

Overview of High-Risk Pregnancies to Avoid Neonatal Complications

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ABSTRACT

High-risk pregnancy refers to a situation in which the health of the mother, foetus, or both may be at greater risk compared to a typical pregnancy. This condition can arise due to pre-existing health problems, complications during pregnancy, or factors associated with the pregnancy itself. Women with conditions such as hypertension, diabetes, autoimmune diseases, heart disease, obesity, or advanced maternal age (over 35 years old) are considered to be at a higher risk of developing complications during pregnancy. Additionally, pregnancies involving multiple foetuses, preterm labour, placental abnormalities, and previous pregnancy complications also fall into the high-risk category. Monitoring high-risk pregnancies involves frequent prenatal visits, ultrasounds, blood tests, and other diagnostic measures to ensure the well-being of both the mother and the foetus. Medical management often includes tailored care plans, medications, dietary recommendations, and potentially early delivery if the risks become life-threatening. Advances in medical technology and maternal-foetal medicine have significantly improved outcomes in high-risk pregnancies, although they still carry elevated risks of preterm birth, birth defects, and maternal or neonatal morbidity and mortality. The management of high-risk pregnancies requires a multidisciplinary approach involving obstetricians, maternal foetal medicine specialists, neonatologists, and other healthcare professionals. The goal is to provide comprehensive care, minimize risks, and achieve the best possible outcome for both the mother and the baby. As awareness of these risks has grown, so has the focus on early intervention, patient education, and targeted treatments to improve maternal and foetal outcomes. Research continues to explore new methods of prevention, early diagnosis, and treatment, making the future of high-risk pregnancy care promising yet still complex

Keywords- High-risk pregnancy, Maternal health, Foetal health, Pregnancy complications, Maternal-foetal medicine, Preterm birth, Gestational diabetes, Hypertension, Multiple pregnancy, Advanced maternal age, Prenatal care, Birth outcomes, Neonatal morbidity, Obstetrics, Perinatal care

INTRODUCTION

Pregnancy is a remarkable journey for any woman, filled with excitement, anticipation, and often, a degree of uncertainty. For most women, this journey progresses smoothly, resulting in the birth of a healthy baby [1]. However, for some, pregnancy presents more significant challenges, particularly when classified as high-risk. A high-risk pregnancy poses greater health risks to both the mother and the baby [2]. Understanding the complexities, causes, diagnosis, and management of high-risk pregnancies is crucial for both healthcare providers and expectant parents [3]. Pregnancy is generally a time of joy and anticipation for expectant parents, but for some, it also brings challenges and concerns, especially when classified as a high-risk pregnancy. A pregnancy is considered high risk when potential complications could affect the mother, the baby, or both [4]. This classification does not necessarily imply that problems will occur, but it does mean that there is an increased likelihood of adverse outcomes, necessitating closer monitoring, specialized care, and sometimes medical interventions [5].

Several factors can contribute to a high-risk pregnancy, including maternal age, pre-existing health conditions, lifestyle choices, multiple gestations, and complications that arise during pregnancy itself. For instance, women over 35 or under 17 are more likely to experience complications during pregnancy and childbirth [6]. Pre-existing health conditions, such as diabetes, hypertension, autoimmune diseases, or obesity, also elevate the risk profile [7]. In addition, women with a history of previous pregnancy complications, such as preterm labour, stillbirth, or preeclampsia, are more likely to have high-risk pregnancies in subsequent pregnancies [8]. Medical conditions that

develop during pregnancy, such as gestational diabetes or preeclampsia, further elevate the pregnancy risk [9]. Multiple pregnancies (twins, triplets, or more) also increase the likelihood of complications such as preterm birth, low birth weight, or caesarean delivery. Other factors include infections, placental issues, and genetic disorders, which can complicate both the health of the mother and the foetus. Care for high-risk pregnancies involves more frequent prenatal visits, more comprehensive screening tests, and consultations with specialists, such as maternal-fetal medicine (MFM) physicians. Diagnostic procedures such as ultrasounds, blood tests, amniocentesis, and foetal monitoring are often utilized to assess the health of the mother and the baby throughout the pregnancy. In some cases, early delivery may be necessary to protect the health of both the mother and the child [10].

All pregnancies carry risks. The definition of a high-risk pregnancy is any pregnancy that carries increased health risks for you, the foetus or both. People with high-risk pregnancies may need extra medical care before, during and after they give birth. This helps to reduce the possibility and severity of complications.

