|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Live birth** | **N** | **Induced labour** | **N** | **Stillbirth** | **N** |
| Heterotaxia | 1 | Hypoplastic left heart syndrome | 3 | Heterotaxia | 1 |
| Pulmonary stenosis（PS） | 3 | Tetralogy of Fallot（TOF） | 1 | Atrioventricular septal defects (AVSD) | 1 |
| Tetralogy of Fallot（TOF） | 1 | Ventricular septal defect（VSD） | 2 | Tetralogy of Fallot（TOF） | 1 |
| Ventricular septal defect（VSD） | 6 | Atrioventricular septal defect（AVSD） | 1 | Right aortic arch | 1 |
| Coarctation of the aorta | 1 | Pulmonary stenosis（PS） | 1 | Pulmonary stenosis（PS） | 1 |
| Right aortic arch | 1 |  |  | Persistent truncus arteriosus | 1 |
| Pulmonary atresia | 2 |  |  | Ventricular septal defect（VSD） | 1 |
| Dysplastic tricuspid valve | 1 |  |  |  |  |
| SUM | 16 |  | 8 |  | 7 |

**Table S1. Features of heart defects in the case and control group**

N, number

**Table S2. Association between daily habits or nutrients intake with infant CHD risk**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Controls**  **N=72** | **Cases**  **N=31** | **OR (95%CI)** | **P Value\*** |
|  | **n(%)** | **n(%)** |  |  |
| **Food intake1** |  |  |  |  |
| Milk | 56(77.8) | 18(58.1) | 0.396(0.16-0.977) | 0.044 |
| Sea Fish | 25(35.2) | 4(12.9) | 0.273(0.086-0.867) | 0.028 |
| Shrimp and crab | 30(41.7) | 10(32.3) | 0.700(0.287-1.708) | 0.433 |
| Eggs | 59(81.9) | 21(67.7) | 0.463(0.177-1.212) | 0.117 |
| Wheat | 33(45.8) | 8(25.8) | 0.390(0.154-0.990) | 0.048 |
| Peanuts | 15(20.8) | 5(16.1) | 0.731(0.240-2.225) | 0.581 |
| Bean products | 47(65.3) | 14(45.2) | 0.438(0.186-1.033) | 0.059 |
| Nuts | 25(34.7) | 6(19.4) | 0.451(0.164-1.244) | 0.124 |
| Vegetables | 62(86.1) | 25(80.6) | 0.672(0.221-2.046) | 0.484 |
| A balanced diet | 66(91.7) | 23(74.2) | 0.418(0.116-1.501) | 0.181 |
| **Nutrients intake1** |  |  |  |  |
| DAH | 30(41.7) | 7(22.6) | 0.408(0.156-1.070) | 0.068 |
| Calcium tablet | 35(48.6) | 14(45.2) | 0.853(0.357-2.041) | 0.721 |
| Iron compound | 17(23.6) | 7(22.6) | 1.235(0.438-3.486) | 0.69 |
| Multivitamins | 33(45.8) | 8(25.8) | 0.411(0.162-1.040) | 0.061 |
| Folic acid tablets | 41(56.9) | 16(51.6) | 0.922(0.371-2.295) | 0.862 |
| **Drinks intake1** |  |  |  |  |
| Alcohol | 19(26.4) | 7(22.6) | 0.814(0.302-2.193) | 0.683 |
| Tea | 8(11.4) | 7(22.6) | 2.260(0.739-6.917) | 0.153 |
| A caffeinated drink | 29(40.3) | 12(38.7) | 0.936(0.395-2.219) | 0.881 |
| **Smoking or passive smoking** | 21(29.2) | 8(25.8) | 0.845(0.326-2.188) | 0.728 |
| **Serum biological factors2** |  |  |  |  |
| Folic acid (nmol/L) | 6(8.3) | 4(12.9) | 1.692(0.441-6.489) | 0.443 |
| Vitamin B12 (pmol/L ) | 7(9.7) | 5(16.1) | 1.857(0.539-6.397) | 0.327 |
| Homocysteine (μmol/L) | 1(1.4) | 3(9.7) | 7.889(0.786-79.171) | 0.079 |

**\***P value was calculated with univariate binary logistic regression analysis

**1**According to the questionnaire design, we defined food/nutrients/drinks intake as eating regularly/often/usually, while no/occasionally eating is considered no intake.

**2**Serum biological factors, we only calculated the impact of abnormal values. (The normal value : Folic acid: 11-54 nmol/L; Vitamin B12: 200-900 pmol/L; Homocysteine: 5-15μmol/L)

**Table S3. Association between****maternal disease, reproductive history and psychological conditions with infant CHD risk**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Controls**  **N=72** | **Cases**  **N=31** | **OR (95%CI)** | **P Value\*** |
|  | **n(%)** | **n(%)** |  |  |
| **Maternal disease and reproductive history** | | | | |
| Childbearing history | 27(37.5) | 10(32.3) | 0.794(0.325-1.935) | 0.611 |
| History of conception control | 15(20.8) | 13(41.9) | 2.648(1.062–6.603) | 0.037 |
| History of threatened abortion | 13(18.1) | 11(35.5) | 2.632(1.005–6.894) | 0.049 |
| Cold/fever in early pregnancy | 29(40.3) | 16(51.6) | 1.698(0.708-4.069) | 0.235 |
| Medication**1** | 8(11.1) | 8(25.8) | 2.783(0.936–8.274) | 0.066 |
| Regular menstruation | 49(68.1) | 19(61.3) | 0.743(0.309-1.785) | 0.507 |
| History of dysmenorrhea | 37(51.4) | 23(74.2) | 2.720(1.075-6.878) | 0.035 |
| **Sleep status** |  |  |  |  |
| Sleeping time (<8h) | 27(39.1) | 11(35.5) | 0.856(0.355-2.063) | 0.728 |
| Napping habit during daytime | 45(63.4) | 13(41.9) | 0.417(0.176-0.987) | 0.047 |
| Difficulty Falling Asleep | 9(12.5) | 8(25.8) | 2.435(0.839-7.066) | 0.102 |
| Nightmares | 3(4.2) | 3(9.7) | 2.464(0.469-12.954) | 0.287 |
| Poor sleep quality | 7(9.9) | 8(25.8) | 3.18(1.037-9.754) | 0.043 |
| **Work status** |  |  |  |  |
| Working pressure | 29(40.3) | 12(38.7) | 0.989(0.415-2.357) | 0.979 |
| Working time weekly (>40h) | 16(22.2) | 14(45.2) | 2.882(1.172-7.086) | 0.021 |

