Retrospective analysis of stillbirth cases in a regional hospital

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Abstract

Objective: To evaluate the stillbirth cases and to determine the risk factors for our region.

Methods: Maternal age, parity, gestational weeks before birth, vaginal and cesarean delivery rates, indications of cesarean section, detected fetal anomalies and maternal diseases of 308 cases with diagnosed intra-uterine fetal death were evaluated and compared with randomly selected 300 live births in our clinic.

Results: In a five-year period, stillbirth rate was 2.02% in 15,203 deliveries. Mean age was 30.6±7.2, prepartum gestational week was 30, 5±5.3 and mean parity was 3.6±3.1 in stillbirths. Pregnancy-induced hypertensive disorders (19.4%), fetal abnormality rate (12.9%), and gestational diabetes (2.2%) were significantly high in stillbirths (p<0.001).

Conclusion: In our study, the most common causes of stillbirths were pregnancy-induced hypertensive disorders, fetal anomalies and gestational diabetes. Increasing the protective and preventive health care in primary and secondary antenatal care centers, and timely treatment for high-risk pregnancies may contribute to the reduction of the rate of stillbirths.

Key words: Stillbirth, antenatal care.

Bir bölge hastanesinde ölü doğum olgularının retrospektif analizi

Amaç: Ölü doğum yapan olguların değerlendirilmesi, risk faktörlerinin bölgemiz için belirlenmesi.

Yöntem: Kliniğimizde intrauterin fetal ölüm tanısı konup doğumu gerçekleşen 308 olgu anne yaşı, paritesi, doğum öncesi gestasyonel hafta, vajinal ve sezaryen doğum oranları, sezaryen endikasyonları, tespit edilen fetal anomaliler, maternal hastalıklar yönünden değerlendirildi ve random olarak seçilen 300 canlı doğumla karşılaştırıldı.

Bulgular: Beş yıllık sürede 15.203 doğumdan, ölü doğum oranı %2.02 olarak saptandı. Ölü doğumların yaş ortalaması 30.6±7.2, prepartum gebelik haftası 30.5±5.3 ve paritesi 3.6±3.1 olarak bulundu. Gebeliğin indüklediği hipertansif hastalıklar (%19.4), fetal anomali oranı (%12.9) ve gestasyonel diyabet (%2.2) ölü doğumlarda anlamlı şekilde yüksek idi (p<0.001).

Sonuç: Çalışmamızda ölü doğumların en sık görülen sebepleri gebeliğin indüklediği hipertansif hastalıklar, fetal anomaliler ve gestasyonel diyabet olarak tespit edildi. Antenatal bakımın yapılabildiği primer ve sekonder merkezlerde koruyucu ve önleyici sağlık hizmetlerinin arttırılması, yüksek riskli gebeliklerin zamanında tedavisiyle ölü doğum oranının azaltılmasına katkı sağlanabilir.

Anahtar sözcükler: Ölü doğum, antenatal bakım.

Introduction

Fetal stillbirth is the state of a newborn after 20 weeks gestation or at and above 500 g of birth weight displaying no vitality indication during after delivery.[1] Reasons of newborn death can be associated with fetal, placental and maternal issues. Fetal stillbirth has been reported as 5/1000. Many reasons such as black race, increased maternal age, obesity, smoking, previous stillbirth history, fetal growth restriction, multiple pregnancy and maternal diseases are risk factors for stillbirth. It has been reported that fetal stillbirth rate is reduced in time by increased prenatal diagnostic meth-

ods, early abortion of fetuses with anomaly and improved antenatal care.[2]

In this study, we aimed to evaluate cases retrospectively who gave labor in our clinic after intrauterine fetal stillbirth in terms of maternal age, parity, gestational week, delivery type, cesarean indications, detected fetal anomalies and maternal diseases.

Method

Of totally 15,203 deliveries carried out in the Obstetrics and Gynecology Department of Medical School of Dicle University within 5 years from May 2006 to 2011, 308 stillbirth cases were evaluated retrospectively. Data were obtained from digital records of hospital automation system, birth records and patient files.

