



Termination of Pregnancy in Medically Complex Pregnant Women: An Area of Unmet Need for Contraception

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Abstract

Purpose: Women having pre-existing medical conditions are increasingly embarking on pregnancy. Despite efforts to provide pre-conceptional counselling, majority of these pregnancies are unplanned. Termination of pregnancy is needed if the pregnancy poses a danger to the life of the woman. In this study we analyze the terminations done in such medically complex women to know the causes, methods and contraceptive choices post procedure.

Materials and Methods: This is an observational study done in a tertiary care teaching hospital. Data was collected over eight years and 138 cases were included in the study. Data was analyzed using SPSS 28.0.1 and presented in the form of charts and pie diagrams.

Results: The mean age of the patients was 25.5 years. 57% of the patients were multigravida and 43% were primigravida. 57% of the terminations were done ≤ 12 weeks. There were no major complications of termination. The most common cause for termination was cardiac disease followed by cancer. 31% patients still didn't choose any contraception post procedure.

Conclusion: There is a huge unmet need for contraception in women with complex medical conditions. Creation of widespread awareness amongst the physicians regarding contraceptive choices is the need of hour.

Keywords: Abortion; Termination of Pregnancy; High Risk Pregnancy; Heart Disease; Cancer in Pregnancy; Contraception; Counselling

Abbreviations

WHO: World Health Organization; SLE: Systemic Lupus Erythematosus; HTN: Hypertension; DM: Diabetes Mellitus; CKD: Chronic Kidney Disease; CA: Cancer; GIT: Gastrointestinal Tract; GTN: Gestational Trophoblastic Neoplasia; AML: Acute Myeloid Leukemia; MDT: Multidisciplinary Team; MVA: Manual Vacuum Aspiration; CHD: Congenital Heart Disease; LARC: Long-Acting Reversible Contraceptive

Introduction

The World Health Organization (WHO) report on abortions released in November 2021 states that around 73 million induced abortions take place over the world each year. Six out of 10 of all unintended pregnancies, and 3 out of 10 of all pregnancies, end in induced abortion [1,2]. Due to advances in medicine, women with complex medical conditions such as congenital heart disease, cystic fibrosis, chronic kidney disease, type 1 diabetes mellitus, organ transplants are increasingly embarking on pregnancy [3-8]. Also, advances in fertility treatments mean that today older women with pre-existing medical conditions like cancer, diabetes, obesity, and cardiovascular, renal, and autoimmune diseases are increasingly featuring in the antenatal clinics. Thus, more and more of today's antenatal population is medically complex. Pre-conception counselling, appropriate contraceptive advice to stabilize the medical condition and personalized antenatal care are vital for the antenatal care of medically complex women. However, more often we see unplanned pregnancies in this group [9-11]. This then needs multidisciplinary input for urgent optimization of maternal health and if that cannot be achieved a termination is eventually advised. Throughout the world the clauses under which pregnancies are legally terminated can be broadly grouped under one of the following categories:

A. When pregnancy is caused due to failure of contraceptives used by a married woman or her husband- presumed to cause grave injury to the mental health of the woman.

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B. When continuation of pregnancy is a risk to the life of a pregnant woman or could cause grave injury to her physical or mental health (medically complex women).

C. When there is substantial risk that the child, if born, would be seriously handicapped due to physical or mental abnormalities.

D. When pregnancy is caused due to rape/social reasons.

As there are differences in the way these induced abortions are categorized in various countries, it is often difficult to get a category wise prevalence to understand the global picture. However, some common themes do appear in the data published stating that socioeconomic reasons followed by wanting to stop childbearing are the main reasons for abortion followed by health reasons [2].

Our study is an eight-year tertiary care experience of managing termination of pregnancies in the group of medically complex patients. This is a unique study of cases focusing on this subset of women. Here, we wish to highlight the main medical conditions where unplanned pregnancies are still commonly seen, analyze the termination methods and their safety and emphasize the unmet need of contraception in this population.

