

Optimizing periconceptional and prenatal folic acid supplementation

Submission date 11/03/2013	Recruitment status No longer recruiting	<input type="checkbox"/> Prospectively registered
		<input type="checkbox"/> Protocol
Registration date 09/04/2013	Overall study status Completed	<input type="checkbox"/> Statistical analysis plan
		<input type="checkbox"/> Results
Last Edited 09/04/2013	Condition category Pregnancy and Childbirth	<input type="checkbox"/> Individual participant data
		<input type="checkbox"/> Record updated in last year

Plain English summary of protocol

Background and study aims

We wish to measure red blood cell and serum folate concentrations among women who are healthy and/or childbearing age, those planning a pregnancy or early in pregnancy (< 6 weeks gestation) and who do not practice multivitamin supplementation. We would like to measure and compare folate levels among women before and after implementing multivitamin supplementation with either PregVit® or PregVit-Folic 5®. This may be important information for planning or pregnant women who need folic acid, which has been shown to reduce the risk of neural tube defects and potentially other malformations as well.

Who can participate?

Women who are healthy and/or childbearing age, those planning a pregnancy or early in pregnancy (< 6 weeks gestation) and who do not take vitamin supplements.

What does the study involve?

Participants are randomly allocated to one of two groups: PregVit-Folic 5® (group1) contains 5 mg folic acid or PregVit® (group 2) contains 1.1 mg folic acid. All other vitamin and mineral doses are identical between the 2 supplements. Both supplements are taken as 2 tablets daily, one tablet in the morning (am) and one tablet in the evening (pm). Both multivitamins are appropriate for periconceptional, prenatal, and post-partum supplementation.

The total volume of blood that will be taken is approximately 20 mL (4 teaspoons). Each appointment will be scheduled according to when participants are available. To monitor adherence, the PregVit-Folic 5® blister packs should be returned along with a diary of pill intake (will be provided). To document dietary folate, telephone interviews regarding the diet will be conducted.

What are the possible benefits and risks of participating?

Daily multivitamin supplementation can improve vitamin and mineral concentrations. We will be able to tell participants about folate blood level. Results can be disclosed in person or by mail. High doses of folic acid can mask vitamin B12 deficiency. However, this is generally not a concern for healthy individuals, with no chronic medical conditions. One study has shown that vitamin B12 deficiency can still be detected even with high folate blood concentrations. PregVit® and PregVit-Folic 5® both contain vitamin B12, thus it is being supplemented. Furthermore, vitamin

B12 blood concentrations will be measured alongside folate blood concentrations to monitor for deficiencies.

The needle poking may not be pleasant. We will offer a cream named EMLA® to massage on the arm, which takes away much (sometimes all) of the pain of poking. An alternative that can be used is a gel named Ametop®.

Where is the study run from?

The study took place at The Hospital for Sick Children in Toronto, Canada.

When is the study starting and how long is it expected to run for?

The study started in 2007 and was completed in 2013.

Who is funding the study?

Duchesnay Inc. (Blainville, Quebec, Canada).

Who is the main contact?

Dr. Gideon Koren

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Contact information

Type(s)

Scientific

Contact name

Dr Gideon Koren

Contact details

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555 University Avenue

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Study information

Scientific Title

Optimizing periconceptional and prenatal folic acid supplementation: Red Blood Cell and Serum Folate Levels Achieved with 5 mg versus 1.1 mg Folic Acid in Prenatal Multivitamin-Mineral Supplements

Study objectives

To assess the serum folate pharmacokinetics of ingesting a single dose of PregVit-Folic5® versus a single dose of PregVit® (a multivitamin containing 1.1 mg folic acid); to assess the steady-state red blood cell (RBC) and serum folate concentrations achieved in non-pregnant, fertile women who supplement daily with PregVit-Folic5® versus PregVit®; and to assess the steady-state RBC and serum folate concentrations achieved before and during pregnancy in women planning a pregnancy or early in pregnancy (<6 weeks gestation) who supplement daily

with PregVit-Folic5® versus PregVit®. The Study hypotheses are as follows:

