

Management and Monitoring of Pregnancy in Women with Undifferentiated Connective Tissue Dysplasia (UCTD)

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Abstract

Undifferentiated connective tissue dysplasia (UCTD) is a complex and often under-recognized condition that presents with features of autoimmune connective tissue disorders, such as systemic lupus erythematosus (SLE) and rheumatoid arthritis, but does not meet the full diagnostic criteria for any specific disease[1]. Pregnancy in women with UCTD carries both maternal and fetal risks, including hypertension, miscarriage, preeclampsia, and fetal growth restriction. This article examines the pathophysiology, clinical management, and essential care strategies for women with UCTD during pregnancy[2]. A multidisciplinary approach, including regular monitoring, pharmacologic treatment, and collaborative care, is crucial to improve outcomes for both the mother and fetus[3].

Keywords: Undifferentiated Connective Tissue Dysplasia, pregnancy management, autoimmune diseases, maternal health, fetal monitoring, preeclampsia, rheumatology

1. Introduction

Undifferentiated connective tissue dysplasia (UCTD) is characterized by a constellation of symptoms that resemble those of systemic autoimmune diseases, yet do not meet the diagnostic criteria for any one disorder[4]. The condition predominantly affects women of reproductive age and poses unique challenges during pregnancy[5]. These women may experience flares of autoimmune activity, which can adversely affect both maternal and fetal health. Given the heterogeneous nature of UCTD, the management of pregnancy in these patients requires an individualized approach[6].

Pregnancy induces a shift in the immune system, which can alter the course of underlying connective tissue diseases. For women with UCTD, this shift can result in exacerbation or stabilization of symptoms, making the pregnancy course unpredictable. Close monitoring and a collaborative care model involving obstetricians, rheumatologists, and other specialists are essential to ensure optimal maternal and fetal health[7].



2. Pathophysiology and Clinical Manifestations

UCTD is a condition that overlaps with various autoimmune disorders, including lupus, scleroderma, and polymyositis, but without meeting the diagnostic criteria for any specific disease. The pathophysiology involves chronic inflammation, immune dysregulation, and endothelial dysfunction, all of which can impact pregnancy.

Key Pathophysiological Mechanisms in Pregnancy:

- **Autoimmune Flare-Ups:** Pregnancy can trigger flares of autoimmune activity due to hormonal changes, which can lead to inflammation and endothelial damage, increasing the risk of complications like preeclampsia.
- **Placental Dysfunction:** UCTD has been associated with placental insufficiency, which can result in poor fetal growth, fetal demise, or preterm labor.
- **Vascular Abnormalities:** Women with UCTD are at an increased risk for vascular events, including thrombosis, which can complicate pregnancy, especially if antiphospholipid syndrome is present.

3. Maternal and Fetal Risks

Pregnancy in women with UCTD carries significant risks for both the mother and fetus. These risks include the exacerbation of underlying autoimmune symptoms, the development of hypertensive disorders, and complications related to the placenta.

Risk Factor	Maternal Risk	Fetal Risk
Hypertension	Gestational hypertension, preeclampsia	Fetal growth restriction, preterm birth
Autoimmune Flares	Worsening disease activity, renal involvement	Fetal distress, miscarriage



Risk Factor	Maternal Risk	Fetal Risk
Thrombosis	Increased risk for thrombotic events	Placental insufficiency, IUGR
Placental Dysfunction	Increased risk of placental abruption	Fetal growth restriction, stillbirth
Medication Side Effects	Steroid-induced hypertension, diabetes	Teratogenic effects from certain medications

4. Preconception and Antenatal Care

Preconception counseling and careful planning are essential for women with UCTD who wish to conceive. Managing the condition before pregnancy can reduce the risk of complications.

Preconception Care:

- **Autoimmune Screening:** Test for autoimmune markers (ANA, anti-dsDNA, anti-Ro/SSA, anti-La/SSB) to assess disease activity and guide management.
- **Medication Review:** Discontinue teratogenic drugs (e.g., methotrexate, mycophenolate) and switch to safer alternatives like hydroxychloroquine or azathioprine if necessary.
- **Renal Function Monitoring:** Baseline renal function tests (e.g., serum creatinine, urine protein) are important to evaluate the risk of renal complications during pregnancy.
- **Folic Acid Supplementation:** Recommended for all women of reproductive age to prevent neural tube defects.

Antenatal Care:

- **Frequent Prenatal Visits:** Monthly visits in the first and second trimesters, and weekly visits in the third trimester for women at high risk.



- **Ultrasound and Doppler Studies:** Routine growth scans and Doppler studies to monitor placental function and fetal well-being.
- **Blood Pressure Monitoring:** Close monitoring for signs of preeclampsia, especially in the third trimester.
- **Fetal Monitoring:** Non-stress testing and biophysical profiles to assess fetal health.

Antenatal Monitoring	Tests/Procedures	Frequency
Ultrasound	Fetal growth, placental blood flow	Every 4 weeks after 20 weeks
Blood Pressure	Hypertension, preeclampsia	Every visit
Urine Protein Test	Preeclampsia detection	Every visit
Fetal Monitoring	Non-stress test, biophysical profile	1-2 times/week after 32 weeks

5. Management of Pregnancy Complications

For women with UCTD, early identification of complications and appropriate management strategies are essential for improving outcomes.

Management Strategies for Key Complications:

- **Hypertension and Preeclampsia:** Initiate low-dose aspirin (81 mg/day) in high-risk patients and closely monitor for signs of preeclampsia.
- **Autoimmune Flares:** Treat with corticosteroids or hydroxychloroquine if necessary, adjusting the dosage to minimize risks to the fetus.
- **Thrombosis:** Anticoagulation with low-molecular-weight heparin (LMWH) may be required for women with antiphospholipid syndrome or a history of thrombotic events.

6. Delivery Planning and Postpartum Care



Delivery should be planned in a tertiary care setting, with the timing of delivery determined based on maternal and fetal conditions.

Delivery Considerations:

- **Timing:** Generally, vaginal delivery is preferred unless there are obstetric indications for cesarean section. If there is significant fetal growth restriction or other complications, early delivery may be necessary.
- **Steroid Tapering:** Corticosteroids should be tapered slowly postpartum to avoid withdrawal symptoms and manage autoimmune flares.
- **Postpartum Monitoring:** Monitor for disease flares, especially within the first six weeks after delivery. Regular follow-up with a rheumatologist is essential to manage any long-term effects of the disease.

Postpartum Monitoring	Actions
Disease Activity	Regular assessments for autoimmune flare
Renal Function	Monitor creatinine, urine protein
Autoimmune Markers	Test ANA, anti-dsDNA, C3/C4 levels

7. Conclusion

Managing pregnancy in women with undifferentiated connective tissue dysplasia requires a multidisciplinary approach that includes rheumatologists, obstetricians, and other specialists. Early detection, careful monitoring, and appropriate medication management can improve outcomes for both the mother and fetus. With proper management, many women with UCTD can experience successful pregnancies and healthy deliveries.

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