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AN ASSESSMENT OF CAUSES OF STILLBORN USING ReCoDe CLASSIFICATION IN A TERTIARY CARE CENTRE

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KEYWORDS :

INTRODUCTION

WHO defines still births as baby born with no signs of life at or after 28 weeks of gestation or if weight is >1000 gm when gestation age is not available.Perinatal mortality includes still birth and death of the neonate (7 days of life). The antepartum still births are a major contributor to perinatal mortality. Worldwide in 2015, there were about 2.6 million stillbirths that occurred after 28 weeks of pregnancy(about 1 for every 45 births).

The Every Newborn Action Plan has the target of 12 or fewer stillbirths per 1000 births in every country by 2030.

Relevant Condition at Death (ReCoDe) classification.

Relevant Condition at Death (ReCoDe) is a classification derived from a population-based cohort study in West Midlands Perinatal Institute, England over period of seven years from 1997-2003.ReCoDe seeks to identify the relevant condition at the time of fetal death – "What went wrong, not necessarily why". This system of classification has relevance in the developing world where there is often little information available at the time of delivery.The hierarchy starts from conditions affecting the fetus and moves outwards in simple anatomical groups, which are subdivided into patho physiological conditions.

S. NO	CODE
A	FETUS
A.1	CONGENITAL ANOMALY
A.2	FETAL GROWTH RETARDATION
A.3	INFECTION
B	UMBLICAL CORD
B.1	PROLAPSE
B.2	CONSTRICTING LOOP
C	PLACENTAL
C.1	ABRUPTION
C.2	PREVIA
C.3	CHORIOANGIOMA
D	AMNIOTIC FLUID
D.1	POLYHYDROMNIOS
D.2	OLIGOHYDRAMNIOS
D.3	CHORIAMNIOTIS
E	UTERUS
E.1	RUPTURE
E.2	ANOMALY
F	MOTHER
F.1	HYPERTENSIVE DISORDERS OF PREGNANCY
F.2	CHOLESTATIS OF PREGNANCY'
F.3	THYROID DISORDER
F.4	GESTATIONAL DIABETES MELLITUS
G	INTRAPARTUM ASPHYXIA
H	TRAUMA
	EXTERNAL
I	UNCLASSIFIED

AIM

To analyze the main causes and conditions associated with the pregnancies which end in antepartum still births using the ReCoDe classification system (Relevant Condition at Death).

MATERIALS AND METHODS

In our study we recruited 200 women admitted with the diagnosis of intrauterine fetal death after 28 weeks of gestation in obstetrics and gynecology department of MY Hospital, Indore. The relevant antenatal and intrapartum investigations were considered. We examined the stillborn babies, placenta and umbilical cord and classified them according to the ReCoDe system and evaluated the data obtained.

Inclusion Criteria

1. All the patients admitted in the department of obstetrics and gynaecology, MY hospital and MGMMC Indore , who have pregnancy of more than 28 weeks of gestation with intrauterine fetal demise diagnosed clinically and confirmed by ultrasonography.
2. All the still births of more than 1 kg irrespective of gestation.

Exclusion Criteria

1. All the antenatal patients with gestation less than 28 weeks.
2. All the still births of less than 1 kg of baby weight at the time of birth irrespective of gestation.

RESULT AND DISCUSSION

In our study conducted at the obstetrics and gynaecology department of MY hospital and MGMMC Indore, we found out that out of 200 cases of antepartum still births 56.5 % cases were male , 33.5 % cases were female and in 2 % of the cases sex remained unidentified.

TOTAL BABY BORN	MALE	FEMALE	SEX UNIDENTIFIED
200	113	67	20

Dr Kumbhare et al (2012) did a case control study which also showed the male sex predominance in cases of antepartum still births. Similarly a study done by **Mondal D, Galloway TS, Bailey, Mathews F et al** in 2014 showed that the risk of stillbirth in males is elevated by about 10%.

As per our study, 71 % of the still births were also low birth weight i.e. less than 2.5 kgs and 29% were more than 2.5 kgs at the time of birth.

TOTAL NUMBER OF CASES	LESS THAN 2.5 KG	MORE THAN 2.5
200	142	58

Alessandri et al did a case control study in 1992 to analyse the risk factors of unexplained antepartum stillbirths. Matching for birth weight was carried out because a number of known risk factors are thoughts to be mediated through low birth weight.

Conditional logistic regression was applied and data was dichotomized on the basis of LBW. The result showed that a large proportion of the unexplained antepartum stillbirths were of LBW (54.6%).

