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No. 369-Management of Pregnancy Subsequent to Stillbirth

This Consensus Statement has been prepared by the authors and reviewed by the Society of Obstetricians and Gynaecologists of Canada (SOGC)'s Clinical Practice Obstetrics; Maternal Fetal Medicine and Guideline Management and Oversight Committees, and approved by the Board of the SOGC.

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Key Words: Pregnancy, stillbirth, mental health, psychosocial support, subsequent pregnancy, maternal health, antenatal care, intrapartum care

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KEY MESSAGES

1. Important information is obtained at the time of stillbirth. Women should be offered tests and investigations at this time to help manage subsequent pregnancies.
2. Women with a history of stillbirth are at risk of adverse pregnancy outcomes and stillbirth in subsequent pregnancy.
3. Families have increased psychosocial needs in pregnancies after stillbirth.

This consensus statement reflects emerging clinical and scientific advances as of the date issued and is subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed. Local institutions can dictate amendments to these opinions. They should be well-documented if modified at the local level. None of these contents may be reproduced in any form without prior written permission of the publisher.

All people have the right and responsibility to make informed decisions about their care in partnership with their health care providers. In order to facilitate informed choice, patients should be provided with information and support that is evidence-based, culturally appropriate and tailored to their needs.

This guideline was written using language that places women at the centre of care. That said, the SOGC is committed to respecting the rights of all people-including transgender, gender non-binary, and intersex people-for whom the guideline may apply. We encourage healthcare providers to engage in respectful conversation with patients regarding their gender identity as a critical part of providing safe and appropriate care. The values, beliefs and individual needs of each patient and their family should be sought and the final decision about the care and treatment options chosen by the patient should be respected.

Abstract

Objective: The primary objective of this consensus statement is to develop consensus statements to guide clinical practice and recommendations for antenatal care, intrapartum care, and the psychosocial considerations necessary in the care of pregnant women with a history of stillbirth.

Intended users: Clinicians involved in the obstetric management of women with a history of stillbirth or other causes of perinatal loss

Target population: Women and families presenting for care following a pregnancy affected by stillbirth or other causes perinatal loss

Evidence: This document presents a summary of the literature and a general consensus on the management of pregnancies subsequent to stillbirth and perinatal loss. Medline, EMBASE, and Cochrane databases were searched using the following key words: previous stillbirth, perinatal loss, subsequent pregnancy. The results were then studied, and relevant papers were reviewed. The references of the reviewed studies were also searched, as were documents citing pertinent studies. The evidence was then presented at a consensus meeting, and statements were developed. Due to lack of evidence, care pathways of specialty clinics were consulted.

Validation methods: The content and guidelines were developed by the primary authors in consultation with the meeting attendees. The Board of the Society of Obstetricians and Gynaecologists of Canada approved the final draft for publication. The quality of evidence was rated using the criteria described in the Grading of Recommendations Assessment, Development and Evaluation (GRADE) methodology framework (Table 1). The interpretation of strong and weak recommendations is described in Table 2. The Summary of Findings is available upon request.

Benefits, harms, and costs: A multidisciplinary approach in the provision of antenatal and intrapartum care to women and families with a history of stillbirth and perinatal loss was explored. While there is a lack of evidence in this area, members of the working group are providing care to women and families around the world and are sharing their knowledge and experience to help guide care.

Guideline update: Evidence will be reviewed 5 years after publication to evaluate whether all or part of the guideline should be updated. However, if important new evidence is published prior to the 5-year cycle, the review process may be accelerated for a more rapid update of some recommendations.

Sponsors: This guideline was developed with resources funded by the Society of Obstetricians and Gynaecologists of Canada and the Women and Babies Program at Sunnybrook Health Sciences Centre.

Recommendations:

1. The single most important risk factor for recurrent stillbirth is the history of previous stillbirth. Women's recurrence risk can be stratified based on the known cause of index stillbirth and other known maternal risk factors (GRADE: high).
2. At the time of stillbirth, tests should be conducted in accordance with the clinical picture. All parents should be offered an autopsy or equivalent, placental pathology, genetic testing from fetal source, and testing for feto-maternal hemorrhage (GRADE: moderate).
3. Women with a history of stillbirth are at higher risk of other adverse pregnancy outcomes, such as preterm birth, low birth weight, and placental abruption (GRADE: moderate).
4. At the initial booking visit, if the previous stillbirth was not adequately investigated, it should be noted that no universal tests are recommended. Clinical history and workup at the time of stillbirth should be used to guide testing on a case-by-case basis (GRADE: moderate).
5. Routine biochemical assessment of placental function and routine uterine artery Doppler are not universally recommended due to poor predictive value and absence of their roles in adjusting the risk stratification, given there is already a high risk of recurrence (GRADE: moderate).
6. Low-dose aspirin may reduce the risk of perinatal death in women at risk for placental insufficiency. Some women with a history of stillbirth may fall into this category (GRADE: high).
7. Women with a history of stillbirth may be at risk for fetal growth restriction in the subsequent pregnancy and may benefit from serial growth ultrasound (GRADE: high). While there is limited evidence supporting routine biophysical profile studies, some women and their families may benefit from increased surveillance, while others will find the increased monitoring to contribute to their anxiety. Fetal surveillance frequency and schedules should be determined with consideration for medical history, the circumstances

Table 1. Key to Grading of Recommendations, Assessment, Development and Evaluation (GRADE)

Strength of the Recommendation	Definition
Strong	Highly confident of the balance between desirable and undesirable consequences (i.e., desirable consequences outweigh the undesirable consequences; or undesirable consequences outweigh the desirable consequences)
Weak[a]	Less confident of the balance between desirable and undesirable consequences
Quality level of a body of evidence	Definition
High|++++	We are very confident that the true effect lies close to that of the estimate of the effect.
Moderate|+++0	We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low|++00	Our confidence in the effect estimate is limited. The true effect may be substantially different from the estimate of the effect.
Very low|+000	We have very little confidence in the effect estimate: The true effect is likely to be substantially different from the estimate of effect.

