**Supplemental Table 1.** Mother and infant characteristics

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Characteristics | | | *n* (%) | Mean ± SD |
|
| Maternal characteristics | | |  |  |
|  | Age at delivery (years) | | 202 | 29.8 ± 4.9 |
|  | Pre-pregnancy BMI (kg/m2) | | 202 | 21.1 ± 3.1 |
|  | Parity | Primiparous | 110 (54.5) |  |
|  | Multiparous | 92 (45.5) |  |
|  | Annual household income (million yen per year) | <5 | 142 (71.0) |  |
|  | ≥5 | 58 (29.0) |  |
|  | Education level (years) | ≤12 | 91 (45.0) |  |
|  | ≥13 | 111 (55.0) |  |
|  | Smoking during pregnancy | Nonsmoker | 158 (78.2) |  |
|  | Smoker | 44 (21.8) |  |
|  | Alcohol consumption during pregnancy | Nondrinker | 132 (65.3) |  |
|  | Drinker | 70 (34.7) |  |
|  |  |  |  | Median (25%–75%) |
|  | MEHP (ng/mL) |  | 202 | 10.4 (5.88–15.3) |
| Infant characteristics | | |  |  |
|  | Sex | Male | 93 (46.0) |  |
|  | Female | 109 (54.0) |  |
|  | Gestational age (weeks) |  | 202 | 39.5 ± 1.0 |
|  | Birth weight (g) |  | 202 | 3138.6 ± 331.3 |
|  | Apgar score at 1 minute after birth | 9 | 163 (82.7) |  |
|  |  | 8 | 36 (17.8) |  |
|  |  | 7 | 3 (1.5) |  |

BMI, body mass index; MEHP, mono(2-ethylhexyl) phthalate

**Supplemental Table S2**　Quartile models between MEHP and steroid hormone levels

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1st quartile (reference) | | |  | 2nd quartile | | | |  | 3rd quartile | | | |  | 4th quartile | | | |  | P for trend |
|  | LSM | 95% CI | |  | LSM | 95% CI | | p-value |  | LSM | 95% CI | | p-value |  | LSM | 95% CI | | p-value |  |
| DHEA | 2.51 | 1.98 | 3.19 |  | 2.59 | 2.05 | 3.28 | 0.321 |  | 2.83 | 2.27 | 3.54 | 0.958 |  | 3.57 | 2.79 | 4.56 | 0.024 |  | 0.143 |
| Androstenedione | 0.543 | 0.448 | 0.658 |  | 0.491 | 0.407 | 0.593 | 0.826 |  | 0.518 | 0.433 | 0.620 | 0.638 |  | 0.451 | 0.371 | 0.549 | 0.200 |  | 0.532 |
| DHEA  /androstenedione | 4.63 | 3.46 | 6.19 |  | 5.28 | 3.97 | 7.01 | 0.500 |  | 5.47 | 4.18 | 7.17 | 0.723 |  | 7.90 | 5.87 | 10.64 | 0.007 |  | 0.053 |
| Androstenedione /testosterone | 0.0062 | 0.0054 | 0.0071 |  | 0.0057 | 0.0050 | 0.0065 | 0.393 |  | 0.0055 | 0.0048 | 0.0063 | 0.129 |  | 0.0066 | 0.0057 | 0.0076 | 0.109 |  | 0.188 |
| Cortisol | 50.3 | 31.9 | 79.4 |  | 29.6 | 18.9 | 46.3 | 0.900 |  | 26.4 | 17.3 | 40.4 | 0.620 |  | 17.8 | 11.2 | 28.4 | 0.011 |  | 0.016 |
| Cortisone | 93.2 | 50.4 | 172.3 |  | 59.1 | 32.4 | 107.9 | 0.725 |  | 62.1 | 35.1 | 109.8 | 0.585 |  | 25.4 | 13.5 | 47.5 | 0.003 |  | 0.021 |
| Cortisol/cortisone | 0.540 | 0.413 | 0.705 |  | 0.501 | 0.385 | 0.650 | 0.553 |  | 0.426 | 0.332 | 0.546 | 0.037 |  | 0.702 | 0.534 | 0.923 | 0.013 |  | 0.036 |
| Glucocorticoid  /adrenal androgen | 47.9 | 23.8 | 96.4 |  | 29.7 | 15.0 | 59.0 | 0.622 |  | 27.9 | 14.6 | 53.5 | 0.795 |  | 11.4 | 5.6 | 23.3 | 0.005 |  | 0.030 |

Steroid hormone levels were log10-transformed and back-transformed to LSM.

Each hormone was included in the model separately and adjusted for maternal age, smoking, and alcohol consumption during pregnancy, gestational age, blood sampling week, infant sex, and PFOS

95% CI, 95% confidence interval; DHEA, dehydroepiandrosterone; LSM, least square mean; MEHP, mono(2-ethylhexyl) phthalate; PFOS, perfluorooctane sulfonate level.

**Supplemental Table S3**　Linear regression models between MEHP and steroid hormone levels

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | adjusted model 1 | | | | |  | adjusted model 2 | | | | | |
|  | B | (95%CI) | | p-value | |  | B | | (95%CI) | | p-value | |
| DHEA | 0.232 | 0.080 | 0.385 | | 0.003 |  | 0.220 | 0.044 | | 0.396 | | 0.014 |
| Androstenedione | -0.085 | -0.209 | 0.039 | | 0.178 |  | -0.069 | -0.212 | | 0.074 | | 0.340 |
| DHEA/Androstenedione | 0.317 | 0.136 | 0.499 | | 0.001 |  | 0.289 | 0.074 | | 0.505 | | 0.009 |
| Androstenedione/testosterone | 0.001 | 0.000 | 0.003 | | 0.089 |  | 0.002 | -0.001 | | 0.004 | | 0.136 |
| Cortisol | -0.475 | -0.762 | -0.187 | | 0.001 |  | -0.418 | -0.762 | | -0.074 | | 0.018 |
| Cortisone | -0.678 | -1.064 | -0.291 | | 0.001 |  | -0.588 | -1.049 | | -0.128 | | 0.013 |
| Cortisol/Cortisone | 0.203 | 0.033 | 0.373 | | 0.020 |  | 0.170 | -0.030 | | 0.371 | | 0.096 |
| glucocorticoid/adrenal androgen | -0.765 | -1.205 | -0.325 | | 0.001 |  | -0.677 | -1.199 | | -0.155 | | 0.011 |

Steroid hormone levels and MEHP concentrations were log10-transformed and included in the model separately.

β for linear regression coefficients

Adjusted model 1: adjusted for maternal age, smoking during pregnancy, alcohol consumption during pregnancy, gestational age, blood sampling week, and infant sex

Adjusted model 2: adjusted for maternal age, smoking during pregnancy, alcohol consumption during pregnancy, gestational age, blood sampling week, infant sex, PFOS, and Apgar score