

FOLIC ACID SUPPLEMENTATION IN OBESE PREGNANT WOMEN

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Introduction¹

Vitamin B9 is one of the hydrosoluble vitamins of the B complex. Given its low reserves, it is advisable to eat vegetables and fruit - green leafy vegetables, lentils, beans and citrus fruits.

The forms found in the body and in food are called "folates" while the forms found in supplements and fortified foods are called "folic acid".

Folic acid has no biological activity if it isn't converted into folates. The bioavailability of Folate ranges from 30% to 98%, while for folic acid it is commonly estimated at 85%.

Methodology

A literature review of the research articles, in PubMed, published in the last 5 years, using the keywords "obese women", "folic acid supplement", and "pregnancy", was the chosen method.

Based on the evidence, the World Health Organisation (WHO) and the Ministry of Health of numerous Countries.

Dose of 400µg (0.4mg), daily, for at least 30 days before conception until the first trimester of gestation.^{4,5}

Supplementation for the average pregnant woman^{1,3}

It plays an important role in:

- ◆ The production and maintenance of new cells;
- ◆ Maturation and formation of red and white blood cells.

Folic acid deficiency is associated with:

- ◆ Increased neural tube defects (NTDs) in the fetus;
- ◆ Megaloblastic anaemia in the mother.

Folate deficiency in Obese Pregnant Women¹⁻³

Absolute Deficiency

Women with obesity have a lower intake of folate, are less likely to use preconceptional folic acid supplement and folic acid supplements on a daily base.

Relative Deficiency

Obese women had lower serum folate levels even after controlling for folate intake through supplements and diet.

The relative folate deficiency, as a result of an increased metabolic need for folate in obese women, can be due to:

Impaired One-Carbon Metabolism
Physiology of Adipocytes
Pro-Inflammatory State
Insulin Resistance
Hyperglycaemia
Role of the Gut Microbiome
Inositol

Other factors that are subsequently determinants of a lower intake of folate:

Smoking
Income Level
Age
Pregnancy Planning
Educational Level
Parity
Lifestyle

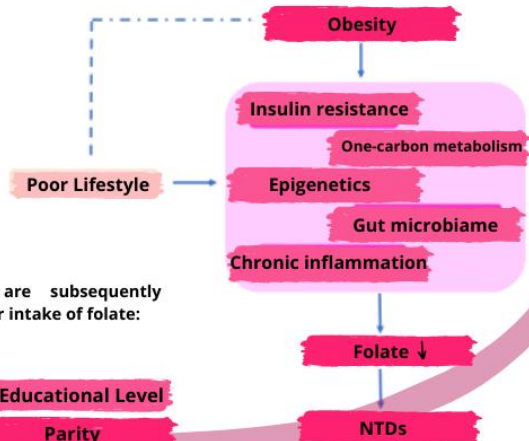


Fig.1 - Potential underlying (patho)physiological pathways of folate deficiency and NTDs in obese women.¹

Considerations for Advising Higher Doses of Folic Acid Supplements^{1,3,5}

- ◆ After using a certain dosage in a day, the unmetabolized folic acid can accumulate and might induce neurotoxicity;
- ◆ Some supplement quantities can increase the risk of impaired psychomotor and cancer development, mortality perinatally and later in life;
- ◆ High doses of folic acid can induce variations in the epigenome of the offspring.

Recommendations and Conclusions¹⁻⁵

- ◆ Treating and determining folate deficiency in the preconception period;
- ◆ Advice on improving dietary folate intake;
- ◆ Folic acid supplementation should begin before Conception;
- ◆ Need for lifestyle counseling in women with obesity.

References:

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