[a] Weak recommendations should not be misinterpreted as weak evidence or uncertainty of the recommendation.

Examples: Strong, moderate|+++0: strong recommendation, moderate quality of evidence Weak, low Weak, Low|++00: weak recommendation, low quality of evidence Adapted from: Schünemann H, et al. The GRADE Handbook. Grade Working Group 2013. Available at: http://gdt.guidelinedevelopment.org/app/handbook/handbook.html. Accessed on July 20, 2018.

Table 2. Judgement and interpretation of strong and conditional recommendations

Judgement/Interpretation	Strong recommendation "We recommend. . ..."	Conditional recommendation "We suggest. . .."
Judgement by guideline panel	It is clear to the panel that the net desirable consequences of a strategy outweighed the consequences of the alternative strategy.	It is less clear to the panel whether the net desirable consequences of a strategy outweighed the alternative strategy.
Implications for patients	Most individuals in this situation would want the recommended course of action, and only a small proportion would not.	Most individuals in this situation would want the suggested course of action, but many would not.
Implications for clinicians	Most individuals should receive the intervention. Adherence to this recommendation according to the guideline could be used as a quality criterion or performance indicator.	Clinicians should recognize that different choices will be appropriate for each individual and that clinicians must help each individual to arrive at a management decision consistent with his or her values and preferences.
Implications for policy makers	The recommendation can be adopted as policy in most situations.	Policy making will require substantial debate and involvement of various stakeholders.

Adapted from: Schünemann H, et al. The GRADE Handbook. Grade Working Group 2013. Available at: http://gdt.guidelinedevelopment.org/app/handbook/handbook.html. Accessed on July 20, 2018.

surrounding the index stillbirth, and parental preferences (GRADE: moderate).

8. Decisions around timing of birth should incorporate the circumstances surrounding the previous stillbirth, the clinical picture of the current pregnancy, and the emotional state of the woman and her family, while taking into account the known drawbacks of birth prior to 39 weeks. In select cases, there may be a role for early term (37–39 weeks) birth. There is no evidence for delivery before 37 weeks based on the risk factor of stillbirth alone (GRADE: moderate).
9. Families are uniquely impacted by prior stillbirth. Stillbirth is a life-changing event for families, with ongoing psychological, physical, and social costs that carry into a subsequent pregnancy and beyond. Families have increased psychosocial needs in pregnancies after stillbirth. Current pregnancy management systems and processes should strive to adequately address these needs (GRADE: high).
10. Adequate care provision includes consistent and timely medical and psychosocial care, services, and support by skilled and familiar care teams knowledgeable about the pervasive impact of stillbirth on the subsequent pregnancy and beyond. All care for families with prior stillbirth should be focused on protecting and promoting the health of the woman and her family, as well as informed choice (GRADE: high).
11. Peer support is often beneficial for parents in pregnancies after stillbirth. Care providers should discuss and promote peer support options (GRADE: moderate).
12. Women and families who undergo prior stillbirth are very likely to need emotional support, and the entire family should be provided with opportunities for support during pregnancy and postpartum. Numerous adverse psychological sequelae are associated with pregnancies after stillbirth, including depression, post-traumatic stress, and anxiety. In some people, elevated rates of anxiety and depressive symptoms are shown throughout pregnancy and the postnatal period. Diverse grief reactions are also displayed and should be acknowledged. Care providers should promote family strengths and provide psychosocial screening, targeted follow-up, referrals, and treatment as appropriate (GRADE: high).

INTRODUCTION

Stillbirth and perinatal death, especially when of unknown cause, have a significant impact on women and their families. It is estimated that 5.1 in 1000[1] second and third trimester stillbirths occur annually in Canada, and at least 2.6 million stillbirths beyond 28 weeks occur annually worldwide.[2] Future reproductive choices, and management decisions made in subsequent pregnancies, are altered after a stillbirth occurs. Care in the subsequent pregnancy varies among providers, and evidence to guide such care is sparse. The following document provides a synopsis of evidence-based recommendations and consensus of experts in the care of women undergoing a subsequent pregnancy. Screening, monitoring, birth considerations, and psychosocial care will all be discussed, and recommendations will be made. The recommendations for flexible, informed, family-centred care outlined in the previous recommendations apply to subsequent pregnancies.[3]

Stillbirth is defined differently in different jurisdictions. Our discussion includes both intrauterine fetal death and intrapartum death; these experiences indicate that people with subsequent pregnancies are at increased biomedical and psychosocial risk. The Public Health Agency of Canada defines stillbirth as any death occurring at or beyond 20 weeks gestation or at a birth weight of at least 500 g; for comparison among countries, the World Health Organization defines stillbirth as death at or beyond 28 weeks and at a birth weight of at least 1000 g.[2] The literature often includes those deaths at birth weight greater than or equal to 400 g.[4] As with others, we advocate for a shared global definition.[5]

The recommendations made in the following document apply to stillbirth under the definition used by the Public Health Agency of Canada, and perinatal death of any type, including, in some cases, late medical terminations for fetal abnormality. These recommendations do not apply to care in low- and middle-income countries, where causes, access to care, investigation, stigma, and social repercussions may be different. Indeed, even within high-income countries, variations exist in stillbirth rates along with equity gaps and access to care.[6] We advocate for improved access to care for all families.

