Supplemental Table 1. Predictors of low third trimester vitamin D status (25(OH)D <30 ng/mL) among HIV-infected pregnant women (n=257)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | n / N (%)  25(OH)D <30 ng/mL | Univariable relative risk(95% CI) | p-value | Multivariable\*relative risk (95% CI) | p-value |
| Maternal age (years)  |  |  |  |  |  |
|  <25  | 38 / 87 (43.7) | 1.71 (0.99-2.95) | 0.02† | 1.63 (0.84-3.14) | 0.09† |
|  25 - 29.9  | 26 / 64 (40.6) | 1.59 (0.90-2.82) |  | 1.47 (0.74-2.95) |  |
|  30 - 34.9  | 17 / 59 (28.8) | 1.12 (0.60-2.12) |  | 1.13 (0.53-2.37) |  |
|  ≥35  | 12 / 47 (25.5) | Ref. |  | Ref. |  |
| Maternal race/ethnicity |  |  |  |  |  |
|  White, non-Hispanic | 0 / 18 (0) | - | <0.01# |  |  |
|  Hispanic | 23 / 89 (25.8) | 0.54 (0.36-0.80) | <0.01 |  |  |
|  Multiracial/other | 2 / 8 (25.0) | 0.52 (0.16-1.76) | 0.29 |  |  |
|  Black, non-Hispanic | 67 / 140 (47.9) | Ref. |  |  |  |
| Maternal income |  |  |  |  |  |
|  <$10,000 per year | 29 / 89 (32.6) | 0.89 (0.61-1.28) | 0.52 |  |  |
|  ≥$10,000 per year | 53 / 144 (36.8) | Ref. |  |  |  |
| Location of Residence |  |  |  |  |  |
|  New York – New Jersey- Chicago | 43 / 84 (51.2) | 5.12 (1.97-13.27) | <0.01 | 3.99 (1.41-11.29) | <0.01 |
|  South | 43 / 106 (40.6) | 4.06 (1.56-10.57) | <0.01 | 3.12 (1.10-8.83) | 0.03 |
|  Puerto Rico  | 3 / 27 (11.1) | 1.11 (0.27-4.57) | 0.88 | 0.81 (0.18-3.71) | 0.79 |
|  West | 4 / 40 (10.0) | Ref. |  | Ref. |  |
| Third trimester CD4 T-cell count  |  |  |  |  |  |
|  < 350 cells/mm3 | 25 / 52 (48.1) | 1.60 (1.06-2.40) | 0.02 |  |  |
|  350-499 cells/mm3 | 18 / 50 (36.0) | 1.20 (0.75-1.92) | 0.46 |  |  |
|  ≥ 500 cells/mm3 | 31 / 103 (30.1) | Ref. |  |  |  |
| Third trimester HIV-1 RNA  |  |  |  |  |  |
|  > 400 copies/mL | 20 / 34 (58.8) | 1.78 (1.26-2.53) | <0.01 | 1.56 (0.92-2.62) | 0.10 |
|  ≤ 400 copies /mL | 59 / 179 (33.0) | Ref. |  | Ref. |  |
| Protease inhibitor-based cART |  |  |  |  |  |
|  Yes | 84 / 218 (38.5) | 1.41 (0.70-2.85) | 0.34 |  |  |
|  No | 6 / 22 (27.3) | Ref. |  |  |  |
| Tenofovir-containing cART  |  |  |  |  |  |
|  Yes | 43 / 122 (35.3) | 0.88 (0.64-1.23) | 0.46 |  |  |
|  No | 47 / 118 (39.8) | Ref. |  |  |  |
| Third trimester maternal smoking  |  |  |  |  |  |
|  Yes | 14 / 30 (46.7) | 1.33 (0.88-2.04) | 0.18 |  |  |
|  No | 79 / 227 (30.7) | Ref. |  |  |  |
| Season of vitamin D blood draw |  |  |  |  |  |
|  Fall/Winter (Sept 21st- Mar 20th) | 47 / 105 (44.8) | 1.48 (1.07-2.04) | 0.02 | 1.35 (0.90-2.05) | 0.15 |
|  Spring/Summer (Mar 21st-Sept 20th)  | 46 / 152 (30.3) | Ref. |  | Ref.  |  |
| Vitamin D supplement use |  |  |  |  |  |
|  No supplements containing vitamin D | 15 / 23 (65.2) | 2.09 (1.45-3.01) | <0.01 | 1.80 (1.01-3.20) | 0.04 |
|  Daily supplements containing < 400 IU  | 19 / 45 (42.5) | 1.35 (0.90-2.02) | 0.14 | 1.41 (0.84-2.38) | 0.19 |
|  Daily supplements containing ≥ 400 IU | 59 / 189 (31.2) | Ref. |  | Ref. |  |

\* Parsimonious multivariable model built using stepwise selection where variables with p<0.20 entered the model and remained if p<0.15

