weekly visit until labor, if the mother not follow these regular ANC

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visits this mean poor ANC and it could be a risk factor for SB as 94.2% of SB were had a poor ANC while 5.8% of SB have good ANC.

Table (11) Distribution of stillbirth according to parity and ANC.

ANC	Cases (n=243)		Control (n=100)		OR	95% C.I.	p-value
	No.	%	No.	%			
Good	14	5.8	89	89.0	3.02	1.88-5.62	<0.001
Poor	229	94.2	11	11.0			
Total	243	100	100	100			

Significant using χ^2 test

Table (12) shows there is a statistical significant increase in SB percentage (p-value<0.001) and IPI (period between delivery of the last baby and LMP of this pregnancy), (96.7%) of SB had IPI less than 12 months and (3.3%) had IPI more than 12 months. This mean that short IPI could be a risk factor for SB.

Table (12) Distribution of stillbirth in cases and controls according to IPI.

IPI	Cases (n=243)		Control (n=100)		OR	95% C.I.	p-value
	No.	%	No.	%			
<12 month	235	96.7	65	65.0	15.8	7.0-35.8	<0.001
≥12 month	8	3.3	35	35.0	2		
Total	243	100	100	100			

Using Chi-square test

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Table(17) shows a statistical significant relationship (p -value <0.001) between anaemia ($pcv<0.33$) and risk of SB percentage, (58.4%)of the women with SB had anaemia and it could be considered as risk factor for SB.

Table (17) Distribution of stillbirth in cases and controls according to PCV.

PCV	Cases (n=243)		Control (n=100)		OR	95% C.I.	p-value
	No.	%	No.	%			
<0.33	142	58.4	25	25.0	4.22	2.51- 7.09	<0.001
≥ 0.33	101	41.6	75	75.0			
Total	243	100	100	100			

significant according to Chi-square test

Table(14) shows non-relationship between SB and history of abortion, although the percentage of (33.3%) of SB had history of abortion but its not significant statistically.

Table (18) Distribution of stillbirth in cases and controls according to history of abortion.

History of abortion	Cases (n=243)		Control (n=100)		OR	95% C.I.	p-value
	No.	%	No.	%			
Yes	81	33.3	33	33.0	1.02	0.62- 1.67	0.95(NS)
No	162	66.7	67	67.0			
Total	243	100	100	100			

NS = Not significant according to Chi-square test

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Table (15) illustrate that higher percentage of SB are among male gender than female. 65% of SB were male while 35% of SB were female which is statistically significant (p-value 0.006). This mean male gender could be a risk factor for SB.

Table (15) Distribution of cases and control according to gender.

Gender	Cases (n=243)		Control (n=100)		OR	95% C.I.	p-value
	No.	%	No.	%			
<0.33	158	65.0	49	49.0	1.94	1.21-3.10	0.006
≥0.33	85	35.0	51	51.0			
Total	243	100	100	100			

OR=1.94 indicate that male represents risk factor, using χ^2 test

Table (16) demonstrate the effect of polyhydromnios on SB percentage, patients with polyhydromnia had (12.8%) risk of SB, and it could be regarded as risk factor for SB which is a statistically significant (p-value<0.001).

Table (16) Distribution of stillbirth in cases and controls according to polyhydromnios.

Polyhydr.	Cases (n=243)		Control (n=100)		OR	95% C.I.	p-value
	No.	%	No.	%			
Yes	31	12.8	1	1.0	14.4	1.95-107.6	<0.001
No	212	87.2	99	99.0	8		
Total	243	100	100	100			

Using Chi-square test

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Table (21) illustrate the effect of oligohydriomnia on the risk of SB percentage, patients with oligohydriomnia had (37%) risk of SB which is regarded as a risk factor for SB and its statistically significant(p -value <0.001).

Table (21) Distribution of stillbirth in cases and controls according to oligohydromnios.

Oligo	Cases (n=243)		Control (n=100)		OR	95% C.I.	p-value
	No.	%	No.	%			
Yes	90	37.0	13	13.0	3.94	2.08-7.45	<0.001
No	153	63.0	87	87.0			
Total	243	100	100	100			

Using Chi-square test

Discussion

There was a substantial association between different parities and pregnancy outcomes in terms of obstetric problems, neonatal morbidity, and perinatal mortality after adjusting for probable confounders, i.e., maternal age, smoking, and socioeconomic status. The parity status of the mother may influence the survival of the uterus and fetus. Other investigations have reported an association between parity status and SB, whereas others have not. Some of these studies were unable to control for possible confounders because of variations in definitions of parity and maternal age. (4) The present investigation confirms the earlier results indicating a statistically significant association between parity and the risk of SB compared to the control group. This finding is consistent with Bondagji (26) and Aliyu (93) 2005, who also stated that women with severe parity should be handled with extra care. In comparison with women with moderate parity (para. 1-4), who have the lowest risk for SB, there is a considerable rise in

