

RISK FACTORS FOR ADVERSE PERINATAL OUTCOMES IN PREGNANCIES COMPLICATED BY OLIGOHYDRAMNIOS

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Annotation. *This study examines the main risk factors associated with adverse perinatal outcomes in pregnancies complicated by oligohydramnios. Particular attention is given to fetal growth restriction, maternal hypertension, placental dysfunction, abnormal Doppler findings, and non-reassuring fetal heart rate patterns. The assessment of amniotic fluid volume together with fetal growth, uteroplacental and fetoplacental blood flow, and fetal cardiac activity may help identify pregnancies at increased risk. Early recognition of these factors allows closer antenatal surveillance and more individualized obstetric management. Timely assessment of fetal and maternal condition may facilitate appropriate decisions regarding the timing and mode of delivery and reduce preventable perinatal complications. A comprehensive clinical approach integrating ultrasound, Doppler assessment, fetal monitoring, and maternal evaluation is therefore important for improving neonatal and maternal outcomes in pregnancies complicated by oligohydramnios.*

Keywords: *Oligohydramnios, perinatal outcomes, risk factors, fetal growth restriction, placental dysfunction, Doppler assessment, fetal monitoring, obstetric management.*

Introduction

Oligohydramnios is an important obstetric condition characterized by a reduction in amniotic fluid volume below the expected level for gestational age. It may occur as an isolated condition or in association with placental insufficiency, fetal growth restriction, premature rupture of membranes, maternal hypertension, and other maternal or fetal disorders. Reduced amniotic fluid may limit fetal movement and decrease the protective effect of the fluid around the umbilical cord, which can contribute to fetal heart rate abnormalities and complications during labor.

Therefore, oligohydramnios requires careful assessment of both the maternal and fetal condition. The risk of adverse perinatal outcomes in pregnancies complicated by oligohydramnios may depend on the underlying cause, gestational age, severity and duration of reduced amniotic fluid, fetal growth, and placental function. Clinical studies have reported associations between oligohydramnios and fetal distress, labor induction, operative delivery, lower Apgar scores, and certain neonatal complications.

However, these outcomes are not observed in all pregnancies, particularly when oligohydramnios occurs without additional maternal or fetal pathology. This variability highlights the importance of identifying individual risk factors rather than considering oligohydramnios as an independent predictor of poor outcome in every case.

Relevance

Oligohydramnios is an important obstetric condition because a reduction in amniotic fluid may be associated with fetal compromise and adverse perinatal outcomes. The risk of complications may increase when oligohydramnios is accompanied by fetal growth restriction, placental dysfunction, maternal hypertension, abnormal Doppler findings, or prolonged reduction in amniotic fluid volume.

Main part

The development of adverse perinatal outcomes in pregnancies complicated by oligohydramnios is influenced by a combination of maternal and fetal factors. The severity and duration of reduced amniotic fluid are important indicators when assessing clinical risk. Maternal hypertension and preeclampsia may impair placental perfusion and consequently have an unfavorable effect on fetal well-being. Fetoplacental insufficiency, fetal growth restriction, and abnormalities in uteroplacental blood flow are also important risk factors. Oligohydramnios diagnosed at an earlier gestational age may in some cases be associated with a higher probability of impaired fetal development. Fetal size below the expected level for gestational age may further increase the risk of unfavorable neonatal outcomes. Abnormal fetal heart rate patterns may also increase the probability of fetal distress during labor. Premature rupture of membranes is another clinically important factor that may be associated with reduced amniotic fluid and adverse outcomes. Maternal general health, chronic diseases, and other pregnancy-related complications may further contribute to individual risk. Therefore, assessment of oligohydramnios should not be limited to amniotic fluid volume alone. All relevant maternal, fetal, and placental risk factors should be evaluated together.

Dynamic assessment of fetal development and fetoplacental function is particularly important for predicting perinatal risk in pregnancies complicated by oligohydramnios. Ultrasound examination provides information about fetal biometric parameters, estimated fetal weight, growth progression, and amniotic fluid volume. Slowed fetal growth or fetal size below the expected level for gestational age may indicate possible placental insufficiency.

Doppler assessment of blood flow in the uterine and umbilical arteries provides information about uteroplacental and fetoplacental perfusion. Abnormal blood flow parameters may indicate impaired fetal adaptation to the intrauterine environment. Cardiotocography is also an important method for monitoring fetal cardiac activity and identifying possible fetal distress.

The presence of abnormal Doppler or cardiotocographic findings together with reduced amniotic fluid may indicate an increased clinical risk. Therefore, individual test results should not be interpreted separately but rather evaluated as part of an integrated maternal-fetal assessment.

Repeated ultrasound and instrumental monitoring allow dynamic changes in fetal condition to be recognized at an early stage. Such surveillance is particularly important when oligohydramnios persists or becomes more pronounced.

Comprehensive assessment of fetal and placental parameters can support clinical decisions regarding the safety of continuing pregnancy and the appropriate timing of delivery.

Individualized antenatal surveillance and timely obstetric management are important for reducing adverse perinatal outcomes in pregnancies complicated by oligohydramnios.

The monitoring plan should be based on gestational age, severity of amniotic fluid reduction, fetal growth, Doppler findings, and the maternal clinical condition. Pregnant women at increased risk may require regular ultrasound assessment and, when indicated, cardiotocographic monitoring.

Maternal blood pressure and other relevant clinical risk factors should also be assessed regularly. When fetal growth restriction or impaired fetoplacental blood flow is identified, the frequency of surveillance may need to be increased. Delivery planning should take into account gestational age, fetal maturity, and the overall clinical risk. When fetal condition remains stable, careful antenatal monitoring may be continued. However, the development of fetal distress, significant Doppler abnormalities, or deterioration of the maternal condition may require reassessment of the timing of delivery. Monitoring of fetal heart activity during labor can facilitate early detection of intrapartum complications. The mode of delivery should not be determined solely by the presence of oligohydramnios but should be based on the overall obstetric situation.

Preparation for neonatal care is also important when there is an increased risk of fetal compromise. A comprehensive individualized approach can reduce unnecessary interventions while allowing timely action when fetal or maternal condition worsens.

Conclusion

Adverse perinatal outcomes in pregnancies complicated by oligohydramnios are influenced by multiple maternal, fetal, and placental factors. Fetal growth restriction, maternal hypertension, placental dysfunction, abnormal Doppler findings, and non-reassuring fetal heart rate patterns may increase the risk of unfavorable outcomes. Therefore, early identification of these risk factors and regular assessment of fetal growth, amniotic fluid volume, and fetoplacental circulation are essential. Individualized antenatal surveillance and appropriate obstetric management can facilitate timely recognition of fetal compromise and reduce preventable perinatal complications.

A comprehensive approach based on clinical assessment, ultrasound, Doppler monitoring, and fetal surveillance is important for improving maternal and neonatal outcomes.

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