Materials and Methods

The study was conducted in a tertiary care teaching hospital in Mumbai, India. The study was approved by the Institutional Ethical Committee [EC/OA 72/2019]. It was a retrospective observational study for duration of eight years.

Aims and Objectives

1. To calculate the prevalence of terminations done in medically complex women.
2. To find out the common medical conditions needing termination.
3. To study the demographic details, outcomes of the procedure and contraceptive awareness in medically complex women undergoing termination.

Inclusion criteria

- A. Live pregnancies
- B. Grave injury to maternal physical or mental health as certified by physician.
- C. Less than 20 weeks pregnant (keeping with Indian Medical Termination of Pregnancy Act, 1971).

Exclusion criteria

- A. Terminations of pregnancy done for
 - a. contraceptive failure
 - b. there is substantial risk that the child, if born, would be seriously handicapped due to physical or mental abnormalities.
 - c. when pregnancy is caused due to rape/social reasons.

138 cases fulfilling the inclusion criteria were identified from the register recording termination of pregnancy in an eight-year period and included in the study. Details of the cases were extracted from the case records and collated using Microsoft Excel. Age, parity, gestational age, reason for termination, method of termination, contraceptive use before and after termination was recorded.

Data analysis was done using standard statistical methods and

SPSS 28.0.1 to calculate mean, median, prevalence and represented using pie charts and bar diagrams.

Results

A total of 1,596 termination of pregnancies were done in the study period. Out of these 138 cases were done in medically complex women. Thus, the prevalence of termination in this high-risk group was 8.6%.

Age distribution

Age distribution of the cases in the study ranged from 17 to 40 years. The mean age of patients in the study were 25.5 years. The trend of distribution was as follows (Figure 1).

Parity

Parity of all cases was recorded and analyzed. Majority of the cases having terminations were multigravida. Also, out of the 78 (57%) multigravida patients, 17 (21.7%) were having a repeat termination (Figure 2).

Gestational age at termination

According to the gestational age at which they had termination,

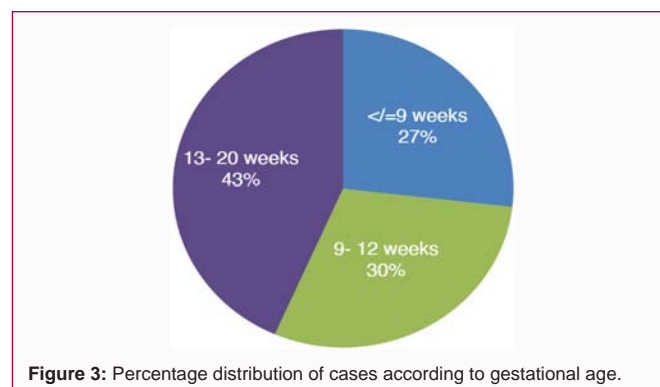
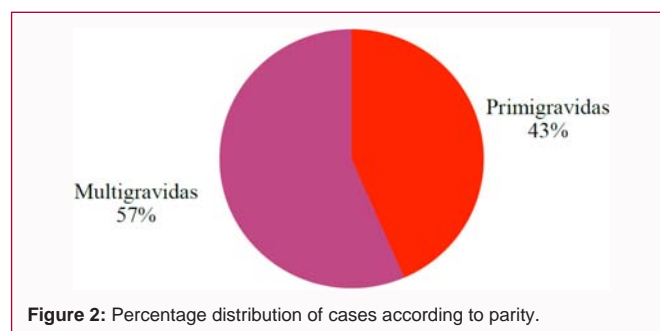
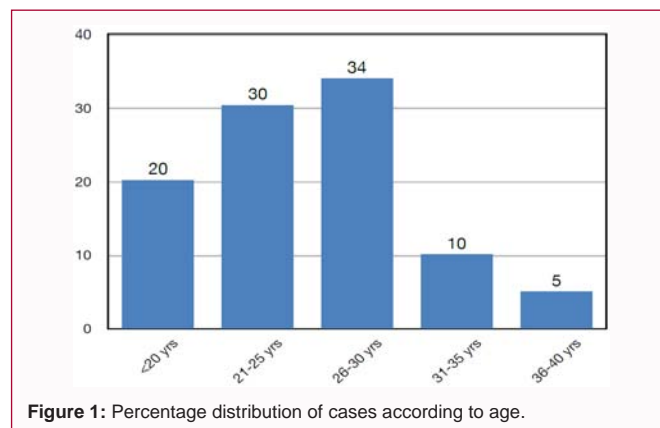