But having a pregnancy that's considered high risk doesn't mean you or the foetus will have health problems. Many people experience healthy pregnancies and normal labour and delivery despite having special health needs leading up to the birth.

It can be easy to panic and worry when you hear your pregnancy care provider say your pregnancy is at a higher risk. You're not alone. It doesn't mean your pregnancy will automatically be difficult. It may just mean your pregnancy care team watches you more closely. Trust your healthcare team's recommendations and ask them for help managing your feelings. Many people have high-risk pregnancies, and most end in healthy babies. Routine prenatal care can help ensure your pregnancy is safe, even if it's high risk.

Approximately 30,000 to 50,000 pregnant women (between 6% and 8%) in the U.S. have high-risk pregnancies per year.

Symptoms and Causes

A high-risk pregnancy means you have a higher-than-average risk of experiencing a pregnancy complication. Some pregnancies begin as high risk, while others become high risk at some point during the pregnancy.

Factors that make a pregnancy high risk include:

Preexisting health conditions. These are health conditions you have before pregnancy.

Pregnancy-related health conditions. These are conditions you develop once pregnancy begins.

Lifestyle factors (including smoking, substance use disorder, alcohol use disorder and exposure to certain toxins).

MATERIALS AND METHODS

Following factors make a pregnancy high risk-

People with preexisting conditions have increased health risks during pregnancy. Some of these conditions include:

Autoimmune diseases, such as lupus or multiple sclerosis (MS).

Diabetes.

High blood pressure.

Fibroids.

- > HIV/AIDS.
- > Kidney disease.
- > Obesity.
- > Mental health disorders, such as depression.
- > Polycystic ovary syndrome (PCOS).
- > Thyroid disease.
- > Blood clotting disorders.

Pregnancy-related health conditions that can cause potential complications include:

Gestational diabetes.

Low birth weight.

Multiple gestation (pregnancy with more than one foetus, such as twins or triplets).

Gestational hypertension, preeclampsia, and eclampsia.

Placental conditions like placenta previa or a placental abruption.

Previous preterm birth, or other complications with previous pregnancies.

Too much or too little amniotic fluid.

These factors are only *some* of the conditions or factors that may result in your provider calling your pregnancy "high risk." The label isn't meant to scare you. Rather, it's a way for your provider to recognize and identify potential complications to keep you and the foetus safe through pregnancy and delivery.

What are the signs and symptoms of high-risk pregnancy?

Talk to your pregnancy care provider right away if you experience any of the following symptoms during pregnancy, regardless of if your pregnancy is high risk or low risk:

- Abdominal pain that doesn't go away.
- Chest pain.
- Dizziness or fainting.
- Extreme fatigue.
- The foetus's movement stopping or slowing.
- Heart palpitations.
- Nausea and vomiting that's worse than typical morning sickness.
- Severe headache that won't go away or gets worse.
- Swelling, redness or pain in your face or limbs.
- Thoughts about harming yourself.
- Trouble breathing.
- Vaginal bleeding or increased discharge.

Lifestyle and Environmental Factors

Certain lifestyle factors can make pregnancy riskier:

- Regular smoking or tobacco use
- Alcohol consumption
- Use of recreational or illicit drugs
- Long-term exposure to toxic chemicals or pollutants

Addressing these modifiable factors—ideally before conception and as early as possible in pregnancy—can significantly reduce complications for both mother and baby.

Pregnancy-Induced Conditions and Obstetric Factors

Some complications develop for the first time during pregnancy:

- Gestational diabetes
- Pregnancy-induced hypertension and preeclampsia
- Multiple pregnancy (twins, triplets or more)
- History of preterm labour or preterm birth
- History of miscarriages, stillbirth, or complicated previous deliveries
- Placental problems such as placenta previa or placental abruption

Types of High-Risk Pregnancies

Premature or Preterm Labour

Experiencing regular uterine contractions and cervical changes before 37 completed weeks of pregnancy suggests preterm labour. It is one of the most common high-risk pregnancy scenarios and can lead to preterm birth and complications such as breathing difficulties or infection in the newborn.

Risk factors include previous preterm birth, multiple pregnancy, uterine or cervical abnormalities, infections, and some lifestyle factors such as smoking. Women at risk may be advised rest, medications, and closer monitoring to prolong pregnancy safely wherever possible.

