# EFFECTS OF MATERNAL VITAMIN D LEVELS ON PREMATURITY: FEASIBILITY STUDY IN A MULTICENTER OBSERVATIONAL PILOT

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**Supplementary Table S1.** Statistical values of numerical variables

**Supplementary Table S2**. Baseline characteristics of the cohort based on the questionnaire parameters

**Supplementary Table S3.** Baseline characteristics of the cohort based on clinical record parameters

**Table S1**. Statistical values of numerical variables

| | N | Mean | Median | Variance | SD | Minimum | Maximum | Range | 1st Quartile | 2nd Quartile | 3rd Quartile | Interquartile Range | Asymmetry |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Maternal age (years)** | 30 | 30.5 | 30 | 44.5 | 6.7 | 17 | 42 | 25 | 27.8 | 30 | 35.2 | 8 | -0.2 |
| **Perinatal 25(OH)D (ng/mL)** | 30 | 25.8 | 20.3 | 280.9 | 16.7 | 7 | 84 | 77 | 13 | 20.3 | 32.9 | 20 | 1.7 |
| **Prenatal 25(OH)D (ng/mL)** | 16 | 27.9 | 31 | 161.1 | 12.7 | 7 | 54 | 47 | 17.2 | 31 | 36.8 | 20 | 0.03 |
| **Postnatal 25(OH)D (ng/mL)** | 15 | 23 | 16 | 402.7 | 20 | 10 | 84 | 74 | 12 | 16 | 20 | 8 | 2.5 |
| **Pre-gestational BMI ($kg/m^2$)** | 30 | 25.1 | 23.8 | 30.6 | 5.5 | 17 | 40 | 24 | 20.8 | 23.8 | 29.4 | 9 | 0.9 |
| **Gestational age at blood sampling (weeks)** | 30 | 33.5 | 38 | 62.8 | 7.9 | 16 | 41 | 25 | 30.2 | 38 | 39.2 | 9 | -1.09 |
| **Systolic blood pressure (mmHg)** | 21 | 120.5 | 118 | 252.8 | 15.9 | 93 | 168 | 75 | 110 | 118 | 130 | 20 | 1.2 |
| **Distolic blood pressure (mmHg)** | 21 | 69.9 | 72 | 132.8 | 11.5 | 50 | 102 | 52 | 60.5 | 72 | 75 | 15 | 0.7 |
| **OGTT Fasting (mg/dL)** | 24 | 75.8 | 77 | 115.8 | 10.8 | 54 | 92 | 38 | 65 | 77 | 84.5 | 19 | -0.4 |
| **OGTT after 1h** | 20 | 129.8 | 132.6 | 1047.1 | 32.4 | 71.7 | 182 | 110.4 | 98.7 | 132.6 | 155.6 | 56.3 | -0.06 |
| **OGTT after 2h** | 20 | 103.6 | 106 | 787.7 | 28.1 | 54 | 155.1 | 101.1 | 77.5 | 106 | 122.4 | 44.9 | -0.09 |
| **C-Reactive Protein (mg/L)** | 7 | 5.5 | 3.6 | 18.9 | 4.3 | 2 | 14.3 | 12.3 | 2.1 | 3.6 | 6.9 | 4.8 | 1.6 |
| **Gestational weight gain (Kg)** | 21 | 13.2 | 12.7 | 45 | 6.7 | 0 | 24 | 24 | 7.5 | 12.7 | 19 | 12 | -0.13 |
| **Gestational age at birth (weeks)** | 29 | 39 | 39 | 1.7 | 1.3 | 34 | 41 | 7 | 39 | 39 | 40 | 1 | -2.15 |
| **Birth weight (gr)** | 29 | 3120.1 | 3220 | 141784.5 | 376.5 | 2210 | 3670 | 1460 | 2860 | 3220 | 3395 | 535 | -0.7 |
| **Length at birth (cm)** | 27 | 48 | 48 | 3.2 | 1.8 | 44 | 51 | 7 | 46.5 | 48 | 49 | 2.5 | -0.7 |
| **Head circumference (cm)** | 27 | 34.6 | 34.5 | 2.5 | 1.6 | 31.5 | 38 | 6.5 | 33.3 | 34.5 | 36 | 2.7 | 0.02 |
| **Apgar 1st minute** | 29 | 9.3 | 9 | 0.4 | 0.6 | 8 | 10 | 2 | 9 | 9 | 10 | 1 | -0.24 |
| **Apgar 5th minute** | 29 | 9.9 | 10 | 0.07 | 0.3 | 9 | 10 | 1 | 10 | 10 | 10 | 0 | -3.6 |
| **Neonatal hospitalization (days)** | 29 | 2.7 | 3 | 0.5 | 0.7 | 2 | 5 | 3 | 2 | 3 | 3 | 1 | 1.25 |