METHODS

A group of international perinatal experts from the fields of Maternal-Fetal Medicine, General Obstetrics, Family Practice, Midwifery, Mental Health, Perinatal Nursing, Patient Advocacy, Epidemiology, and Ethics met to discuss the obstetric management of pregnancies subsequent to stillbirth. Parents with a lived experience of stillbirth and other perinatal loss actively participated in the working groups. This workshop was held in conjunction with the International Stillbirth Alliance and was hosted by Sunnybrook Health Sciences Centre, in Toronto, Ontario, and the Tommy's Maternal and Fetal Health Research Centre, University of Manchester.

Medline, EMBASE, and Cochrane databases were searched under the following keywords: stillbirth, pregnancy loss, previous stillbirth. Relevant papers were reviewed. The references of reviewed studies were also searched, as were documents citing pertinent studies. The literature and current practice were discussed during the workshop on October 2, 2015 in Vancouver, Canada. The discussion points were then used to create a document that was agreed upon by several of those who attended the meeting. The literature was re-evaluated until January 2018 and combined with the findings of the workshop to create the following document.

Disclosures of conflict of interest were collected during the revision process.

SCREENING AND INVESTIGATIONS

Women with a history of stillbirth are at increased risk for subsequent stillbirth, even when a live birth has since occurred. A recent meta-analysis shows that women with a history of previous stillbirth have an almost 5-fold greater rate of stillbirth in subsequent pregnancies compared with those women with a previous live birth.[4] The subsequent pregnancies are also at higher risk of adverse pregnancy outcomes, such as preterm birth, placental abruption, and low birth weight.[7]

Recommended Testing After Stillbirth

The single most important risk factor for stillbirth is previous stillbirth, but the risk of recurrence is likely to depend on the cause of the initial loss. Therefore, the classification of the index stillbirth is paramount in guiding care in the subsequent pregnancy. Pregnancy loss due to placental causes or preterm birth is the most likely to recur. Certain treatable causes, like antiphospholipid antibody syndrome or maternal vascular malperfusion,[8] may benefit from treatment and can result in more favourable outcomes in the future pregnancy. Women with known risk factors, such as smoking, obesity, and poorly controlled pre-gestational diabetes, may benefit from modification of these risk factors and optimization of health status prior to a subsequent conception.[9–13]

Where the etiology has been sought and not found, treatment for a presumed placental cause may improve outcomes in the subsequent pregnancy as well.

The most important opportunity to explore the cause of the index stillbirth is at the time of the event.[14] At this time, maternal health history, family history, and the history surrounding the current pregnancy will provide valuable information.[15] Placental pathology will almost always yield valuable information whether or not there was a placental-mediated cause of the loss. Even where gross clinical findings are not evident, histologic lesions such as fetal and/or maternal vascular malperfusion, chronic histiocytic intervillositis, or perivillous fibrin deposition may suggest a placental cause and will therefore affect the risk of recurrence.[16–20] Fetal autopsy can provide important information on the possible cause of the stillbirth. This study should be offered by all providers attending deliveries and should be conducted in a timely, respectful way that returns the remains to the parents as quickly as possible. Especially in cases of fetal anomalies, microarray or cytogenetics should be offered. When applicable, feto-maternal hemorrhage testing and maternal screening for medical disorders such as diabetes, hemoglobinopathy, hypertension, or autoimmune conditions may provide insight into possible, potentially modifiable risk factors in the subsequent pregnancy.[14] (see Table 3, "Tests to perform on women at the time of identification of intrauterine fetal demise"[20–25]).

Testing During the Subsequent Pregnancy

Often an unexplained stillbirth equates to an underinvestigated death with possible missed diagnoses; pre-conception counselling or early antenatal care, where a thorough history and physical examination are performed, may yield information about the possible causes of the index loss. Universal preconception and antenatal tests are not recommended, but specific tests based on the clinical scenario might help guide management in the subsequent pregnancy. Efforts should be made to obtain the results of investigations conducted at the time of the stillbirth, and results should be reviewed by an expert practitioner who can help devise a plan for the subsequent pregnancy. Efforts should also be made to include the woman's recollections of the index loss in these investigations.

The causes of stillbirth or pregnancy loss with the highest rates of recurrence are those mediated by placental and growth factors or those caused by extreme prematurity. Even when the cause is unexplained, placental-mediated causes may have been involved,[26] and so there may be value in assessing for risks of placental dysfunction in the subsequent pregnancy. Indeed, lower pregnancy-associated plasma protein-A (PAPP-A) values in first trimester screening were found in women who went on to have a stillbirth after 24 weeks.[27] Uterine artery Doppler abnormalities may also help identify women at risk in their subsequent pregnancy. Studies looking at first and second trimester uterine artery Doppler abnormalities have suggested a correlation with stillbirth, however these models haven't yet proven applicable to the subsequent pregnancy population.[28–30] Given the baseline increase in the risk of stillbirth in a pregnancy following a stillbirth and the management changes that will be made accordingly, biochemical markers and uterine artery Doppler pulsatility index (PI) values may not provide additional information or alter management beyond the risk conferred by the known history. While these tests may not be universally recommended, evidence does suggest that normal first trimester PAPP-A values and second trimester uterine artery Doppler studies provide valuable negative prediction for placentally mediated stillbirth and, particularly, placentally mediated stillbirths that occur at less than 32 weeks. A systematic review looking at the value of biochemical and Doppler markers shows that a first trimester PAPP-A value of ≥ 0.4 MoM reduces the risk of placentally mediated stillbirth to 0.04%.[31] Similarly, normal second trimester uterine artery Doppler PI reduces the risk to 0.03%. This may provide some relief of anxiety and may adjust the plan for surveillance. Care must be made to note, however, that the index stillbirth, especially when unexplained, may be due to other factors, and these normal values may not alleviate some families' concerns and do not warrant return to routine care in the subsequent pregnancy.

