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# Intrauterine Fetal Death: Epidemiology, Causes and Management in King Abdulaziz Medical City, Riyadh, Saudi Arabia: Retospective Cohort Study

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## ABSTRACT

***Background:*** *Intrauterine fetal death (IUFD) is a serious and traumatizing obstetric complication, for pregnant women and their relatives. IUFD is defined as intrauterine fetal death (IUFD) defined as ≥20 weeks of gestation or a birth weight ≥ 500 grams. One of the most important measures of the quality of health services in any community is perinatal mortality [1]. Identifying the causes of perinatal mortality aids in early detection and management. In this study, we are looking at the data register of IUFD cases in King Abdulaziz Medical City (KAMC) to identify its epidemiology, causes, and the management done.*

***Methods:*** *Retrospective data collection of the intrauterine fetal death (IUFD) cases was included in this study from April 2019 until November 2019 (n=84). Maternal and fetal records were analyzed along with the antenatal and intrapartum risk factors associated with IUFD. The data was then illustrated in graphs to demonstrate the epidemiology and possible risk factors.*

***Results:*** *There were 5901 deliveries during the study period. The incidence of IUFD in this study was 14.4/1000 live births. The majority of IUFD occurred in adolescent women in their 20- 35 age group (54.8%). The leading causes were placental (25.2%) and fetal anomaly (23.6%).*

***Conclusions:*** *It is recommended to proceed with further testing to identify more possible causes of IUFD including the implantation of a fetal autopsy. In addition, the offering a support group for the grieving mother to share their experiences.*

## Keywords

Intrauterine fetal death, Fetal demise, Stillbirths, Unexplained fetal deaths.

## Introduction

The incidence of IUFD in developed countries ranges between 9 to 10 per 1000 births [1]. Local studies showed no clear incidence of IUFD in Saudi Arabia. Therefore, identifying local incidence and possible etiologies of such a tragic pregnancy loss is crucial in managing high risk populations as well as screening low risk cases. The aim of this study is to have more local data discussing intrauterine fetal death with it is causes and standardized approach of management. A secondary interest of this study is to compare the local practice of IUFD management compared with international approach. We might also be able to identify new causes of IUFD that could help enrich the literature and be useful in future management.

## Methods

This study was conducted at King Abdulaziz Medical City, Riyadh, Kingdom of Saudi Arabia. Retrospective data of the intrauterine fetal death (IUFD) were included in the study for a period of 8

months (April 2019- November 2019) were collected (n=84). Maternal and fetal records were collected and analyzed. All antenatal, intrapartum and postpartum risk factors associated with IUFD were collected and statistically analyzed. Patient diagnosed with IUFD via ultrasonography, had complete history, physical examination, and investigations which were recorded to find relevant causes which might increase the risk of developing IUFD. Placenta and cord examination after delivery were performed in all the cases.

Information gathered included patient's age, parity, booking status in our center, medical disease in pregnancy, history of IUFD in past pregnancy, gestational age, current congenital anomaly, fetal growth restriction, maternal or fetal infection, mode of delivery, or any complications and relevant investigations during or after pregnancy. Patients were followed up after delivery in clinics for psychological counselling and planning of the next pregnancy. Data were analyzed statistically using simple statistical measures such as percentage and proportions.

## Results

Total numbers of births in our study were 5901, out of which 84 were IUFD. The incidence of IUFD in our study was 14.4/1000 live births. Table 1 shows demographic data of the patients involved in the study. The maximum number of IUFD occurred in multigravida reaching 81%. Of all the IUFD cases involved in the study, 69% were booked in our center, either in primary health care center or tertiary care clinic.

**Table 1:** Depict demographic and clinical profile (maternal characteristics) of the cases under study.

| Age group | Number | % | Parity | Number | % |
|---|---|---|---|---|---|
| < 20 | 2 | 2.4% | Primigravida | 16 | 19% |
| 20- 35 | 46 | 54.8% | Multigravida | 68 | 81% |
| 35-40 | 27 | 32.1% | **Gestational age** | Number | % |
| > 40 | 9 | 10.7% | 20 - 26+6 | 30 | 35% |
| Booking Status | Number | % | 27-36+6 | 35 | 20.2% |
| Booked | 58 | 69% | > 37 | 17 | 20.2% |
| Un-booked | 26 | 31 | Unsure | 1 | 1.2% |
| History of IUFD | Number | % | not mentioned | 1 | 1.2% |
| in past pregnancy | 11 | 13.1 | | | |

Table 2 on the other hand demonstrate maternal and fetal risk factors. Maternal disorders in pregnancy were noted in 23.8% cases, out of which gestational hypertensive disorder and hypothyroidism were both 16.7% noted in mothers diagnosed with IUFD. Fetal risk factors were found in 33.8% cases. Congenital malformations were 23.6% which were the most common fetal association. Placental risk factors were noted in 25.2% cases. Lastly, 9.4% of the cases were idiopathic.

As noted in Table 3, most cases of IUFD delivered vaginally 90.5%, while 8.3% cases delivered via cesarean section due to previous history of multiple cesarean sections while one case delivered via cesarean hysterotomy due to bleeding intraoperatively.