**Table S2**. Baseline characteristics of the cohort based on the questionnaire parameters

| | | Number | Percentage (%) |
|---|---|---|---|
| Maternal characteristics (n=30) | | | |
| **Age Group** (years) | 16-17 | | |
| | 18-20 | | |
| | 21-24 | | |
| | 25-34 | | |
| | 35-44 | | |
| **Nationality** | Portuguese | | |
| | Other | | |
| **Ethnic Origin** | White | | |
| | Black | | |
| | Asian | | |
| | Gypsy | | |
| | Other | | |
| **Latitude** | Portalegre | | |
| | Évora | | |
| | Beja | | |
| **Residence** | Urban | | |
| | Rural | | |
| **Type of House** | Apartment | | |
| | Villa | | |
| | Other | | |
| **Marital Status** | Single | | |
| | Married | | |
| | Stable union | | |
| **Education** | Basic | | |
| | Secondary | | |
| | Professional course | | |
| | Higher education | | |
| **Employment** | Employee | | |
| | Unemployed | | |
| **Profession** | Scientific activities | | |
| | Intermediate level | | |
| | Administrative staff | | |
| | Personal service | | |
| | Machine operators | | |
| | Unskilled workers | | |
| **Professional practice** | Indoor | | |
| | Outdoor | | |
| **Monthly Family Income** (MW:760€) | Less than 1 MW | | |
| | 1-2 MW | | |
| | 3-4 MW | | |
| | Doesn't know | | |
| **Health Insurance** | Yes | | |
| | No | | |

**Table S2**. Baseline characteristics of the cohort based on the questionnaire parameters (Continued)

| | | Number | Percentage (%) |
|---|---|---|---|
| Maternal characteristics (n=30) | | | |
| **Pre-pregnancy BMI** ($kg/m^2$) | Underweight (<18.5) | | |
| | Normal weight (18.5-24.9) | | |
| | Overweight (25-29.9) | | |
| | Obesity (≥30) | | |
| **Season of conception** | November to April | | |
| | May to October | | |
| **Mode of conception** | Natural/spontaneous | | |
| | In vitro fertilization | | |
| **Prenatal surveillance** | One appointment | | |
| | Two or more | | |
| **Number of pregnancies** | First pregnancy | | |
| | 2nd pregnancy | | |
| | 3rd or more | | |
| **Parity** | Nulliparous | | |
| | 1 birth | | |
| | 2 births | | |
| | 3 or more | | |
| **Previous History of Abortion** | Yes | | |
| | No | | |
| **Previous history of prematurity** | Yes | | |
| | No | | |
| **Smoking habits** | Never smoked | | |
| | Stopped before pregnancy | | |
| | Smoked in early pregnancy | | |
| | Current smoker | | |
| **Passive Smoking** | Yes | | |
| | No | | |
| **Alcohol habits** | Never drank | | |
| | Stopped before pregnancy | | |
| | Drank early in pregnancy | | |
| | Currently drinks | | |
| **Sleep Habits** | Less than 6 hours | | |
| | 6-7 hours | | |
| | 8-9 hours | | |
| | More than 9 hours | | |
| **Type of diet** | Mediterranean | | |
| | Paleo/Paleolithic | | |
| | Vegetarian/Vegan | | |
| | Keto or Ketogenic | | |
| | Macrobiotic Diet | | |
| | Other | | |

**Table S2**. Baseline characteristics of the cohort based on the questionnaire parameters (Continued)

| | | Number | Percentage (%) |
|---|---|---|---|
| Maternal characteristics (n=30) | | | |
| **Consumption of vitamin D-rich foods per week** | | | |
| **Eggs** | Never | | |
| | 1-2 times | | |
| | 3-5 times | | |
| | Every day | | |
| **Oily fish** | Never | | |
| | 1-2 times | | |
| | 3-5 times | | |
| | Every day | | |
| **Milk and dairy products** | Never | | |
| | 1-2 times | | |
| | 3-5 times | | |
| | Every day | | |
| **Mushrooms** | Never | | |
| | 1-2 times | | |
| | 3-5 times | | |
| | Every day | | |
| **Liver steak** | Never | | |
| | 1-2 times | | |
| | 3-5 times | | |
| | Every day | | |
| **Chicken liver** | Never | | |
| | 1-2 times | | |
| | 3-5 times | | |
| | Every day | | |
| **Cod liver oil** | Never | | |
| | 1-2 times | | |
| | 3-5 times | | |
| | Every day | | |
| **Fish oil** | Never | | |
| | 1-2 times | | |
| | 3-5 times | | |
| | Every day | | |
| **Physical Activity** | Yes | | |
| | No | | |
| **Outdoor activity** | Yes | | |
| | No | | |
| **Weekly frequency of physical activity** | Less than 3 days | | |
| | 3-4 days | | |
| | 5 or more days | | |
| **Daily duration of outdoor activity** | Less than 30 minutes | | |
| | 30 minutes to 1 hour | | |