S. NO	CODE	NO. OF CASES	% OF CASES
A	FETUS	9	4.50%
A.1	CONGENITAL ANOMALY	5	2.50%
A.2	FETAL GROWTH RETARDATION	4	2%
A.3	INFECTION	0	0%
B	UMBLICAL CORD	10	5%
B.1	PROLAPSE	6	3%
B.2	CONSTRICTING LOOP	4	2%
C	PLACENTAL	42	21%
C.1	ABRUPTION	34	17%
C.2	PREVIA	8	4%
C.3	CHORIOANGIOMA	0	0%
D	AMNIOTIC FLUID	9	4.50%

D.1	POLYHYDROMNIOS	1	0.50%
D.2	OLIGOHYDRAMNIOS	8	4%
D.3	CHORIAMNIOTIS	0	0%

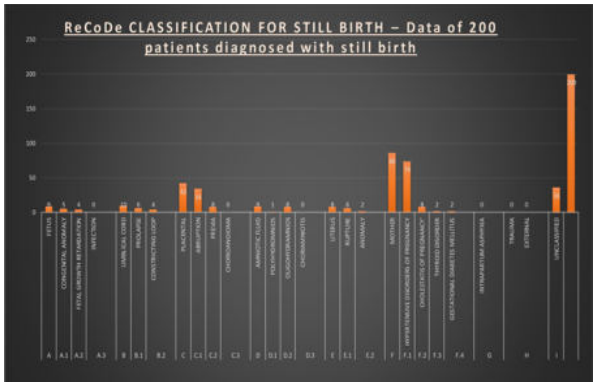
E	*UTERUS*	*8*	*4%*
E.1	RUPTURE	6	3%
E.2	ANOMALY	2	1%
F	*MOTHER*	*86*	*43%*
F.1	HYPERTENSIVE DISORDERS OF PREGNANCY	74	37%
F.2	CHOLESTATIS OF PREGNANCY'	8	4%
F.3	THYROID DISORDER	2	1%
F.4	GESTATIONAL DIABETES MELLITUS	2	1%
G	*INTRAPARTUM ASPHYXIA*	*0*	*0%*
H	*TRAUMA*	*0*	*0%*
	EXTERNAL	0	0%
I	*UNCLASSIFIED*	*36*	*18%*
	TOTAL CASES	200	

RECODE stillbirth classification

In our study there were 200 cases that were classified according to ReCoDe classification. We found that 37 % of still births are due to hypertensive disorders of pregnancy making it the most common cause of still births in our centre.

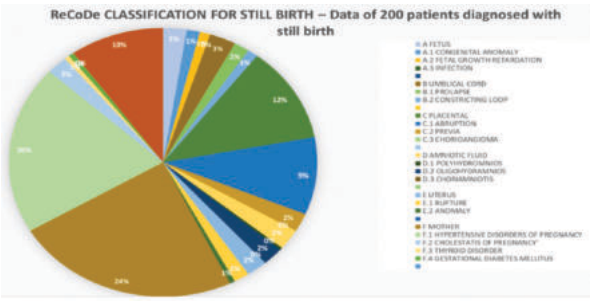
Merialdi et al conducted a study in 2005 and concluded that hypertensive disorder are the most common obstetric events leading to perinatal deaths (23.6%). They also studied the preventive role of calcium supplementation in pre-eclampsia leading to stillbirths, and concluded that the calcium group had lower number of stillbirths as compared to placebo group. Martinek et al in a study done in 2006 showed that pre-eclampsia accounted for 5.6% of the stillbirths among a total of 106 cases.

In our study we found that placental abruption accounts for 17 % and placenta previa accounts for 4 % of still births both making the placental causes the second most common cause of still birth. (21%)



- In our study there were 18% of cases who remained unclassified. **Gardosi et al** in 2005 published that by the conventional Wigglesworth classification, 66.25 of the stillbirths (1738 of 2625) were unexplained.

- Similary **Robalo et al** in 2013 in a retrospective cohort study examined the etiological factors contributing to late fetal death over a period of 10 years. They classified the cause of death according to the ReCoDe system. In their study, the unexplained stillbirths were 24.5%. In his study the percentage contributions of factors like fetal pathology was 28.4%, placental factors was 26.9%, and maternal conditions were 21.2%, amniotic fluid disorders was 10.6% and umbilical cord events was 9.6%. In comparison to our study where placental factors contribute 21 %, fetal pathology 4.5%, maternal conditions were 43%, amniotic fluid disorders was 4.5% and umbilical cord events was 5%.



CONCLUSION

In my study there were total 200 cases of stillbirths which were classified according to THE ReCoDe CLASSIFICATION which was selected according to the inclusion criteria.

The ReCoDe classification system of stillbirths was able to classify 82% of my cases to relevant condition at death and only 18% remained as unclassified.

There were 37% cases with hypertensive disorders of pregnancy resulting in antepartum stillbirths.

Among 200 cases , 17% had placenta abruption and 4 % had placenta praevia.

2.5% cases showed major congenital anomaly most common of which was hydrocephalus. Jaundice causes placental insufficiency and it was found to be the cause of 4 % of still births in our study.

3% cases of still birth were due to rupture uterus and 3% due to cord prolapse, 2% of the still births were due to tight loops of cord around neck.

Only 18% remained unclassified with no relevant condition on death. 56.5 % cases were male , 33.5 % cases were female and in 2% of the cases sex remained unidentified.

As evident from our study, there is a strong association between the maternal conditions and the fetal conditions with stillbirth, hence most of the causes can be detected early by careful screening in early months of pregnancy, proper follow up, counseling, timely referral to a tertiary care hospital and timely management during the pregnancy and labour.

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