**Table 3:** Shows mode of delivery.

| Mode of Delivery | Number | % |
|---|---|---|
| NSVD | 76 | 90.5% |
| CS | 7 | 8.3% |
| Hysterotomy | 1 | 1.2% |

## Discussions

King Abdulaziz Medical City (KAMC) is a highly specialized tertiary center with Ultrasonography Department specialized in level 2 fetal anatomical survey with fetal-maternal division that provides invasive and non-invasive perineal testing. It is also a referral center for high-risk obstetrical cases. The department of Obstetrics and Gynecology at KAMC has more than 40% of admission and discharges daily with an average 8,697 deliveries per year. The population KAMC serve are National Guard military personnel, civilians with eligible dependents, Saudi Program employees, King Saud bin Abdulaziz University for Health Sciences students and interns, along with their spouses and children.

Placental causes were the majority representing 25.2% of the total IUFD, which included infarction, calcification, intervillous fibrin deposition and small for gestational age placenta. As per hospital protocols, we are sending all placenta of IUFD for histopathology. This could explain the high number identified placental abnormalities in our study. Secondary, fetal anomaly were identified in 23.6% of the cases. Multiple anomalies were noted, most commonly cardiac and neural tubal defects.

**Table 2:** clinical risk factors associated with the cases under study.

| Maternal | Number | % | Placental | Number | % |
|---|---|---|---|---|---|
| Hypothyroidism | 4 | 16.7 | Infarcted, Calcification, Intervillous Fibrin Deposition | 14 | 45.2 |
| Pregnancy-Induced Hypertension | 4 | 16.7 | Small For Gestational Age Placenta | 7 | 22.6 |
| Diabetes | 4 | 16.7 | Retroplacental Hematoma | 4 | 12.9 |
| Epilepsy | 3 | 12.5 | Chorangiosis | 3 | 9.7 |
| Bronchial Asthma | 2 | 8.3 | Large For Gestational Age Placenta | 1 | 3.2 |
| Hepatitis B | 1 | 4.2 | Hemorrhagic Chorangioma | 1 | 3.2 |
| Ventricular Septal Defect | 1 | 4.2 | Immature Hydropic Placenta | 1 | 3.2 |
| Protein S Deficiency | 1 | 4.2 | | | |
| Systemic Lupus Erythematosus | 1 | 4.2 | | | |
| Low Grade Ductal Carcinoma In Situ | 1 | 4.2 | | | |
| Hyperprolactinemia | 1 | 4.2 | | | |
| Familial Thrombotic Thrombocytopenic Purpura | 1 | 4.2 | | | |

About 9.4% of the cases were unexplained. Intrauterine growth reaction was the least common cause, representing 3.9%. Infection rates among IUFD cases were 23.8%. Positive placental culture with Group B streptococci was noted in fifteen cases. Other causes were staphylococcus aureus in two cases, klebsiella pneumoniae in two cases, and Methicillin resistant staphylococcus in one case.

In our study, adolescent ages between 20 and 35 years had the highest percentage of IUFD. These findings are consistent with a study conducted by Katz et al. [2] and another study by Patel N et al. [3], which both found higher IUFD in a younger mother. Other studies did not show any difference between maternal age as in Goldenberg et al. [4].

In our study, maximum cases of IUFD occurred in multigravida reaching to 68%, while in Patel S et al. [2] majority of IUFD occurred in primigravida. On the countrary, a study by Patel S et al. [5] showed a higher proportion of IUFD reaching 60% in multigravida cases. Smoking history and socioeconomic status were not available in antenatal care.

## Conclusion

The goal of our study was to look for identifiable etiologies and risk factors leading to IUFD, therefore, contributing to possible early intervention and long term follow up that can be implemented. The limitation of our study was the duration as it only included cases during a nine-month period. Another limitation was that the study was conducted in a tertiary referral hospital which may not reflect the true number of the population. Also, there were some missing information in the records including socioeconomic status, education level, social history and smoking history. As it was conducted in a tertiary center, we recommend the implantation of a fetal autopsy as we have standardized nationwide approach to investigation and offer a support group for the grieving mother to share their experiences.

## References


1. Rodin U, Filipović-Grčić B, Đelmiš J, et al. Perinatal Health Statistics as the Basis for Perinatal Quality Assessment in Croatia. Biomed Res Int. 2015.
2. Katz J, Khatry SK, LeClerg SC, et al. Miscarriage but not stillbirth rates are higher among younger nulliparas in rural Southern Nepal. J Adolesc Health. 2008; 42: 587-595.
3. Patel S, Sirpurkar M, Patel MS. A retrospective study to evaluate etiological factors associated with intrauterine fetal death at tertiary referral centre. Int J Reprod Contracept Obstet Gynecol. 2016; 5: 970-975.
4. Goldenberg RL, McClure EM, Bann CM. The relationship of intrapartum and antepartum stillbirth rates to measures of obstetric care in developed and developing countries. Acta Obst Gynecol Scand. 2007; 86: 1303-1309.
5. Patel S, Thaker R, Shah P, et al. Study of causes and complications of intra uterine fetal death (IUFD). Int J Reprod Contracept Obstet Gyneco. 2014; 3: 931.