**RESEARCH TOPIC**

**COMPARATIVE ASSESSMENT OF SERUM LEPTIN LEVELS IN TERM AND PRETERM DELIVERIES AS A PREDICTOR OF PRETERM BIRTH IN UNIVERSITY OF ILORIN TEACHING HOSPITAL.**

**JUSTIFICATION FOR THE STUDY**

Preterm birth, defined as childbirth occurring before 37 weeks of gestation, is a significant contributor to neonatal morbidity and mortality. Despite advancements in prenatal and neonatal care, preterm birth remains a complex and critical issue in obstetrics. An improved understanding of the underlying mechanisms and predictive markers is essential for developing effective prevention and intervention strategies.

This research thesis proposes to compare maternal serum leptin levels in term and preterm deliveries as a potential biomarker in distinguishing between preterm and term deliveries, this contributing to the broader objective of mitigating the impacts of preterm births.

Leptin, a hormone primarily produced by adipose tissue, plays a crucial role in regulating energy balance, reproductive function, and fetal development. During pregnancy, leptin levels increase significantly and are believed to modulate placental function and fetal growth. Emerging evidence suggests that aberrations in maternal serum leptin levels are associated with various pregnancy complications, including gestational diabetes, preeclampsia, and intrauterine growth restriction. However, limited research has been conducted to specifically explore the relationship between maternal leptin levels and the timing of delivery.

This research aims to fill this gap by conducting a comparative study of maternal serum leptin levels in women who deliver preterm and those who carry their pregnancies to term. The primary objective is to determine whether there are significant differences in leptin levels between these two groups and to evaluate the potential of leptin as a predictive marker for preterm birth. By elucidating the involvement of leptin in the pathophysiology of preterm delivery, this study seeks to provide insights that could inform clinical practice and interventions. One of the strengths of this research is its potential to enhance early identification and risk stratification of women at risk for preterm birth. Currently, the prediction of preterm delivery relies on a combination of clinical risk factors, ultrasound findings, and biomarkers, yet the accuracy of these methods remains limited.

The integration of leptin level assessments could improve the predictive accuracy, enabling healthcare providers to implement timely and targeted interventions. This is particularly important in resource-limited settings where advanced diagnostic facilities are not readily available, and simple, cost-effective biomarkers are urgently needed. Moreover, understanding the role of leptin in preterm delivery could open avenues for therapeutic interventions. If dysregulated leptin levels are found to contribute to the mechanisms leading to preterm labor, therapeutic modulation of leptin signaling pathways could be explored as a preventive strategy. This could significantly impact the management of high-risk pregnancies and improve neonatal outcomes.

The comparative study of maternal serum leptin levels in women with preterm and term deliveries promises to contribute valuable knowledge to the field of obstetrics and gynecology. By identifying potential biomarkers and elucidating underlying mechanisms, the study has the potential to enhance clinical practices, improve early detection of preterm risk, and guide the development of therapeutic interventions.