† p-value for trend

# Fisher’s exact test statistic

Supplemental Table 2. Sensitivity analysis of birth weight, birth length, gestation duration, and length-for-age z-score outcomes at 9-15 months of age among Black non-Hispanic pregnant women (n=140)

|  |  |  |  |
| --- | --- | --- | --- |
|  | Mean ± SD or n n / N (%) | Multivariable\* mean differenceor relative risk(95% CI) | p-value |
| Mean difference birth weight (grams) |   |  |  |
|  Deficient <20 ng/mL | 2916 ± 406 | -310 (-535, -84) | <0.01 |
|  Insufficient 20-29.9 ng/mL | 2934 ± 512 | -233 (-440, -27) | 0.03 |
|  Sufficient ≥ 30 ng/mL | 3153 ± 588 | Ref. |  |
| Mean difference birth length z-score  |  |  |  |
|  Deficient <20 ng/mL | -0.52 ± 0.88 | -0.75 (-1.22, -0.29) | <0.01 |
|  Insufficient 20-29.9 ng/mL | -0.43 ± 1.42 | -0.55 (-1.07, -0.03) | 0.04 |
|  Sufficient ≥ 30 ng/mL | 0.19 ± 1.28 | Ref.  |  |
| Mean difference gestation duration (weeks) |  |  |  |
|  Deficient <20 ng/mL | 37.4 ± 1.4 | -0.90 (-1.50, -0.30) | <0.01 |
|  Insufficient 20-29.9 ng/mL | 37.9 ± 1.7 | -0.25 (-0.84, 0.34) | 0.40 |
|  Sufficient ≥ 30 ng/mL | 38.2 ± 1.6 | Ref. |  |
| Length-for-age z-score  |  |  |  |
|  Deficient <20 ng/mL | -0.18 ± 1.09 | -0.73 (-1.38, -0.09) | 0.03 |
|  Insufficient 20-29.9 ng/mL | 0.11 ± 1.34 | -0.31 (-0.81, 0.20) | 0.24 |
|  Sufficient ≥ 30 ng/mL | 0.39 ± 1.27 | Ref. |  |

\*Multivariable models adjusted for maternal age (<25, 25-29.9, 30-34.9, ≥35 years), mother did not complete high school (yes/no), maternal income <$10,000 per year (yes/no), region of residence (NY/NJ/Chicago, South, West, Puerto Rico), maternal pre-pregnancy BMI (<25, 25-29.9, 30-34.9, ≥ 35), third trimester CD4 T-cell count (<350, 350-499, ≥500 cells/mm3), 3rd trimester HIV-1 RNA viral load >400 copies/ml (yes/no), third trimester maternal smoking (yes/no) and infant sex (male/female).

Supplemental Table 3. Sensitivity analysis including >40 ng/mL category for birth weight, birth length, gestation duration, and length-for-age z-score at 9-15 months outcomes.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Mean ± SD or n n / N (%) | Multivariable\* mean differenceor relative risk(95% CI) | p-value |
| Mean difference birth weight (grams) |   |  |  |
|  <20 ng/mL | 2939 ± 403 | -258 (-433, -83) | <0.01 |
|  20-29.9 ng/mL | 2945 ± 535 | -187 (-357, -17) | 0.03 |
|  30-40.0 ng/mL | 3074 ± 446 | Ref. |  |
|  >40 ng/mL | 3120 ± 567 | 32 (-122, 187) | 0.68 |
| Mean difference birth length z-score  |  |  |  |
|  <20 ng/mL | -0.36 ± 0.93 | -0.52 (0.99, -0.05) | 0.03 |
|  20-29.9 ng/mL | -0.29 ± 1.42 | -0.44 (-0.90, 0.03) | 0.07 |
|  30-40.0 ng/mL | 0.09 ± 1.21 | Ref.  |  |
|  >40 ng/mL | 0.21 ± 1.34 | 0.17 (-0.26, 0.59) | 0.44 |
| Mean difference gestation duration (weeks) |  |  |  |
|  <20 ng/mL | 37.7 ± 1.6 | -0.64 (-1.25, -0.03) | 0.03 |
|  20-29.9 ng/mL | 37.9 ± 1.7 | -0.20 (-0.75, 0.35) | 0.41 |
|  30-40.0 ng/mL | 38.2 ± 1.5 | Ref. |  |
|  >40 ng/mL | 38.2 ± 1.5 | 0.03 (-0.43, 0.49) | 0.91 |
| Length-for-age z-score at 9-15 months of age |  |  |  |
|  <20 ng/mL | -0.18 ± 0.97 | -0.70 (-1.25, -0.16) | 0.01 |
|  20-29.9 ng/mL | 0.13 ± 1.39 | -0.38 (-0.84, 0.08) | 0.10 |
|  30-40.0 ng/mL | 0.23 ± 1.27 | Ref. |  |
|  >40 ng/mL | 0.10 ± 1.27 | -0.11 (-0.54, 0.30) | 0.59 |

\*Multivariable models adjusted for maternal age (<25, 25-29.9, 30-34.9, ≥35 years), mother did not complete high school (yes/no), maternal income <$10,000 per year (yes/no), region of residence (NY/NJ/Chicago, South, West, Puerto Rico), maternal pre-pregnancy BMI (<25, 25-29.9, 30-34.9, ≥ 35), third trimester CD4 T-cell count (<350, 350-499, ≥500 cells/mm3), 3rd trimester HIV-1 RNA viral load >400 copies/ml (yes/no), third trimester maternal smoking (yes/no) and infant sex (male/female).