1. The serum folate concentration from ingesting PregVit-folic 5® (5 mg folic acid) will be 4-5 fold larger compared to that of PregVit® (1.1 mg folic acid).
2. Non-pregnant women of childbearing age who supplement daily with PregVit-folic 5® will invariably and optimally achieve and maintain maximum protective blood folate levels (i.e. ≥ 900 nM red blood cell folate) against NTDs.
3. Women planning a pregnancy or early in pregnancy (<6 weeks gestation) who supplement daily with PregVit-folic 5® will invariably and optimally achieve and maintain maximum protective blood folate levels (i.e. ≥ 900 nM red blood cell folate) against NTDs before and during pregnancy.

Ethics approval required

Old ethics approval format

Ethics approval(s)

The Hospital for Sick Children, March 2007, REB #: 1000009554

Study design

Prospective randomized two-arm interventional study

Primary study design

Interventional

Study type(s)

Prevention

Health condition(s) or problem(s) studied

Multivitamin supplementation in pregnancy

Interventions

This is a two-arm comparison study: PregVit-Folic 5® (arm 1) contains 5 mg folic acid and PregVit® (arm 2) contains 1.1 mg folic acid. All other vitamin and mineral doses are identical between the 2 supplements. Both supplements are taken as 2 tablets daily, one tablet in the morning (am) and one tablet in the evening (pm). Both multivitamins are appropriate for periconceptual, prenatal, and post-partum supplementation. For the single dose study, only 1 dose was taken. For the multiple dose study, supplementation continued for 30 weeks.

Intervention Type

Drug

Phase

Not Applicable

Drug/device/biological/vaccine name(s)

Folic acid

Primary outcome(s)

1. To assess the serum folate pharmacokinetics in healthy, non-pregnant women of childbearing age who ingest a single evening dose of PregVit-folic 5® (5 mg folic acid) versus a single evening dose of PregVit® (1.1 mg folic acid).
2. To assess steady-state red blood cell and serum folate levels achieved in healthy, non-

pregnant women of childbearing age who supplement daily for 30 weeks with PregVit-folic 5® versus PregVit®.

3. To assess the steady-state periconceptual and gestational red blood cell and serum folate levels in women planning a pregnancy or early in pregnancy (<6 weeks gestation) who supplement daily with PregVit-folic 5® versus PregVit®.

For the single dose study, extensive blood sampling was conducted over 12 hours.

For the multiple dose study, blood sampling was conducted as follows:

Return to research site at 6 weeks gestation to draw one blood sample. Pick up next supply of multivitamins (hospital pharmacy).

Return to research site at 12 weeks gestation to draw one blood sample. Pick up next supply of multivitamins (hospital pharmacy).

Return to research site at 30 weeks gestation to draw last blood sample.

Key secondary outcome(s)

To assess adherence and tolerability of the prenatal multivitamins

Completion date

01/07/2013

Eligibility

Key inclusion criteria

Women planning a pregnancy, or women less than 6 weeks pregnant who are not using a prenatal multivitamin

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Sex

Female

Key exclusion criteria

1. Women who are already taking a prenatal multivitamin.
2. Women who are allergic to any of the ingredients in PregVit or PregVit Folic 5.
3. Women with iron disorders.

Date of first enrolment

01/03/2007

Date of final enrolment

01/07/2013

Locations

Countries of recruitment

Canada

Study participating centre

Hospital for Sick Children

Toronto

Canada

M5X1X8

Sponsor information

Organisation

Duchesnay Inc. (Canada)

ROR

<https://ror.org/03v67de52>

Funder(s)

Funder type

Industry

Funder Name

Duchesnay Inc. (Canada)

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary

Not provided at time of registration