Table 1: Reasons for termination of pregnancy.

Reason for termination	Number of cases	Percentage	
Cardiac Disease	44	32%	
Cancer	42	30%	
Complicated SLE	10	7%	
Chronic Kidney Disease	9	6.50%	
Teratogenic Drugs	6	4.50%	
Tuberculosis	8	6%	
Blood disorders	5	14%	
Primary Pulmonary HTN	3		
Intractable hyperemesis	3		
Hepatic failure (chronic hepatitis)	2		
Severe psychiatric illness	2		
Endocrine abnormalities (Type 1 DM, severe hypothyroidism)	2		
Seizure disorder	2		
Total	138		100%

Table 2: Cardiac causes for termination of pregnancy.

WHO Stage	Number of cases	Percentage
WHO stage 3	15	32.50%
WHO stage 4	29	67.50%
Total Cases	44	100%

Table 3: Cancer related causes for termination of pregnancy.

Cancer Type	Number of cases	Percentage
CA breast	10	24%
CA Cervix	8	19%
CA- GIT	6	14.28%
CA Ovary	4	9.52%
CA brain	3	7%
GTN	3	7%
CA Thyroid	2	4.80%
AML	2	4.80%
CA bone	2	4.80%
Others (Lung, Pheochromocytoma)	2	4.80%
Total cases	42	100%

cases were divided as being less than less than or equal to 9 weeks, 9 to 12 weeks and more than 12 weeks at presentation. At the time the study was done, legal cut off for gestational age was less than or equal to 20 weeks in India [12,13] (Figure 3).

Reasons for termination of pregnancy

The terminations done in medically complex women were under the following categories (Tables 1-3).

Mode of termination of pregnancy

Due to the high-risk medical co-morbidities, all the terminations were done as inpatients. The decision for the mode of termination was taken after an MDT (Multidisciplinary Team Meeting) with the treating physicians, gynecologists and anesthetists.

The following modes were used for the termination of pregnancies:

First trimester (≤ 12 weeks).

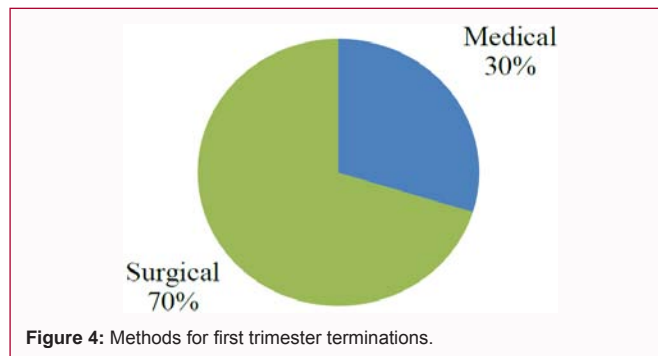


Figure 4: Methods for first trimester terminations.