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SB and prenatal maternal medical problems. This study linked risk for SB with maternal age. Older women are more likely to experience preterm birth, placenta previa, placental abruption, hypertension, diabetes mellitus, congenital abnormalities, and other medical issues, but the statistical significance of these risks is minimal. This conclusion is inconsistent with the findings of Luke et al. (2007), Ruth C. (1999), and Barclay (2000), all of whom found that the risks of pregnancy issues and negative outcomes are substantially higher for older mothers after controlling for gestational age and that these risks vary; the risks of pregnancy issues and negative outcomes are substantially higher when the mother is older after controlling for gestational age, and these risks are different at different parities. For SB, pregnancies in the teenage and elderly maternal age brackets were at significantly greater risk of fetal death than pregnancies in the 20- to 29-year-old age bracket, a tendency that continued into the maternal age bracket. The present study confirms prior research that has identified a low socioeconomic level as a risk factor for SB in grandmultiparas. The risk factors of SB in this group include malnutrition, anemia, smoking, obesity, systemic disorders, poor hygiene, lack of health education, spontaneous abortion, and excessive stress and physical strain during pregnancy. These results agree with the findings of Olofstephansson et al. (61) in 2001, who also observed an elevated risk of SB in this cohort. The results of this study are in line with those of Sara M. et al. (22) in 2001, who reported that SB was more common among people who had not completed high school and among those who did not attend school frequently. The study concluded that the main risk factor for spontaneous abortion (SBA) was insufficient prenatal care (ANC), which is in line with previous studies by Agudelo A. et al. (2000), Feresu S. et al. (2005), Baskett (96) 1997, George B. (75), among others. A statistically significant association was observed between the two variables. In the present study, the percentage of SB was higher in males than in girls. This is in line with prior research that has found a greater mortality rate of male fetuses. This finding has also been established by

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several research studies: Petridon E. et al. (51, 1996), Gadow (1986), Gole (2003), and Rasmussen (18, 1998).

The results of the current study are consistent with the results of Humphrey (98) 2004, Rizk D. (99) 2001, Hinkula et al. (100) 2005, and Baskett (96) 1997 in showing that the incidence of gestational diabetes, hypertensive diseases, placental pathologies, and poor obstetric outcomes increased with the increasing number of deliveries. Furthermore, they observed that nulliparas and grandmultiparas were at increased risk of placenta previa (PE).

Hypertension diseases emerged as a potential risk factor for SB in this study, as indicated by Aliyu, H., et al. (2005), who compared the distribution of common medical complications experienced during pregnancy across parity groups; the prevalence of hypertension increased with parity and was U-shaped. The study also found a statistically significant association between SB and DM, which is in agreement with Roman et al. (2005) and Aliyu H et al. (2005), who found that high parity is associated with increased incidence of diabetes mellitus (DM) due to the high maternal BMI and poor ANC among these mothers. We are also able to show that DM may be a true risk factor for SB, particularly in the high-parity group. Pregnant women who are obese are two to five times more likely to have SB if they have DM (Barclay, 95, 2009). This study verifies the findings of Barclay (2009), who discovered that hypertension, diabetes mellitus type 2, and premature birth are risk factors for SB but did not reveal a direct cause of SB. The main reasons for SB in this study may include atypical newborns, preterm deliveries, hypertension, abnormal blood pressure, and malpresentation. The causes of SB differ considerably depending on whether it happens before or after the infant is delivered (Kramer et al. 2002 (101)). Preterm delivery is the primary cause of SB due to a higher risk of medical diseases such as hypertension and diabetes and obstetric problems such as placenta previa, abruptio placentae, and PPRM, which is more prevalent in primipara and grand multipara pregnancies. The findings of the present study were in agreement with Sara et al. (2001), who

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reported increased risk of preterm delivery among women with extreme parity, but were in contradiction with Kumari et al. (2002), who reported decreased incidence of preterm delivery in pregnant women with parity greater than ten.

Regarding the factors influencing SB in the fetus, the present study indicates a significant risk of SB related to low birth weight (LBW). This observation corroborates the findings of Petridon et al. (51, 1996) and others (Aliyu H., 2000; Gadow, 1986). They found a U-shaped connection between SB risk and parity. The risk of SB was higher for low- and high-birthweight deliveries and for primipara and grandmultipara moms. Urinary tract infections (UTIs) can lead to premature birth. The research revealed no evidence that a higher percentage of SB was associated with a decreased risk of SB. No studies were completed to evaluate these two outcomes. We detected an association between intrapartum SB and PPRM and intrapartum pyrexia, consistent with prior studies. It also supports the results of Getahun D. et al. (2007) and Smith (79) (2001). Anemia was identified as a risk factor for SB in the present study, in concordance with prior studies that found it to be increased with parity (Babinszki A. et al., 1999; Chang A. et al., 1977). These findings are in line with earlier studies (e.g., Sven Cnattingius et al., 2009; Stephansson, 2002; Barbara, 2007) and imply that obesity may increase the incidence of SB. Obesity raises the risk of preterm delivery (before 32 weeks of gestation), hypertension, diabetes, and hyperlipidemia, all of which decrease the amount of prostacyclin in the blood.