Recommendations

1. The single most important risk factor for recurrent stillbirth is the history of previous stillbirth. Women's recurrence risk can be stratified based on the known cause of index stillbirth and other known maternal risk factors (GRADE: high).
2. At the time of stillbirth, tests should be conducted in accordance with the clinical picture. All parents should be offered an autopsy or equivalent, placental pathology, genetic testing from fetal source, and testing for feto-maternal hemorrhage (GRADE: moderate).
3. Women with a history of stillbirth are at higher risk of other adverse pregnancy outcomes, such as preterm birth, low birth weight, and placental abruption (GRADE: moderate).
4. At the initial booking visit, if the previous stillbirth was not adequately investigated, it should be noted that no universal tests are recommended. Clinical history and workup at the time of stillbirth should be used to guide testing on a case-by-case basis (GRADE: moderate).
5. Routine biochemical assessment of placental function and routine uterine artery Doppler are not universally recommended due to poor predictive value and absence of their roles in adjusting the risk stratification, given there is already a high risk of recurrence (GRADE: moderate).

Table 3. Tests to perform on women at the time of identification of intrauterine fetal demise[21–23]

	Test	Target
Maternal	CBC, group, and screen	All women
	HbA1C	All women
	TORCH and syphilis testing	Unknown cause, PPROM, chorioamnionitis, preterm birth, SGA infant
	Parvovirus testing	Hydropic fetus
	Hemoglobin electrophoresis	Hydropic fetus, clinical possibility of β or α thalassemia[24]
	Antiphospholipid antibody testing[a] (lupus anticoagulant, anticardiolipin antibody, or anti-β_2 glycoprotein)	In women with stillbirth secondary to SGA or if placental pathology is found OR with at least 1 unexplained fetal death after 10 weeks GA (for any clinical scenario) OR 3 fetal demise cases prior to 10 weeks GA Testing should be done twice at least 12 weeks apart
	Feto-maternal hemorrhage testing[a]	All cases, especially in cases of growth restriction, hypertensive disorders of pregnancy, and intrapartum stillbirth. Suspected abruption
	Coagulation profile[b]	In cases of massive abruption where DIC is considered
Fetal[25]	Autopsy	All cases where parental consent is obtained
	External examination	Where women do not wish for a full autopsy to be conducted. This option includes photos, measurements, and MRI where available
	Fetal microarray or karyotype	All cases, but especially where congenital anomalies are suspected. Best option is microarray (whole genome sequencing with major anomalies); karyotype should be conducted if it is the only available option
Placental pathology[20]	To assess for evidence of abruption, ascending infection	All cases
	Histologic findings may include fetal vascular occlusion, perivillous fibrin deposition, fetal or maternal vascular malperfusion	All cases

CBC: complete blood count; DIC: disseminated intravascular coagulation; GA: gestational age; HBA1c: glycosylated hemoglobin; MRI: magnetic resonance imaging; PPROM: preterm premature rupture of membranes; SGA: small for gestational age; TORCH: toxoplasmosis, other infections (such as syphilis), rubella, cytomegalovirus, herpes simplex.

[a] Feto-maternal hemorrhage testing should be conducted at the time of the event to reduce the risk of false-negative results.

[b] Antiphospholipid antibody testing should be performed at least 6 weeks after the stillbirth, if warranted by placental pathology findings. All other tests should be offered when practical following the birth.

ANTENATAL MANAGEMENT

Antenatal Care Provision During the Subsequent Pregnancy

Individual care plans are required for women during a pregnancy following stillbirth. The risks of recurrence, other adverse outcomes, and the psychosocial toll these pregnancies have on women all necessitate sensitive and informed care.

A meta-analysis conducted looking at care in these pregnancies provides an argument for care provision by an experienced provider.[32] Given the risks of adverse pregnancy outcomes such as preeclampsia and growth restriction, and

the potential needs for increased surveillance, women should have the option to seek care by those experienced in the management of subsequent pregnancies. For some, this may involve antenatal care in a tertiary facility, while for others, a consultation with an expert and shared care with a skilled community practitioner may be most appropriate. Ultimately women should seek care that is compassionate, geographically accessible, expert, and appropriate for their particular needs. A multidisciplinary approach is advantageous.

Care providers should also acknowledge that the evidence-based recurrence risk may not be reflected in the woman's and her family's perceived threat of risk in the subsequent pregnancy, and that acknowledgement of their anxiety and the limitations of proven approaches need to be made in caring for women and their families.[33,34]

Recommended Medical Treatments in the Subsequent Pregnancy

When the cause of the previous stillbirth is known, appropriate treatment of the underlying cause may reduce the risk of recurrence. Unexplained or unexplored stillbirths, as well as those related to fetal growth restriction and early or severe preeclampsia, may be attributed to placental insufficiency. In these cases, the use of low-dose aspirin (LDA) may be beneficial. LDA, 81−162 mg, has been shown to reduce the risk of preeclampsia in a subsequent pregnancy and reduces the risk of perinatal death in women at risk for placental insufficiency.[35,36] Treatment should be initiated before the 16th week of pregnancy and should be continued until at least 35 weeks, with more current recommendations suggesting continuation until 37 weeks or until delivery. In the absence of antiphospholipid antibody syndrome or known thrombophilia, there is no proven benefit to low-molecular-weight heparin treatment.[37] Cases where the index stillbirth is known to be obviously of a nonplacental, nonrecurrent cause, such as cord accident or TORCH (toxoplasmosis, other infections, rubella, cytomegalovirus, herpes simplex) infection, may not require additional treatment or increased frequency of monitoring and ultrasound, although mothers may benefit from the reassurance of knowing their babies' growth is normal. Individualized treatment plans are necessary based on the circumstances surrounding the previous loss and should be created with consideration for the woman's wishes.