Totally 308 stillbirth cases (Group 1) and 300 live birth cases (Group 2) were included into the study. Both groups were evaluated in terms of maternal age, gravida, parity, gestational week, hypertensive diseases seen during pregnancy, delivery type, cesarean indications, birth weights, and fetal anomalies. Gestational age was determined by last menstrual period and/or

ultrasonographic evaluation of fetal biometric parameters. Fetal stillbirth was diagnosed by establishing non-existence of fetal cardiac pulse via ultrasonography (Voluson 730 Pro, General Electric, Vienna, Austria). Fetal anomalies were found by prepartum ultrasonography and diagnoses of postnatal physical examination of fetus. Gestational diabetes diagnosis was established by 100 gram oral glucose tolerance test. Statistical analysis of data was done by SPSS (*Statistical Package for Social Science*, SPSS Inc., Chicago, IL, USA) version 15.0. Chi-square and Mann-Whitney U test were applied for both groups. P<0.005 was considered as statistically significant.

Results

Totally 308 stillbirth cases were found in 15,203 deliveries in five years at Obstetrics and Gynecology Department of Medical School of Dicle University. During this period, stillbirth rate was found as 2.02%. Demographic data of patients who had stillbirth (Group 1) and control group patients (Group 2) are shown in **Table 1**. No significant difference was observed between two groups in terms of mean age (p>0.05).

Table 1. Demographic data of patients in Group 1 and ve Group 2.

	Group 1 (mean ± SD)	Group 2 (mean ± SD)	p
Age	30.6±7.2	29.9±7.0	>0.05
Gravida	5.2±3.5	3.7±3.0	<0.001
Parite	3.6±3.1	2.4±2.8	<0.001
Abort	0.62±1.1	0.31±0.8	<0.001
Live	3.6±3.2	2.4±2.8	<0.001
Gestational week	30.5±5.3	34.1±5.4	<0.05
Newborn weight (gram)	1685.4±991.8	2179.7±1023.3	<0.001

Table 2. Hypertensive diseases, fetal anomaly, gestational diabetes and cesarean delivery rates.

	Group 1	Group 2	p
Gestational hypertensive diseases	19.4%	9.0%	<0.001
Fetal anomaly	12.9%	2.0%	<0.001
Gestational diabetes	2.2%	0.6%	<0,05
Cesarean rates	41.2%	58.8%	<0.001

Table 3. Fetal anomalies and their rates seen in Group 1 cases.

Fetal anomalies	n	%
Hydrocephaly	9	22.5
Anencephaly	7	17.5
Immune hydrops	6	15
Non-immune hydrops	4	10
Hydrocephaly and meningomyelocele	3	7.5
Cleft palate-lip	2	5
Gastroschisis	2	5
Anencephaly and spina bifida	2	5
Omphalocele and spina bifida	2	5
Hydrocephaly ve hand-foot deformity	2	5
Hydrocephaly and spina bifida-pes equinovarus	1	2.5
Single umbilical artery	1	2.5

Pregnancy, abortus and living child number in intrauterine fetal death cases were observed statistical significant compared to control group (p<0.001). Hypertensive diseases, deliveries with fetal anomaly and gestational diabetes were significantly high in the cases of Group 1 while cesarean numbers were significantly high in Group 2 (**Table 2**). Hypertensive diseases were 19.48% and 9% in Group 1 and Group 2 cases, respectively (p<0.001).

Fetal anomaly frequency was 13% in patient group and 2% in Group 2 cases (p<0.001) and it was statistically significant. Most frequently observed fetal anom-

alies in Group 1 cases were hydrocephaly and anencephaly, respectively (**Table 3**).

Cesarean rate was higher in Group 2 cases (p<0.001). The most frequent cesarean indications in Group 1 cases were previous cesarean underwent, ablatio placenta, dystocia and uterus rupture (**Table 4**).