Preeclampsia

Preeclampsia is a pregnancy-related condition usually occurring after 20 weeks, characterised by new-onset high blood pressure and signs of organ involvement, such as protein in the urine, liver or kidney changes, or neurological symptoms. If not treated promptly, it can lead to serious complications, including eclampsia (seizures), stroke, organ damage, placental abruption, and risks to the baby such as growth restriction or preterm birth.

Symptoms may include persistent headache, visual disturbances, upper abdominal pain, sudden swelling in the hands or face, shortness of breath, and reduced urine output, and any of these should be reported urgently to a healthcare provider.

Gestational Diabetes

Gestational diabetes happens when blood sugar levels rise during pregnancy in someone who did not have diabetes before. It is usually diagnosed using glucose tolerance tests and can increase the risks of high birth-weight babies, birth complications, and the mother developing type 2 diabetes later in life.

Most women with gestational diabetes can achieve good control through a balanced diet, regular physical activity as advised, and medications or insulin when needed, with close monitoring of both mother and baby.

Placenta Previa

Placenta previa occurs when the placenta partially or completely covers the cervix. Although relatively uncommon, it raises the risk of painless vaginal bleeding, particularly in the second half of pregnancy and during labour. Depending on the degree of placental coverage and gestational age, doctors may recommend pelvic rest, close monitoring, and in many cases a planned caesarean section to reduce bleeding risks.

Other High-Risk Situations

Other situations that often classify a pregnancy as high-risk include:

- Advanced maternal age (≥ 35 years) or very young age (< 17 years)
- Multiple pregnancy (twins, triplets or higher-order multiples)
- Known foetal anomalies or growth restriction
- Prior caesarean sections or uterine surgery
- Significant mental health concerns, including thoughts of self-harm

Even in these scenarios, personalised care plans and delivery at a well-equipped centre can help achieve good maternal and neonatal outcomes.

AGE-

Age alone isn't a determining factor in a high-risk pregnancy. Your pregnancy care provider determines if your pregnancy is likely to have complications based on several other factors.

complications of high-risk pregnancies-

A high-risk pregnancy can be life-threatening for you or the foetus . Some of the most common complications can include:

Preeclampsia-spectrum disorders, including gestational hypertension, preeclampsia and eclampsia.

Preterm delivery.

Cesarean delivery.

Excessive bleeding during labor and delivery, or after birth (postpartum hemorrhage).

Low birth weight.

Birth defects (problems with the development of a baby's organs such as the heart or brain, also called congenital conditions).

Neonatal intensive care unit (NICU) admission for your baby.

Intensive care unit (ICU) admission for you.

Miscarriage.

Stillbirth.

It's important to talk to your pregnancy care provider about your risks for these complications. Ask them any questions you have. With proper monitoring and care, you and your providers may be able to reduce your risk of having these or other complications.

Diagnosis and Tests

How is high-risk pregnancy diagnosed and monitored?

Getting early and thorough prenatal care as soon as you know you're pregnant is critical. It's the best way to detect and manage a high-risk pregnancy. Be sure to tell your healthcare provider about your health history and any past pregnancies. If you do have a high-risk pregnancy, you may need special monitoring throughout your pregnancy.

Tests to monitor your health and the health of the foetus during pregnancy may include:

Blood and urine testing to check your health and the foetus 's risk for genetic conditions.

Ultrasound, which uses sound waves to create images of the foetus to ensure the foetus is developing appropriately.

People with high-risk pregnancies usually have more frequent ultrasounds.

Other ultrasound and foetal heart rate monitoring tests that check on the overall health of the foetus and placenta, called a biophysical profile and nonstress test.

Management and Treatment

Management for a high-risk pregnancy will depend on your specific risk profile. Your care plan may include:

- Closer monitoring from your obstetrician.
- Consultation with a maternal-foetal medicine specialist.
- Consultation with other medical specialists.
- More ultrasounds and closer foetal evaluation.
- Home blood pressure monitoring.
- Careful monitoring of medications used to manage preexisting conditions.
- If there are signs that the pregnancy is in danger, your healthcare provider may recommend labor induction or a cesarean delivery earlier than planned.

- It depends. Typical low-risk pregnancies have two to three ultrasounds throughout pregnancy. How many additional ultrasounds your pregnancy care provider recommends will be unique to you (but you'll likely have more than three). Your provider will let you know how many additional ultrasounds you can expect to have if your pregnancy is high risk and when these should happen.