Recommendation

6. Low-dose aspirin may reduce the risk of perinatal death in women at risk for placental insufficiency. Women with a history of stillbirth may fall into this category (GRADE: high).

Frequency of Ultrasound Assessment of Fetal Growth to Detect Complications in the Subsequent Pregnancy

A large retrospective cohort study (n = 34 079) found that women with a history of stillbirth have an increased risk of birth of a baby with low birth weight (<2500 g) (OR 4.2; 95% CI 3.2−5.5).[38] Another large retrospective cohort study (n = 154 810) found that a prior stillbirth increased the risk of having a baby who is small for gestational age (<10th centile) (OR 6.4; 95% CI 0.78−52.56).[39] One small study (n = 73) suggests that this risk was only increased in women who had a placental cause for their stillbirth (OR 10.5; 95% CI 1.12−245.6).[40] Therefore, women who have a history of stillbirth should be considered at increased risk of reduced fetal growth. Consequently, additional ultrasound examinations are among the most frequently offered tests of fetal well-being in pregnancies after stillbirth.[41,42]

There are no data to determine the optimal frequency for ultrasound assessment of fetal growth. Therefore, ultrasound scans should be conducted in agreement with relevant local guidelines while considering the following factors:

- Serial assessment of fetal growth should start around 28 weeks gestation with consideration for the gestation of the previous loss (i.e., an earlier loss at 24−26 weeks should indicate earlier monitoring).
- Ultrasound assessment of fetal biometry should not be performed more frequently than every 2 weeks to minimize the risk of false-positive results.[43]
- Normal growth at 28 weeks does not preclude further assessment later in the third trimester to identify late-onset fetal growth restriction.
- Women's own views as to the desired timing and frequency of ultrasound monitoring should be taken into consideration when creating a care plan.

There are no data to support the use of ultrasound biophysical profile in women with a history of stillbirth. A systematic review and meta-analysis of 5 studies with 2974 participants showed no evidence of improvement in fetal outcome.[44] Two of the studies included a small proportion of participants with a history of stillbirth, comprising 7% and 3% of the total study population.[45,46]

Care providers should be aware that some women's anxiety may increase prior to ultrasound scans, due to the association with the confirmation of death of their previous baby.[47] In contrast, normal scan findings give reassurance,

although this is often short-lived.[32] Ultrasound departments should also be made aware of these specific histories and strive to provide compassionate accommodation around appointment times, allowing a support person to be present during the study, being mindful of all vocal and nonvocal communications, and ensuring the obstetric provider has access to a timely report. Ultrasound examinations, within a consultation, may increase maternal-fetal attachment and reduce maternal anxiety.[48]

Recommendation

7. Women with a history of stillbirth may be at risk for fetal growth restriction in the subsequent pregnancy and may benefit from serial growth ultrasound (GRADE: high). While there is limited evidence supporting routine biophysical profile studies, some women and their families may benefit from increased surveillance, while others will find the increased monitoring to contribute to their anxiety (GRADE: moderate).

Role of Intermittent and Long-Term Fetal Heart Rate Monitoring by Non-Stress Test or Cardiotocography in the Subsequent Pregnancy

Women with a history of stillbirth have increased risk for adverse pregnancy outcome including preeclampsia (OR 3.1; 95% CI 1.7−5.7) and placental abruption (OR 9.4; 95% CI 4.5−19.7).[38] Consequently, additional surveillance to assess fetal well-being is more common; 1 such method is NST/CTG.[41]

Additional fetal surveillance may be appropriate for women with previous stillbirth; the format may differ from region to region. Especially in cases where the pathology of the index stillbirth warrants increased surveillance, care providers should consider NSTs, umbilical artery Doppler, or some combination depending on regional preferences and availability. Care providers should be aware of the following evidence:

- A meta-analysis of 4 studies with 1627 participants found that traditional assessment of antepartum NST/CTG (by user interpretation) does not reduce perinatal mortality.[49]
- A meta-analysis of 2 studies with 469 women found that computerized interpretation of NST/CTG reduced perinatal mortality compared with traditional assessment (relative risk 0.22; 95% CI 0.04−0.88).[49]
- However, none of the participants in these trials had NST/CTG due to a history of stillbirth; therefore, the value of this intervention in this population is unknown. (The NST/CTG tests were done for other indications, and so these data are extrapolated from other populations.)
- Parents' perception of NST/CTG monitoring to assess fetal well-being in pregnancies after stillbirth was positive.[50]

The use of handheld Doppler devices and other "self-monitoring" methods are discouraged as there is conflicting evidence about false reassurance and their effect on maternal anxiety.