**Table S2**. Baseline characteristics of the cohort based on the questionnaire parameters (Continued)

| | | Number | Percentage (%) |
|---|---|---|---|
| Maternal characteristics (n=30) | | | |
| **Time of outdoor activity** | Before 10 a.m. | | |
| | Between 10 a.m. and 3 p.m. | | |
| | After 3 p.m. | | |
| **Sun exposure during outdoor activities** | Face and hands | | |
| | Face, arms and hands | | |
| | Face, arms, hands and legs | | |
| **Use sunscreen** | Always | | |
| | Only in summer | | |
| | Before going to the beach | | |
| | Before any outdoor activity | | |
| | Never | | |
| **Skin Type** (Fitzpatrick phototyping scale) | Type I | | |
| | Type II | | |
| | Type III | | |
| | Type IV | | |
| | Type V | | |
| | Type VI | | |
| **Pre-gestational pathology** | Yes | | |
| | No | | |
| **Gestational supplement with vitamin D** | Yes | | |
| | No | | |
| **Knowledge of the dosage of vitamin D in the supplement** | Yes | | |
| | No | | |

**Table S3**. Baseline characteristics of the cohort based on clinical record parameters

| | | Number | Percentage (%) |
|---|---|---|---|
| **Season at the time of blood collection** | Spring | | |
| | Summer | | |
| | Fall | | |
| | Winter | | |
| **Perinatal period timing at the time of collection** | 1st trimester | | |
| | 2nd trimester | | |
| | 3rd trimester | | |
| | Postpartum | | |
| **Daily dose of vitamin D supplementation** | Less than 400 UI | | |
| | Between 400 and 600 UI | | |
| | More than 600 up to 1000 UI | | |
| | More than 1000 up to 2000 UI | | |
| | Over 2000 | | |
| UI | | | |
| **Maternal vitamin D levels in the perinatal period** (n=30) | Deficiency (<20 ng/mL) | | |
| | Insufficiency (20-29.9 ng/mL) | | |
| | Sufficiency (≥ 30 ng/mL) | | |
| **Maternal vitamin D levels in the prenatal period** (n=16) | Deficiency (<20 ng/mL) | | |
| | Insufficiency (20-29.9 ng/mL) | | |
| | Sufficiency (≥ 30 ng/mL) | | |
| **Maternal vitamin D levels in the postnatal period** (n=15) | Deficiency (<20 ng/mL) | | |
| | Insufficiency (20-29.9 ng/mL) | | |
| | Sufficiency (≥ 30 ng/mL) | | |
| **Collection for inflammatory biomarkers** | Yes | | |
| | No | | |
| **Gestational pathology** | Yes | | |
| | No | | |
| **Use of medication during pregnancy** | Yes | | |
| | No | | |
| **Gestational diabetes** | Yes | | |
| | No | | |
| **Gestational hypertension** | Yes | | |
| | No | | |
| **Gestational weight gain** | Excessive (>16 kg) | | |
| | Adequate (11-16 kg) | | |
| | Insufficient (<11Kg) | | |
| **Maternal age at birth** (years) | <20 | | |
| | 20-34 | | |
| | 35-45 | | |
| | ≥46 | | |
| **Type of delivery** | Eutocic | | |
| | Dystocic | | |
| **Dystocia by caesarean section** | Yes | | |
| | No | | |
| **Reason for caesarean section** | Elective | | |

Emergency

**Table S3**. Baseline characteristics of the cohort based on clinical record parameters (Continued)

| | | Number | Percentage (%) |
|---|---|---|---|
| **Cause of caesarean section emergency** | Maternal cause<br>Fetal cause | | |
| **Preterm birth** | Yes<br>No | | |
| **Preterm birth** | Elective<br>Spontaneous | | |
| **Adverse clinical outcomes** | No adverse effects<br>One adverse effect<br>Two adverse effects | | |
| Neonatal outcomes | | | |
| **Gestational age at birth** | Preterm (<37 weeks)<br>Term (≥37 weeks) | | |
| **Season at birth** | November to April<br>May to October | | |
| **Sex** | Male<br>Female | | |
| **Apgar score 1st minute** | < 7<br>≥7 | | |
| **Apgar score 5th minute** | <7<br>≥7 | | |
| **Need for resuscitation maneuvers** | Yes<br>No | | |
| **Birth weight** (gr) | LBW (1500-2499)<br>Underweight (2500-2999)<br>Normal weight (3000-3999) | | |
| **Length at birth** (cm) | Short birth length (<50)<br>Normal (≥50) | | |
| **Head circumference** (cm) | Small head circumference (<35)<br>Normal (≥35) | | |
| **Presence of meconium** | Yes<br>No | | |
| **Duration of neonatal hospitalization** | Normal (2-3 days)<br>Above normal (>3 days) | | |
| **Admission to the NICU** | Yes<br>No | | |
| **Neonatal adverse clinical effects** | No adverse effects<br>One adverse effect<br>Two adverse effects | | |