**\***P value was calculated with univariate binary logistic regression analysis

**1**Medication means taking prescription drugs during pregnancy including Euthyrox or some anti-abortion drugs.

**Table S4. Association between residential characteristics with infant CHD risk**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Controls N=72(%)** | **Cases**  **N=31(%)** | **OR (95%CI)** | **P Value\*** |
|  | **n(%)** | **n(%)** |  |  |
| **Indoor residential characteristics** |  |  |  |  |
| House decoration recently | 20(27.8) | 7(22.6) | 1.319(0.491-3.539) | 0.583 |
| Poor ventilation | 26(36.1) | 16(51.6) | 1.887(0.804-4.428) | 0.144 |
| Damp | 6(8.3) | 4(13.3) | 1.692(0.441-6.489) | 0.443 |
| Cement floor | 1(1.4) | 6(19.4) | 17.04(1.954-148.574) | 0.01 |
| Floor tiles | 23(31.9) | 16(53.6) | 2.272(0.961-5.376) | 0.062 |
| Composite Wood floor | 35(48.6) | 9(29.0) | 0.432(0.175-1.067) | 0.069 |
| Solid Wood floor | 35(48.6) | 13(41.9) | 0.763(0.326-1.786) | 0.534 |
| Marble floor | 11(15.3) | 7(22.3) | 1.688(0.584-4.882) | 0.334 |
| Musty smell | 12(16.7) | 12(38.7) | 3.105(1.198-8.051) | 0.02 |
| See cockroaches or mice | 27(37.5) | 19(61.3) | 2.639(1.110-6.274) | 0.028 |
| Keep a pet | 11(15.3) | 6(19.4) | 1.331(0.444-3.991) | 0.61 |
| Usage of ventilator when cooking | 61(84.3) | 19(61.9) | 0.286(0.109-0.751) | 0.011 |
| Usage of television1 | 63(87.5) | 23(74.2) | 0.411(0.142-1.192) | 0.102 |
| Usage of electronics1 | 57(79.2) | 21(67.7) | 0.553(0.215-1.420) | 0.218 |
| Usage of microwave1 | 47(65.3) | 11(35.5) | 0.293(0.121-0.706) | 0.006 |
| **Specific buildings near residence2** |  |  |  |  |
| Farmland or orchards | 1(1.4) | 4(12.9) | 10.519(1.125-98.337) | 0.039 |
| Heavy traffic | 30(41.7) | 14(45.2) | 1.153(0.494-2.693) | 0.742 |
| Noise near residence | 3(4.2) | 5(16.9) | 4.423(0.986-19.837) | 0.052 |
| Smoke emissions | 1(1.4) | 1(3.2) | 6.714(0.376-120.006) | 0.196 |
| Chemical emissions | 2(2.8) | 1(3.2) | 1.167(0.102-13.362) | 0.901 |
| Chemical smell near residence | 3(4.2) | 4(12.9) | 3.538(0.741-16.891) | 0.113 |
| Automobile Exhaust | 14(19.4) | 6(19.4) | 1.063(0.356-3.014) | 0.949 |
| **Indoor air pollutions measurement3** |  |  |  |  |
| Formaldehyde(＞0.08mg/m3) | 12(16.7) | 5(16.1) | 0.962(0.307-3.007) | 0.946 |
| Benzene(＞0.03mg/m3) | 5(6.9) | 11(35.5) | 7.370(2.289-23.726) | 0.001 |
| Toluene(＞0.2mg/m3) | 5(6.9) | 1(3.2) | 0.447(0.050-3.990) | 0.471 |
| Xylene(＞0.2mg/m3) | 5(6.9) | 4(12.9) | 1.985(0.495-7.959) | 0.333 |
| Total volatile organic compound  (TVOC)(＞0.6mg/m3) | 3(4.2) | 18(58.1) | 31.846(8.187-123.872) | <0.001 |
| PM2.5(＞50ug/m3) | 3(4.2) | 1(3.2) | 0.767(0.077-7.673) | 0.821 |
| PM10(＞100ug/m3) | 0(0) | 1(3.2) | - | - |
| **Temperature (Mean±SD, ℃)** | 29.306±3.359 | 24.548±6.602 | 0.791(0.697-0.898) | <0.001 |
| **Relative humidity (Mean±SD, %)** | 48.278±8.888 | 45.064±12.348 | 0.967(0.926-1.011) | 0.14 |

**\***P value was calculated with univariate binary logistic regression analysis

**1**We defined the usage of electronics, microwave or TV as used at least once weekly

**2**We defined near residence as less than five minutes’ walk from residence

**3**Indoor chemical substances exposure limits were referenced from Chinese national GB/T 18,883-2022