Long-term fetal monitoring describes monitoring of fetal heart rate over extended periods. This is now possible using portable devices, which measure the fetal and maternal electrocardiogram.[51] There are no primary data regarding the use of fetal monitoring in women who have experienced a stillbirth. A questionnaire study of 125 UK-based maternity care providers reported that 45.1% of professionals thought long-term fetal monitoring would be beneficial versus 28.7% who disagreed. However, most respondents believed long-term fetal monitoring would increase maternal anxiety.[52] A recent systematic review assessing women's experiences with long-term, out-of-hospital continuous fetal monitoring showed mixed results from a heterogeneous body of literature and confirms that further studies are necessary before supporting the use of these new technologies.[53]

Formal Fetal Movement Counting Strategies in Pregnancies After Stillbirth

In common with other methods of fetal surveillance, formal fetal movement counting is frequently offered to women who have had a previous stillbirth.[41,54] There is no information specifically relating to the effectiveness of maternal awareness of fetal activity in pregnancies after stillbirth. However, women are more aware of fetal behaviour during subsequent pregnancies and are particularly vigilant in monitoring fetal movements as tangible evidence of well-being.[32]

There is no evidence that routine formal fetal monitoring based on a numeric threshold reduces perinatal mortality.[55,56] One study only focused on "high-risk" participants, but it is not clear whether this included women who had a previous stillbirth; there were no perinatal deaths in either group in this study.[57]

One quality improvement program suggests that educating women about fetal movement and self-monitoring to report a reduction in fetal movement to care providers, who then perform an NST and an ultrasound scan to assess fetal biometry and amniotic fluid volume, is associated with a reduction in perinatal

mortality.[58,59] A recent cluster-based randomized controlled trial[60] failed to show a statistically significant reduction in stillbirths with increased fetal movement awareness, although a trend in reduction was seen.

MODE AND TIMING OF BIRTH

There is little evidence to inform the mode and timing of birth for women with previous stillbirth with no clinical indication for early birth. For many parents, as pregnancy progresses, stress and anxiety become greater, and it is imperative that people with previous stillbirth are cared for by experienced providers who can clearly communicate different options, assess anxiety and stress, and support families to make informed choices.[32]

Knowledge about cause and experience with the previous stillbirth is an important factor for the provider. Providers also should be aware of their own anxiety with these births and ensure that they are supporting women to make the individualized choices that are right for them, without compromising fetal well-being and causing iatrogenic preterm birth.

Optimal Timing of Birth to Minimize Maternal Anxiety and Maximize Fetal Well-Being

There is no evidence about the timing of birth to address maternal stress and anxiety in women who have experienced a stillbirth in a prior pregnancy. In a South African descriptive study that addressed the timing of birth in 134 pregnancies following an unexplained stillbirth, early birth was indicated in 42 pregnancies (31.3%).[61] Of the remaining 92 women who had planned for induction of labour between 39 and 40 weeks gestation, 47 (51.8%) women laboured spontaneously. In this study women who were planned to have induction of labour at 40 weeks were less likely to have a Caesarean section than those whose birth was planned at 39 weeks (22.8% vs. 50%, $P < 0.01$).[61] A large retrospective study of 1 271 549 women with singleton pregnancies of 37 weeks or more gestation found that induction of labour was associated with a reduction in extended perinatal mortality ($P < 0.001$). However, induction of labour prior to 38 weeks was associated with an increased risk of Caesarean section, while this was not the case at or after 38 weeks.[62]

While discouraged as a general principle, there was consensus that early term birth may be an option for women with a previous stillbirth, in those cases where the clinical situation necessitates these measures. Different regions presently offer induction of labour ranging from 37–39 weeks of pregnancy (Australia, 37 weeks onwards; United Kingdom, 38 weeks; United States, 39 weeks). More research is needed into optimal timing of birth to reduce recurrence of poor outcome, reduce Caesarean delivery, reduce parental anxiety, and reduce unnecessary early term deliveries.

The risks to the baby of being born before 39 weeks, including risks of transient tachypnea of the newborn, neonatal intensive care unit admission, and, more rarely, cerebral palsy and developmental delay leading to special educational needs, should be discussed with parents.[63] There is no evidence for the value of an unindicated delivery prior to 37 weeks with no risk factors other than prior stillbirth.

In our experience, it is reasonable to carefully consider maternal well-being and emotional state throughout the pregnancy and to provide ongoing psychosocial support. We find it is helpful to outline the possible pathway early in pregnancy; if 38–39 weeks is a clear goal from the beginning, it may alleviate anxiety.[32] Ultimately, the question of timing of birth needs to incorporate the circumstances surrounding the previous stillbirth, the clinical picture of the current pregnancy, and the emotional state of the woman and her family, while taking into account the known drawbacks of birth prior to 39 weeks.

Mode of Delivery in the Subsequent Pregnancy

With respect to reducing perinatal mortality and morbidity, or maternal psychological morbidity, there are no data from randomized controlled trials or observational studies to inform the role of a Caesarean section for nonmedical reasons in women with a history of stillbirth in reducing perinatal mortality or morbidity or maternal psychological morbidity. Therefore, as with all other choices related to timing and mode of birth in women who have had a stillbirth, a planned Caesarean delivery needs to be part of the joint decision-making process between women and care providers. This decision may be influenced by the timing of the index stillbirth. For example, women who have experienced a previous intrapartum stillbirth may be more likely to choose a planned Caesarean section.

Recommendation

8. Decisions around timing of birth should incorporate the circumstances surrounding the previous stillbirth, the clinical picture of the current pregnancy, and the emotional state of the woman and her family, while taking into account the known drawbacks of birth prior to 39 weeks. In select cases, there may be a role for early term (37–39 weeks) birth. There is no evidence for delivery before 37 weeks based on the risk factor of stillbirth alone (GRADE: moderate).

PSYCHOSOCIAL CARE

Psychosocial Needs of Families Pregnant After a Prior Stillbirth

Recommendations

9. Families are uniquely impacted by prior stillbirth. Stillbirth is a life-changing event for families, with ongoing psychological, physical, and social costs that carry into a subsequent pregnancy and beyond. Current pregnancy management systems and processes should strive to adequately address these needs (GRADE: high).
10. Adequate care provision includes consistent and timely medical and psychosocial care, services, and support by skilled and familiar care teams knowledgeable about the pervasive impact of stillbirth on the subsequent pregnancy and beyond. All care for families with prior stillbirth should be focused on protecting and promoting the health of the woman and her family, as well as informed choice (GRADE: high).