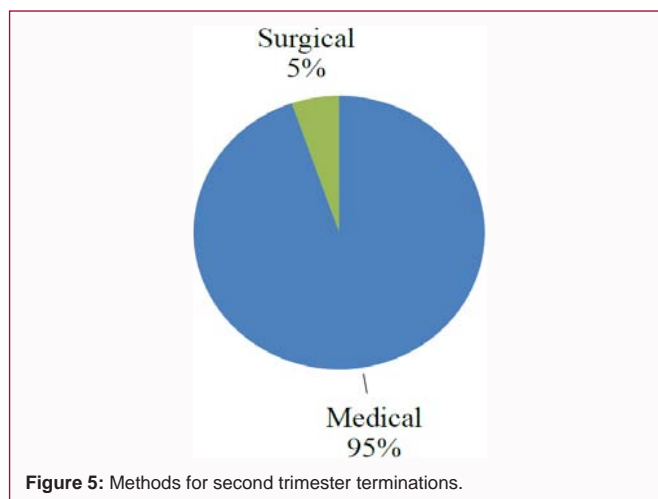


Figure 5: Methods for second trimester terminations.

- a. Medical Methods (*Mifepristone and Misoprostol*)
- b. Surgical methods (Suction evacuation/ MVA)

Second trimester (≥ 13 weeks)

- a. Medical Methods (*Mifepristone and Misoprostol*)
- b. Surgical methods (Suction and evacuation/Hysterotomy (Figure 4, 5).

Complications of procedure

The complications of the procedure noted were:

Need for evacuation of retained products after the termination: A total of 30 patients needed evacuation of retained products post termination: 21.7%.

Need for intensive care admission post procedure for stabilization of the patients post termination: 4/138 = 2.8% cases.

There were no post-procedure infections.

There were no drug interactions.

No patients had hemorrhage needing blood transfusion.

Contraceptive choices post termination

Contraceptive options are discussed with each patient post termination of pregnancy in our institute. However, the choice accepted by the patient was documented only for 115 patients. The contraceptive choices by the patients were as follows (Figure 6).

Mirena coil and contraceptive implants are not freely available in a public sector setting in India, where this study was done.

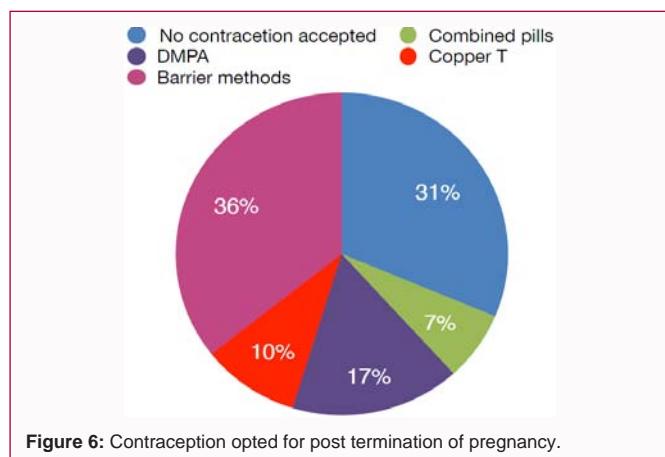


Figure 6: Contraception opted for post termination of pregnancy.

Discussion

The demographics of pregnant population is ever evolving. Women with conditions like pulmonary hypertension, cystic fibrosis and heart disease are not only living unto adulthood but are also bearing children. This has become possible due to exceptional developments in medicine and treatment modalities. However, such pregnancies can cause severe consequences on the mother's life necessitating termination. In our study we have analyzed the causes of termination of pregnancy in such medically high-risk women and make a case for effective pre-pregnancy planning and contraception in them.

To make pregnancy safer for these women, pre-pregnancy optimization is the key and the cornerstone for this is effective contraception.

Findings and interpretation

In our study 8.6% of the terminations done in our hospital over the study period were in medically complex patients for maternal health reasons. The higher incidence in our study as compared to studies quoted in references can be explained by the fact that our center is a large tertiary care referral center where such complex cases are referred for termination. The age group of 20 to 30 years followed by adolescents (≤ 20) was most common.