This study indicated that SB was more likely to occur in women with a shorter IPI, which may be a risk factor for SB. In earlier studies, the notion of "maternal depletion syndrome" has been hypothesized as a possible reason for unfavorable pregnancy outcomes in women with a short IPI and high parity. This finding is in agreement with Aliyu H. et al. (4) (2005), who noted that frequent childbearing pushes the mother under nutritional stress, which reduces her nutritional condition in later pregnancies and increases the probability of adverse fetal outcomes. This phenomenon occurs because the uterus, due to overuse, becomes

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less efficient in its primary role of nurturing the fetus, which in turn further reduces its ability to perform this role effectively. In extreme circumstances the fetal organ fails to grow normally, and the nutritional health of the mother declines. This study verifies earlier studies that indicate a greater risk of SB in women with past SB. There was, however, no particular information on earlier fetal loss available in the data set used in this investigation. These results are consistent with the results of Surkan J et al. (12) 2001 and others (Samueloff et al. (83) (1993) and Kumer et al. (78) (1992)), who reported a similar odds ratio of 2.5 for recurrent SB in women who had a first stillborn fetus compared to women whose first fetus was not stillborn. The recurrent SB group had a risk for SB that was 10 to 15 times higher. Reddy et al. (102) reported that a history of SB increases the likelihood of additional unfavorable pregnancy outcomes such as placental abruption, cesarean delivery, premature delivery, and low birth weight children. The risk is based on the etiology of previous SB, the presence of fetal growth restriction, the GA of previous SB, and the patient's race. The results of this study are consistent with those of Goldman G. et al. (1995: 40), who also found that SB was more common in mothers with oligohydramnios and polyhydramnios, types of excessive water consumption, and that it may increase the risk of SB. In this investigation, vaginal bleeding (VB) was identified as a possible risk factor for SB. Placenta previa, which is related to the aging of the uterus and the effects of many pregnancies, is more common in older moms. Other factors related to the increased risk of placental abruption and VB are closely spaced pregnancies, increased parity, and the presence of hypertension and diabetes mellitus. In a 1993 study, Ananth CV et al. (35) reported that the occurrence of abruption was marginally greater among younger women. Similar findings were reported by M. Salihu et al. (103) in 2004 and Barbara et al. (56) in 2007, who both concluded that a history of caesarean section (C/S) births puts the patient at risk of spontaneous abortion (SBA). Women in the group with the greatest rates of C/S births also tend to have uterine-placental hemorrhage issues

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such as uterine rupture, placental abruption, and placenta previa. The present investigation found no statistically significant link between SB and history of abortion, consistent with Olofstephansson et al. (61) in 1996, who also found no increased risk of SB associated with previous abortions. The present study showed that 90% of SBs were delivered vaginally, with 10% delivered by C/S. This is in agreement with Feresu (74) 2005, who found that SBs were less likely to be delivered via C/S and more likely to be delivered vaginally as breech extraction. This study contradicts the conclusions of Agudelo et al. (2000), who reported that Rh isoimmunization increased the risk of SB. The study revealed no statistically significant link between the proportion of SB and Rh isoimmunization. However, 2.8% of SB were iso-immunized, which is not statistically significant.

Conclusions

They have a history of multiple prenatal risk factors that necessitate specialist ANC, and maternal parity is a known risk factor for poor fetal outcomes.

- For some researchers, there is a direct association between parity status and SB, but for others there isn't. This situation has prompted researchers to suggest that parity status could have an effect on fetal survival in the womb.

SB is more likely in individuals with hypertensive diseases, diabetes mellitus (DM) and its comorbidities, fetal development limitations, advanced mother age, obesity before pregnancy, socioeconomic status, PPRM, smoking, late pregnancy, and insufficient prenatal care.

- The major role of antenatal care (ANC) and health education is to decrease the prevalence of stillbirth (SB) by identifying and controlling risk factors.

Identifying risk factors for SB is beneficial for the clinician to undertake a risk assessment for every patient.

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The approach of antepartum testing in individuals with increased risk would decrease the risk of late fetal loss, but it is required to correlate it with higher rates of intervention. Antepartum testing is useful when the baseline risk of SB is high.

Recommendations

- Routine inquiry about risk factors for SB by clinicians will facilitate early detection of suspected cases of SB and minimise antepartum and intrapartum risks for SB through surveillance and timely intervention. Knowledge about the timing of SB and certain risk factors can also be beneficial in this respect.
- Educating the general public and all SB patients on the significance of risk factors in increasing the prevalence of SB and providing high-quality ANC treatments. This information shows the link between glycemic management and blood pressure control and their association with the decrease in the severity of fetal issues.

It has become imperative to undertake an analysis that is sufficiently powered to yield conclusive and care options based on risk assessment profile to be offered to these patients.

Further future studies in our locality with bigger sample volume will provide more information about the risk of SB among the patients and their management, focus on understanding the pathophysiology of impaired placentation to establish screening tests for SB and assessment of intervention to prevent SB in women whose screen are positive.

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