Stillbirth has a pervasive impact on families and is a life-changing event. Ongoing negative psychological and psychosocial impacts of perinatal loss have been reported in the pregnancy after stillbirth, postpartum period, and beyond, including anxiety,[32,64–68] depression,[64,67,69,70] post-traumatic stress disorder,[71,72] worry,[32,67,69] delayed or avoidance of fetal or infant attachment,[5,32,50,68,73,74] isolation from support networks,[32,66–68,71,74] vulnerability,[50,67,68] and parenting difficulties.[32,66,69,73-77] Families also report ongoing grief,[32,68,71,77,78] intrusive thoughts,[69] and psychological distress.[32,76,78,79] Cultural and intergenerational considerations, including the expectations to suppress outward grief and grieve privately and the stigma surrounding stillbirth, may increase isolation and have an adverse impact on the family.[2,14,66,73,76] Fathers themselves may have higher rates of substance use, employment difficulties, and financial debt.[66]

There is high-level evidence that families have increased psychosocial needs in pregnancies after stillbirth that are not adequately addressed by current pregnancy management systems and processes.[8,14,32,42,74,80,81] Families report dissatisfaction with traditional models of hospital antenatal care.[14,32,74] Despite seeking emotional and psychological support from health care providers, many families will encounter friends, family members, and care providers who are unaware of their history and who make inappropriate and insensitive comments.[14,32,33,73,74,82] Families report that their experiences are often dismissed, unacknowledged, and minimized.[32,74,83] A 2014 metasynthesis of the qualitative literature found that these experiences remain with parents long after the event.[32]

Interviews with parents indicate that they want consistent, skilled, and specialized medical and emotional care in pregnancies after stillbirth.[14,32,33,68,74,81,82] Families report the desire to have flexible and additional appointments for reassurance purposes in pregnancies after stillbirth, including additional monitoring that is above and beyond traditional pregnancy care.[32,33,74,84] They also report a desire for care providers to explicitly recognize the need for increased emotional support and to provide a compassionate response to anxiety.[74,82] Families want consistent, empathetic care providers who collaborate with them and directly acknowledge the baby who has died, including using the baby's name.[32]

Ultrasound scans are often a source of stress for families.[47] They can, however, offer short-term reassurance. Scans are improved when performed by a familiar provider or a provider aware of the family's history.[32] Parents may benefit from assistance with writing a Birth Plan and touring the area where they will give birth.[14,77] Families may delay or avoid preparing for the babies' arrival and resist attachment to the pregnancy.[14,32] Providers should ask women about their preparations for the baby and acknowledge the unique challenges of pregnancy and parenting after previous stillbirth.[14,67] Parents appreciate an assessment of their unique needs and preferences[74,82] and when providers ask what would be helpful and reassuring.[14] Supporting existing family strengths, building resiliency, and making informed maternal and family choice should be emphasized.[14,32,66,68,75,80]

A recent web-based survey of 2716 parents from 40 high- and middle-income countries found that care options that support psychological and psychosocial well-being, such as access to the phone number of a named care provider, specialist antenatal classes, additional antenatal care visits, joint decision making, and sufficient time spent listening to addressing concerns from parents, vary widely among care providers and, overall, are lacking in current pregnancy care after stillbirth.[42] This is despite the evidence that psychosocial risks in subsequent pregnancies are more common than medical risks.[42] Roughly one half of parents reported feeling that elements of quality, respectful care were applied consistently, and variations among providers and geographic regions were found.[42]

A recent online cross-sectional survey in the United Kingdom of maternity unit care providers (n = 184) and women who had experienced a pregnancy after stillbirth (n = 547) highlighted that although views on appropriate care varied among women, for most it extended beyond additional ultrasound scans and a few extra appointments.[74] The survey also highlighted the tendency for care providers to focus on the prevention of recurrence and medical complications over psychological well-being and emotional support.[74]

A lack of clear guidelines or pathways of care in pregnancies after stillbirth, including those with psychosocial considerations, compounds uncertainties for care providers.[2,6,8,32,33,42,74,85] In the absence of clear guidelines or care pathways, the provision of psychosocial care viewed as supportive by families hinges on the availability of skilled and interested care providers.[32,74] Communication failures, lack of access to trained and compassionate providers, and existing patterns of service organization and care provision that are not family centred and that have competing demands on resources, along with restrictions on the development and dissemination of innovative services, create barriers to acceptable care for families.[32,42,74]

There is little evidence to guide training for providers who care for families during pregnancy subsequent to stillbirth and inconsistent training in relation to stillbirth in general. Training focused on skilled and knowledgeable medical and psychosocial support in pregnancies after stillbirth should be prioritized in educational and training programs.[8,42,86] The sharing of best practices and information amongst clinicians, as is currently happening in specialized clinics in Canada, the United Kingdom,[87] and Australia, should be emphasized. Further research on the roles of specialist services and appropriate methods of training for students and staff is urgently needed.[66,32,42,74,82,86]

Provider experience suggests that a prior stillbirth be understood as a trauma and that care providers need training in the specific concerns and experiences of people with previous loss. A trauma-informed approach in services and practice may be helpful for families, specifically as related to building an emphasis on open communication; increasing personal control and equalizing power imbalances; and ongoing opportunities for choice, collaboration, and the establishment of safe connections to services.[72,88]