Nearly half of the patients in our study are under the age group of 25 years. This correlates to the reasons for termination seen in our study namely AML, type 1 DM, SLE, primary pulmonary HTN, tuberculosis and blood disorders which typically manifest in the younger age group. This explains the high proportion of primiparous patients needing termination as compared to other studies done in India.

Majority of the women in our study were multiparous (57% vs. 43% primiparous). In the multiparous group, nearly 1/5 had termination of pregnancy before.

43% of the patients needed a second trimester termination. Even amongst those having a first trimester termination, only half had it at ≤ 9 weeks of gestation. Thus, pregnancies in these medically complex women are either not getting picked up early or the decision for termination is not made soon enough to offer an early termination. Data from United States of America and United Kingdom [14,15] show that in similar population, the prevalence of second trimester abortion is less than 10%. This is what ideally, we need to aim for.

The leading causes of termination in our study was heart disease followed by cancer needing treatment. Complicated SLE including patients with severe flares, severe nephritis and on multiple teratogenic medications were the other common causes. In patients undergoing termination for heart disease in our study, the commonest cause was rheumatic heart disease in 57% cases with mitral stenosis being the commonest lesion encountered. A study done in Nepal on outcomes in patients with rheumatic heart disease showed that around 20% of the patients underwent termination of pregnancy and the most common lesion was mitral stenosis [16]. Studies have also found that women with CHD, including those at high risk for cardiovascular complications of pregnancy, are also at increased risk of unplanned pregnancy [17]. Cardiovascular disease complicates around 1% to 3% of all pregnancies and is the cause for maternal mortality in 10% to 15% of maternal deaths [18]. Thus, this is a very important subgroup to focus on.

In our study, one third of the terminations were for patients who were currently being treated for cancer. The most common cause was breast cancer (commonest cancer in females in reproductive age group) followed by cervical cancer (commonest cancer of the reproductive system) [19]. In a study by Kopeika et al., reports that 58% of the unplanned pregnancies in breast cancer patients ended in termination [20]. In an American study, 17% pregnancies in survivors of childhood cancer ended in abortion, and cancer survivors had abortions at higher rates than healthy siblings [21].

Majority of the first trimester terminations were done surgically by suction and evacuation whereas majority of the second trimester terminations were done using mifepristone and misoprostol. Medical and surgical methods both are well established for first trimester terminations in this high-risk population [15,17].

Post-termination contraception is discussed with all patients. However, we found it documented in only 83% cases. Uptake for effective contraception and LARCs was found to be poor in our study. One third patients did not opt for any contraception and nearly one third opted for condoms.

Results in the context of what is known

During the literature search, we did not find any publications on the prevalence of abortions for maternal health reasons. This makes our study unique and only one to focus and report on this subset of abortions. Also, because majority of the referenced studies take all causes of termination of pregnancy into consideration, the results of those studies cannot be directly compared to our study. However, an attempt has been made to compare the results to see if there is a significant difference in the demographics, methods of termination or post-termination contraception choices.

Studies in India done by Katke et al., report a prevalence of 0.7% and Sharma et al., 2.24% for maternal health reasons [22,23]. A Dutch study by van Eerden et al., states the prevalence of termination in this group as 9% which is very similar to our study [24]. In a comprehensive analysis published by Chae et al., the prevalence of these terminations is as high as 17% in Gabon and 35% to 49% in Kyrgyz Republic [25]. Biggs et al. from US states maternal health as the reason for 6% in 2013 [26]. Data from US suggests that the proportion of women in this category has significantly increased over the last two decades [27].

The most prevalent age group for terminations was similar in studies done by Katke et al, Holla et al., and Biggs et al. [22,26,28].

The second highest age group worryingly remains the adolescents (≤ 20 years) in all the above studies and in the latest paper published by Sharma et al., this is in fact the age group with the maximum prevalence of terminations [23]. Multiparous women are more at risk of needing terminations also according to studies done in US by Lawrence et al., (59% vs. 41%) and in India by Chakkrawar et al., (92.5% vs. 7.5%) and Sharma et al. (98.8% vs. 1.2%) [23,27,29].

