Prevention of Neural Tube Defects with Supplemental Folic Acid

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Prevention of Neural Tube Defects with Supplemental Folic Acid

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Abstract

Objective: To identify the correlation between folic acid supplementation and neural tube defects.

Design: Quasi-Experimental, Longitudinal Correlation

Setting: Planned Parenthood in Wichita, Kansas.

Participants: Pregnant women seeking medical advice and assistance in Wichita, Kansas.

Results/Conclusions: Pending results and data collection.

Introduction

In today’s United States society, approximately 50% of pregnancies are unplanned (Czeizel et al., 2013). Further research by Czeizel has indicated there is a lack of education within the female population regarding periconceptional supplementation. It has been discovered through trials that supplementation of folic acid during the periconceptional phase of pregnancy has a positive correlation on preventing neural tube defects (NTDs) evident at birth (JAMA Network, 2017). Birth defects, including NTDs, account for more than 20% of all infant mortalities (Barna et al., 2014). Teaching women about potential birth defects that can begin to develop as early as the fifteenth day post-conception is important data to inform women prior to pregnancy (Czeizel et al., 2013). Continuing education provided by nurses informs females to continue supplementation of folic acid throughout the duration of the pregnancy. As nurses, it is our responsibility to educate women who are in childbearing years about the risks of non-supplementation versus the benefits of supplementation with folic acid. The aim of this research is to determine if educating women about the potential benefits of folic acid has the capability of aiding the prevention of neural tube defects.

Key Terms: Folic acid: form of folate (B vitamin) that is critical for the creation of genetic material and production of proteins (Seymour et al., 2019).

Neural tube defects (NTDs): abnormalities of the spinal cord, brain, and structures nearby that are discovered in newborn babies at birth (National Institute of Child Health and Human Development, 2018).

Periconceptional phase: time before and immediately after conception (Czeizel et al., 2013).

Framework - Transitions Theory

The transitions theory, created by Dr. Meleis in 2010, relates to our research topic as the participant is transitioning from one state of life to another as she becomes a parent. During this phase, the mother is learning to care for another human life in addition to her own. This transition of becoming a parent would be considered developmental (University of Pennsylvania School of Nursing, 2015).

Methodology

Research Design: Quasi-Experimental, Longitudinal Correlational

Interventions: Pregnant women will be educated by nurses at Planned Parenthood in Wichita, KS about the benefits of folic acid supplementation during the periconceptional phase.

IV: Folic acid supplementation (0.4 mg daily).

DV: Presence or absence of neural tube defects.

Proposed Research Question:

Does folic acid supplementation during the periconceptional phase of pregnancy correlate with prevention of neural tube defects?

Literature Sources

Inquiries considering the connection of deficient folic acid and the origin of NTDs have been pondered as early as the 1960s (Barna et al., 2014). To investigate such questions, many trials have been conducted where comparisons of folic acid supplementation and the presence or absence of NTDs were made (Barna et al., 2014). For purposes of our research, women in the sample will have the right to choose to be in the nominal-measured study that will last till the birth of the infants. With regards to these factors, our methodology was determined.

Sample: The sample are pregnant women seeking medical advice and assistance from the setting Planned Parenthood in Wichita, Kansas.

Results/Finding

Projected Data Analysis Method

A chi-square will be used to compare the infants of women that took folic acid supplementation versus those who did not. Researchers will evaluate and correspond the presence or absence of NTDs based on the mothers’ supplemental use of folic acid.

Literature Findings

Research has shown that 0.4 mg of folic acid supplementation during pregnancy decreased the risk of NTDs in lower class populations that have high NTD rates by 79% (Czeizel et al., 2013). The authors also concluded that there was a 41% decrease in NTDs in middle to upper class populations with a low rate of NTDs (Czeizel et al., 2013). Based on this information and other evidence-based practice regarding folic acid, NTDs can be primarily prevented through periconceptional supplementation (Barna et al., 2014).

Discussion

Implications For Future Nursing

As prior research shows, folic acid supplementation decreases neural tube defects in infants (Barua et al., 2014). Education involving the importance of folic acid supplementation should be given by nurses during females’ first visit to Planned Parenthood. It is important that the nurses disclose all benefits for the infant if the mother consumes folic acid supplementation. Given that the greatest incidence occurs in lower class populations, the next step for nursing would be to seek financial grant assistance.

Pending results and data collection. Women participants will be provided with the choice of supplementation or non-supplementation after education is provided. It is recommended for future research that this study is implemented on a larger sample and considers other issues, such as financial factors, nutrition, drug and/or alcohol use, sleeping patterns, etc.

References