Discussion

Fetal stillbirth is the state of a newborn after 20 weeks gestation or at and above 500 g of birth weight displaying no vitality indication during after delivery.[1] Fetal deaths may be associated with maternal, placental and

Table 4. Cesarean indications of Group 1.

Cesarean indications	n	%
Previous cesarean history	26	30.9
Ablatio placenta	25	29.7
Dystocia	9	10.7
Uterus rupture	9	10.7
Macrosomia	8	9.6
Placenta previa totalis	2	2.4
Foot presentation	1	1.2
Breech presentation	1	1.2
Transverse presentation	1	1.2
HELLP	1	1.2
Severe preeclampsia	1	1.2

fetal reasons.[3] In our study, stillbirth rate was found as 2.02% which is higher than those reported in the literature. The reason for high rate can be explained by considering that our hospital is a reference center for Southeastern Anatolia region. For maternal factors, Fretts et al. reported that advanced maternal age is a risk factor independent from stillbirth history.[4] Luna et al. stated that maternal age is not a risk factor.[5] In our study, there was no significant difference between mean maternal age and the group having live birth.

In a study performed by Önderoğlu et al., it was reported that 326 of 513 pregnants who had stillbirth were multipara and gestational week was significantly lower in the stillbirth group than those having live birth.[6] In our study, gestational week was lower in stillbirth group. Losing fetus at early weeks due to fetal anomalies, pregnancy-induced hypertensive diseases, and complications related with gestational diabetes may explain this outcome.

Kale et al. conducted a ten-year retrospective study in 2005 and they found significant difference between newborn weights.[7] In our study, significantly low newborn weights in stillbirths may be interpreted that fetus is lost at early weeks due to accompanying anomalies and diseases and therefore birth weight is low. Increased body mass index (BMI) and smoking increases the risk in terms of stillbirth. Carbohydrate intolerance increases stillbirth risk in gestational diabetic patients.[8,9] In our study, gestational diabetes cases were significantly high in stillbirth group compared to control group.

Congenital anomalies among fetal causes are significant when evaluating stillbirth etiology. Faye-Peterson et al. reported that one third of stillbirths is caused by fetal structural anomalies and among them, neural tube defects (NTD), hydrops, isolated hydrocephaly and complex congenital cardiac diseases were the frequent ones.[10] In the study performed by Pauli and Reiser, it was reported that the most of the stillbirths due to fetal reasons had a major malformation that may cause a fetal death.[11] On the contrary, Copper et al. found in their work that malformations (prenatally) without fetal autopsy information was only 5.6%.[12] In the study performed by Kale et al., fetal anomaly rate was found as 12.12%. This rate is consistent with the rate (12.99%) that we found in our study.[7] In our study, neural tube defects were the most frequently observed structural anomalies (55%). Madazlı et al. reported anencephaly as the most fre-

quent anomaly type among NTD.[13] In our study, hydrocephaly was the most frequent fetal anomaly.

Gürel et al. examined 51 stillbirth cases in their studies and they reported hypertensive diseases (preeclampsia-eclampsia) as the most frequent reason.[14] Hypertensive diseases associated with pregnancy was found as the most frequent reason in stillbirth etiology. Stillbirth due to ablatio placenta is 14%. Totally 50% of these cases develop pregnancy-induced hypertension.[4] In our study, cesarean rate is lower in the stillbirth cases compared to the control group while the ablatio placenta is among the most frequent cesarean indication reasons.

Conclusion

Consequently, pregnancy-induced hypertensive diseases, fetal anomalies and gestational diabetes were found as the most frequent reasons for stillbirths in our study. As our center is the reference hospital in the region, stillbirth rates in our study are higher than national average and those reported in the literature. Also patients in our region do not visit our center for antenatal follow-up; when such problems are resolved, stillbirth rate will be decreased in our region. Increasing protective and preventive healthcare services in primary and secondary center where antenatal care is available, and timely treatment of high-risk pregnancies may contribute to decrease stillbirth rate.

Conflicts of Interest: No conflicts declared.

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