According to the data published by British Pregnancy Advisory Service (BPAS) in 2018, the leading cause of referral to abortion services in UK was heart disease followed by epilepsy and blood disorders [14]. This is similar to our data where in one third of the cases the cause of termination was heart disease and patients on cancer treatment. The rates of unplanned pregnancies in cancer survivors are same as that of general population with Shandly et al., reporting it at 46% [30]. Thus, effective contraception becomes very essential in cancer survivors.

Many studies report similarly suboptimal trends of contraceptive practices in patients with cardiac conditions, cancer and other high-risk conditions like CKD and tuberculosis [9,15,31-33]. One of the study reports that 28% of patients were using contraception for which they had a possible or absolute contraindication [31].

The main reasons for these suboptimal contraceptive practices that have been found in various studies include [34,35].

- Lack of time for counselling
- Lack of information
- Patient desire to conceive
- Partners unwilling to comply
- Patient's religious belief
- Physicians unsure about the appropriate method to recommend.

Clinical implications

The young age of the study population points to vulnerability of the young reproductive population and the lack of pre-conception counselling in this age group. Fertility and contraception and often the overlapping topics especially for young adults with cancer [36,37]. More multiparous women needed terminations with 1/5 having a repeat termination. This again is a red flag for lack of emphasis on contraception in this population. Around 43% of the terminations being done in second trimester puts these already high-risk women at a higher risk of procedure related complications. The risks of hemorrhage, infection and needing surgical procedure to complete the termination are higher as the gestational age increases.

Women of reproductive age with chronic medical conditions like heart disease, cancer, SLE area majority of times already under the care of a physician. Thus, the size of this cohort missing on contraceptive and pre conception care needs to be minimized and brought to nil ideally. The fact that this is still the biggest cohort in the study is worrying. Patients with complicated SLE, CKD, those of teratogenic medications and high-risk conditions like pulmonary hypertension were the other common causes of termination we found in our study. Majority of these patients were under the care of physicians and were not using any contraception when they got pregnant.

Thus, all these results stress on the role of pre pregnancy counselling and joint clinics by physicians and obstetricians where these risks can be mitigated by creating this awareness in this high-

risk population.

Overall, both surgical and medical methods of termination of pregnancy are safe with a very low serious complication rate. Around 1/5 of the patients who underwent the medical methods needed subsequent surgical evacuation of retained products. This however is a known complication of medical management. Four patients needed intensive care admission post procedure due to their pre-existing high risk medical conditions. Thus, an intensive care back up may be needed while planning termination in these women.

Overall, the stress on effective contraception needs to be higher along with joint obstetrician-physician pre-conceptual care.

Research implications

From this finding of our study and during the literature search the following areas were identified that needed more data and research:

1. Standardization of grounds for termination of pregnancy and their documentation.
2. Specialized database for terminations done in medically complex women.
3. Knowing the causes of suboptimal pre-conceptual counselling and contraceptive uptake.
4. Research on effective methods to reach this high-risk population for better engagement with pre-conceptual care services.

Strengths and limitations

This is a first of its kind study done on a very specific subset of patients needing termination of pregnancy in India and worldwide. It gives us insight into the characteristics of this population, the methods of termination and how we are faring at present.

The main limitations of the study are the retrospective nature of the study design. This has led to missing data especially on the important topic of contraceptive practices. Thus, in future, prospective data collection and analysis will be more helpful. This study is also a single center study. For more comprehensive analysis, a multi-center study needs to be planned.

Conclusion

Thus, there is a huge unmet need for contraception in women with high-risk medical conditions. As many of these conditions like primary pulmonary hypertension, congenital heart disease is seen in a very young age, education for contraception should begin in adolescence. With proper contraceptive counselling and increased use of LARCs, terminations hopefully become an exception rather than the norm.

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