**Introduction**

Rilpivirine is a second generation non-nucleoside reverse transcriptase inhibitor (NNRTI). It has increased absorption when taken with food and is primarily metabolized by cytochrome P450 3A4. During pregnancy, physiological changes including alterations in intestinal transit time and increased CYP 3A4 activity may impact systemic drug exposure. The impact of pregnancy on rilpivirine pharmacokinetics is unknown.

**Objectives**

- To investigate the pharmacokinetics of rilpivirine during pregnancy and postpartum.
- To compare rilpivirine AUCs, clearance, and troughs during pregnancy and postpartum with the same HIV-positive patients who did not become pregnant.

**Methods**

**Patients**

Infant Characteristics (n=30 pregnant adults)

- Delivery: 550 (70%)
- Gestational Age (weeks): 35 (90%)
- Weight at Delivery (grams): 3095 (41%)
- Ethnicity:
  - Hispanic: 12 (37.5%)
  - Asian/Pacific Islander: 1 (3.1%)
  - Black Non-Hispanic: 18 (56.3%)
  - White Non-Hispanic: 1 (3.1%)
  - Other: 5 (15.6%)
- Target AUC was 1.32 (1.24) for AUC and 0.94 (0.69-1.24) for Cmax.

**Results**

- It has increased absorption when taken with food and is primarily metabolized by cytochrome P450 3A4.
- During pregnancy, physiological changes including alterations in intestinal transit time and increased CYP 3A4 activity may impact systemic drug exposure.
- The impact of pregnancy on rilpivirine pharmacokinetics is unknown.

**Results (cont)**

- Rilpivirine pharmacokinetic parameters were different during pregnancy compared to postpartum:
  - The following pharmacokinetic parameters were increased during pregnancy compared to postpartum:
    - AUC0-24 h and Cmax were reduced during 3rd trimester
    - C0 was reduced during 2nd trimester
  - When 2nd and 3rd trimester were compared, C0 and Cmax were increased during the 3rd trimester when compared to the 2nd trimester.
  - AUC target was set in 15:16 (94%) of 2nd trimester women, 27:29 (93%) of 3rd trimester women and 23:26 (98%) of postpartum women for whom AUC could be calculated.
  - Maternal plasma and umbilical cord samples are available for 9 women: Cord blood rilpivirine: 53.8 (10.0-133.7) ng/mL
  - Maternal plasma rilpivirine: 103.3 (100.0-273.4) ng/mL
  - The 2nd trimester vs postpartum; p<0.05 2nd trimester vs 3rd trimester

**Summary of the Median Rilpivirine Concentrations**

- Rilpivirine AUC at each Treatment:
  - During pregnancy show extensive variability.
  - While pregnancy affects some rilpivirine pharmacokinetic parameters and reduces rilpivirine exposure, VL and CD4 remain well above targets in pregnant women receiving standard adult rilpivirine doses. No dosing adjustment is needed for rilpivirine during pregnancy.