Pregnancies after stillbirth represent only 1 time period in the pervasive story of stillbirths.[14] Experienced care providers who are aware of the potential need for increased psychosocial support in subsequent pregnancies and beyond, including the impact of these supports on medical or pregnancy interventions sought by families, are better positioned to offer individualized supports and care options that protect and promote the health of the woman and family, such as continuity of care, accessibility, availability, flexibility, shared decision making, referral to helpful community and postpartum supports, and individualized care plans.[14,32,33,42,50,65,67,68,74,75,78,81,82,84] They are also better positioned to offer family-centred supports including targeted education,[32,67,77,89] discussions about the impact of stillbirth on parenting[65,75,90] and subsequent children,[66,75] and the potential for relationship conflict related to different grieving and coping styles.[32,70,80] In addition, supports that people found helpful after the index stillbirth, for example, contact with a community leader such as an elder or contact with a spiritual care provider, may be helpful (and readily available) for some families. Stillbirth is a challenging experience where core personal and spiritual beliefs are often questioned.[91] In subsequent pregnancies, care providers may help to normalize the varying experiences of families, such as anger and changes in spirituality or world view, and support ongoing helpful relationships in the family's local community.

Role of Peer-Support Groups in a Pregnancy After Stillbirth

Recommendation

11. Peer support is often beneficial for parents in pregnancies after stillbirth. Care providers should discuss and promote peer support options (GRADE: moderate).

There is evidence that peer support is sought by and beneficial for parents both after the index stillbirth and in a pregnancy after stillbirth and that care providers should discuss and promote peer support options, whether in person or online.[32,65,67,71,77,80–82,89,92,93] In a small phenomenological study (n = 13), parents reported satisfaction with peer elements of subsequent pregnancy support.[80] One review of the qualitative and quantitative literature surrounding the parental experience of pregnancy after loss highlighted the usefulness of peer support for women.[67]

Impact of Pregnancy After Stillbirth on Mental Health

Recommendation

12. Women and families with prior stillbirth are very likely to need emotional support, and the entire family should be provided with opportunities for support during pregnancy and postpartum. Numerous adverse psychological sequelae are associated with pregnancies after stillbirth, including depression, post-traumatic stress, and anxiety. In some people, elevated rates of anxiety and depressive symptoms are shown throughout pregnancy and the postnatal period. Diverse grief reactions are also displayed and should be acknowledged. Care providers should promote family strengths and provide psychosocial screening, targeted follow-up, referrals, and treatment as appropriate (GRADE: high).

Pregnancies subsequent to stillbirth are often characterized by heightened grief, fear, stress, and worry.[14,78,90,94] Providers should acknowledge this reality, attempt to normalize common concerns and worries, and provide safe spaces for families to discuss their hopes and fears and to ask questions.[14,34,50] Care providers should be cautious not to pathologize normal grief reactions.

In addition to normal grief and worry, numerous adverse psychological sequelae are associated with pregnancies after stillbirth, including depression, post-traumatic stress symptoms and disorder, and anxiety.[64,70,72,78,95] Anxiety is the most widely measured and reported state in pregnancies following stillbirth. Women report increased levels of anxiety and depressive symptoms,[67,70,96] and they are reported to exhibit significantly elevated rates of anxiety and depressive symptoms throughout pregnancy and the postnatal period.[64,70,90,96] Prenatal depression and anxiety are predicators of postpartum depression; high pregnancy anxiety, depression, and psychological distress have been associated with negative obstetric, neonatal, and postpartum outcomes.[14,64,74,97]

One 2015 correlational, descriptive study (n = 227) recommended routine screening for depressive symptoms, anxiety, and post-traumatic stress in pregnancies after stillbirth.[70] In response to the finding of increased rates of depressive symptoms, anxiety, and post-traumatic stress in a 2009 longitudinal cohort study (n = 72), the authors recommended ongoing monitoring and timely treatment options during pregnancy and in the immediate postpartum period.[69] The importance of optimizing mental health during the perinatal period has been recognized internationally.[98] Targeted and ongoing discussion about mood and subsequent screening for mental illness when indicated by skilled providers may be beneficial for this population,[64,69,99] especially for those with additional increased risks such as low income, perceived poor social support, and history of trauma.[96,100,101] Women and families are often able to adopt unique ways of coping during pregnancies after stillbirth and in the period after the birth of a live baby.[90] With this in mind, care providers should promote family strengths and provide proper screening, targeted follow-up, referrals, and persistent treatment as appropriate.[64,67,94,96,102]

CONCLUSIONS

Stillbirth has a pervasive impact on families, and its impact continues during subsequent pregnancies. A current lack of clear care pathways for health care providers means that care provided to families varies widely and that many families do not receive coordinated, compassionate, and knowledgeable services.

The subsequent pregnancy is a time where medical and psychosocial needs are increased and specific interventions may be necessary, as women are at increased risk of a recurrent stillbirth. Consensus obtained from groups in Canada, the United Kingdom, the Netherlands, the United States, and Australia point to the need for specialized, multidisciplinary care to best serve women and their families during a pregnancy following stillbirth.

The importance of the exploration into the cause of the index stillbirth is paramount, and more research is needed regarding recurrence risk of stillbirth secondary to placental and other etiologies. This information will help inform which medical interventions will be beneficial in the subsequent pregnancy. Questions surrounding antenatal care schedules, mode, and timing of birth remain, but individualized planning employing evidence and compassion is necessary. Improvement in psychosocial care is important for families who have experienced stillbirth, and how to do so, either through medical interventions, counselling, or other methods, requires further exploration.

While there is increasing evidence that families are not satisfied with existing care pathways and that specialized care is beneficial during pregnancies after stillbirth, care providers working with affected families can improve their care provision through education and interprofessional collaboration and thus reduce the medical and psychological morbidity associated with their history of stillbirth.

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