Supplemental files for

Association of maternal folate and vitamin B\textsubscript{12} in early pregnancy with gestational diabetes mellitus: a prospective cohort study

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Running title: Folate, vitamin B\textsubscript{12} and gestational diabetes

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Supplemental Figure S1. The distribution RBC folate (ng/mL), serum folate (ng/mL) and serum vitamin B\textsubscript{12} (pg/mL) concentration.
Supplemental Figure S2. Comparison of RBC folate, serum folate and vitamin B\textsubscript{12} between GDM and non-GDM. RBC folate and vitamin B\textsubscript{12} levels of GDM were significantly higher than that of non-GDM [426.44 (293.15, 587.61) vs 380.95 (291.44, 528.53) (ng/mL), \(P=0.045\); 421.00 (312.00, 546.00) vs 364.00 (277.00, 503.00) (pg/mL), \(P=0.002\)].
Supplemental Figure S3. The comparison of GGT at early pregnancy between GDM and non-GDM is based on a subgroup of study subjects (n=458). To explore the potential mechanisms of how higher vitamin B$_{12}$ associated with an increased risk of GDM, the $\gamma$-glutamyl transferase level (GGT), one of impaired liver function markers measured in routine antenatal care, was analyzed with GDM risk. Figure a showed the GGT level in GDM was significantly higher than non-GDM [2.7 (2.3, 3.1) vs 2.4 (2.1, 2.7), $P<0.001$]; Figure b depicted the probability of GDM fitted by logistical regression, high GGT concentration was significantly associated with GDM risk, OR(95% CI)=2.65(1.59-4.39), $P<0.001$. 
## Supplemental Table S1. Association of folate/vitamin B_{12} in early pregnancy with GDM risk

| Variables                  | Group               | GDM/Total (%) | OR     | 95% CI | P    | OR     | 95% CI | P    |
|----------------------------|---------------------|---------------|--------|--------|------|--------|--------|------|
| RBC folate/vitamin B_{12}  | Q1(<0.69)           | 47/257(18.2)  | Ref    | Ref    |      | Ref    | Ref    |      |
|                            | Q2(0.69-1.55)       | 88/538(16.3)  | 0.87   | 0.59-1.29 | 0.49 | 0.83   | 0.55-1.24 | 0.36 |
|                            | Q3(≥1.55)           | 45/263(17.1)  | 0.92   | 0.58-1.44 | 0.72 | 0.80   | 0.50-1.28 | 0.37 |
|                            | Trend test          |               | 0.72   |        |      |        |        |      |
| Serum folate/vitamin B_{12} | Q1(<28.98)          | 62/310(20.0)  | Ref    | Ref    |      | Ref    | Ref    |      |
|                            | Q2(28.98-48.23)     | 73/444(16.4)  | 0.78   | 0.54-1.14 | 0.21 | 0.76   | 0.52-1.13 | 0.18 |
|                            | Q3(≥48.23)          | 45/304(14.8)  | 0.69   | 0.45-1.05 | 0.09 | 0.63   | 0.41-0.98 | 0.042|
|                            | Trend test          |               | 0.08   |        |      |        |        |      |

* the ratio of serum folate to vitamin B_{12} concentrations was determined by dividing folate concentrations (ng/mL) by vitamin B_{12} concentrations (pg/mL) and multiplying by 1000; † univariate model; ‡ adjusted for age, preconceptional-BMI, family history of diabetes, smoking exposure and drinking status;
Table S2. Association of maternal serum folate levels at mid-gestation with GDM risk (N=458)

| Variable                  | Group        | GDM (%)          | Model 1† | Model 2‡ |
|---------------------------|--------------|------------------|----------|----------|
| Serum folate (ng/ml)      |              |                  | OR       | 95% CI   | P       |
|                           | Q1(<5.1)     | 16/138 (11.5)    | 1.08     | 1.03-1.13| 0.001   |
|                           | Q2(5.1-10.7) | 23/140 (16.4)    | 1.49     | 0.75-2.39| 0.24    |
|                           | Q3(≥10.7)    | 34/136 (25.0)    | 2.81     | 1.32-4.87| 0.005   |
| Serum folate change*      |              |                  | 0.94     | 0.90-0.98| 0.017   |

This analysis was conducted based on a subgroup of our study subjects (n=458);

* The levels at early pregnancy minus the levels at mid-gestation;
† Univariate model;
‡ Adjusted for age, preconceptional-BMI, family history of diabetes, smoking exposure and drinking status.