

Thought Lab 15.1: Folic Acid and Neural Tube Defects

Purpose: Use an abstract from a medical journal as the starting point for further study on the impact of folic acid on neural tube defects.

Abstract

Objectives: To determine the diffusion of information about preventing neural tube defects (NTDs) through folic acid consumption by examining whether mothers of Canadian children born with spina bifida, who had become pregnant at least a year after evidence of the preventive effect of folic acid had been published, had taken sufficient amounts of folic acid in the periconceptional period [that is, the first few weeks of pregnancy] and were aware of this important new information.

Design: Validated food-frequency questionnaire to assess folate intake.

Setting: The Hospital for Sick Children in Toronto between Jan. 4 and Aug. 16, 1994.

Participants: Thirty mothers whose infants were being treated for spina bifida.

Main outcome measures: The mothers' mean folate intake and knowledge about the protective effect of folic acid; demographic and health information.

Results: The mothers' mean folate intake was 0.182 mg/d (standard deviation 0.076 mg/d, range 0.02 to 0.53 mg/d), less than half the protective dose. Only 4 (13%) of the mothers had been aware of the relation between nutritional folate and NTDs when they conceived, but even they did not supplement their diets with sufficient folic acid. The medical data showed that, in addition to the failure of primary prevention of NTDs, secondary prevention through diagnostic tests during pregnancy were also inadequate.

Conclusions: Our study, one of the first to be conducted after the role of folate in preventing NTDs was confirmed, reveals that, in one of the most advanced countries in the world, this new information has had no effect on patients' folate intake. Unless food is fortified with folate, the estimated 400 to 800 annual cases of NTDs in Canada will not be prevented.

Source: Clin Invest Med 1996; 19(3): 195-201

Procedure

1. Read the abstract, which was published in *Clinical and Investigative Medicine* in 1996. You may need to look some words up in a print or electronic dictionary. Even if you do not understand every word or some of the sentences, you should still be able to "pick out" the general meaning or significance of what the authors of the journal article are saying.
2. Using print or electronic resources, conduct further research on neural tube defects to find out the following.
 - what kind of defects can occur, how often they occur statistically in Alberta and/or Canada, their characteristics/symptoms, and what, if any, treatments are available for them
 - why Canada's health agency was reluctant to advise fortifying foods with folic acid, and the current status of folic-acid fortification

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- actions taken on the part of Health Canada to inform the public about folic acid and NTDs

Analysis

1. What is the recommended daily amount of folic acid for women who could become pregnant?
2. When should women who could become pregnant start taking folic acid?
3. Why is dietary (unsupplemented) intake of folic acid considered to be inadequate to prevent NTDs?
4. What other risk factors are involved in having a baby with an NTD?

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5. In your opinion, based on what you have discovered through your research, should the Canadian government have acted more quickly when the link between folic acid and neural tube disorders was established and communicated in the scientific community? Give reasons to justify your opinion.