Prognosis

Many people who have high-risk pregnancies don't experience any problems and deliver healthy babies. But they may be at a higher risk for health problems in the future, including:

Complications during future pregnancies.

- Postpartum depression.
- High blood pressure.
- Cardiovascular disease.
- Type 2 diabetes.
- Stroke.
- Some high-risk pregnancies can increase your child's risk of:
 - Behavioural problems.
 - Respiratory conditions.
 - Gastrointestinal diseases.
 - Growth and developmental delays.
 - Mental health conditions.
 - Neurological disorders.
 - Obesity and diabetes.
 - Vision, hearing or dental problems.

Just because your pregnancy is high risk, it doesn't mean you or your baby will have any of these long-term medical problems. Talk to your healthcare provider to better understand your risk and your baby's risk for these conditions.

Most people can work, go to school and continue with their typical lifestyle during a high-risk pregnancy. Discuss your work arrangements with your provider to see what they recommend and what your options are.

Prevention

You can reduce your risk of pregnancy complications by:

Avoiding beverages containing alcohol and any nonprescription drugs or medications.

Identifying potential health risks before getting pregnant. Tell your provider about your familial and personal medical history.

Maintaining a body weight that's healthy for you before pregnancy.

Managing any preexisting health conditions you may have.

Making sure any long-term medications are safe to take during pregnancy.

Quitting smoking.

Practicing safe sex, which reduces your risk for sexually transmitted infections (STIs).

First, try to relax and trust your healthcare team. They're doing what's best for you so that your pregnancy ends in a successful delivery and a healthy baby. This can feel challenging at times, but remember, they're here to help you and to answer your questions.

Other things you can do to stay positive during a high-risk pregnancy are:

Build a support system: Lean on family, friends or support groups to help you through this time. Your provider may be able to recommend online or local support groups to help you connect with people in similar situations. Psychologists or genetic counsellors can also be a good source of support as you navigate your pregnancy.

Focus on healthy habits: Healthy habits include getting enough sleep, exercising a little bit each day and eating nutritious foods. These are things you have a little more control over, and they go a long way in creating a healthy pregnancy.

Prioritize self-care: Be sure to take care of yourself — mind and body. Practice relaxation techniques like meditation. Do things you enjoy every day to lift your spirits and improve your mood.

CONCLUSION

Outcomes of high-risk pregnancy While the term "high-risk" can sound alarming, many high-risk pregnancies result in healthy babies and mothers, thanks to advances in prenatal care and monitoring. The outcomes depend on various factors, including the type of complication, the timing of intervention, and the overall health of the mother. Early diagnosis and effective management are critical in reducing the risks associated with high-risk pregnancies. Conclusion High-risk pregnancies present unique challenges that require careful monitoring and management to ensure the best possible outcome for both the mother and the baby. Through a combination of prenatal screening, regular check-ups, lifestyle adjustments, and medical interventions, healthcare providers can significantly mitigate the risks associated

with these pregnancies. For expectant parents facing a high-risk pregnancy, understanding the condition, seeking appropriate care, and maintaining emotional support are key components of navigating this complex and often stressful journey. High-risk pregnancies present complex challenges that require heightened medical vigilance, specialized care, and emotional support for both the mother and the baby. The term "high-risk" encompasses a wide range of conditions, including pre-existing medical conditions like diabetes or hypertension, pregnancy-related complications such as preeclampsia, gestational diabetes, and placental abnormalities, as well as lifestyle factors and advanced maternal age. While the designation of a pregnancy as "high-risk" can create understandable anxiety, it is essential to remember that with proper monitoring and medical intervention, many high-risk pregnancies result in positive outcomes. While a high-risk pregnancy may increase the likelihood of complications, it is not an insurmountable barrier to a successful pregnancy and delivery. Early detection, specialized care, and a multidisciplinary approach are key to managing the associated risks effectively. The support system surrounding the pregnant woman— comprising healthcare professionals, family, and social networks— plays an integral role in navigating the complexities of high-risk pregnancies. With continued research, education, and patient empowerment, many of the challenges associated with high-risk pregnancies can be mitigated, leading to safe and healthy outcomes for both mother and child. The journey may be more arduous, but with the right care and attention, a positive outcome is achievable, offering hope and reassurance to those facing such challenges.

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