Childhood Cancer and Maternal Anemia Case Control Population in Denmark

Pregnancy-related maternal health is linked to the risk of childhood cancer. Pregnancy anaemia is a frequent illness, especially in developing nations, although there may be a link between maternal anaemia and relatively little research has been done on childhood cancer. Methods: In a population-based study in Denmark, we looked at the relationship. Danish Cancer Registry cases were used, and national records were used to choose controls. The National Patient and Medical Births registries provided us with maternal anaemia diagnosis. Using information from the National Prescription Register, we looked at cancer risks among women who were taken vitamin supplements in a separate study during the years that were available. Using conditional logistic regression, we calculated the risks of childhood cancer. Results The risks of acute lymphoblastic leukaemia (ALL) and neuroblastoma.

KEYWORDS: Maternal anemia • Childhood cancer epidemiology • Folate • B12 • Pregnancy

Introduction

Leukemia rates were higher in offspring of pregnant women who had anaemia. The risk of bone malignancies, especially osteosarcoma, was raised by double [1]. Regarding the usage of prescription supplements, children of mothers who received B12 and folate supplements for anaemia were more likely to get cancer [2]. Conclusion: Our results suggest that screening for anemia in pregnancy and vitamin supplementation may be an actionable strategy to prevent some cases of childhood cancer [3]. A reduction in the level of haemoglobin in the body leads to anaemia. Folate and iron deficiency are the main causes of maternal anaemia during pregnancy, although other factors including vitamin deficiencies and persistent infections can also contribute [4]. Because a mother's nutritional requirements naturally rise during pregnancy, maternal anaemia is a frequent condition [5]. Period A woman typically needs 1200 mg of iron during her pregnancy and a daily consumption of vitamin B12 on average [6]. Due to its effects on placental structure, oxygenation of developing foetal systems and organs, nutritional absorption, brain development, and red blood cell production, severe maternal anaemia might have an impact on the foetus [7]. The World Health Organization estimates that there are 41.8% more pregnant women worldwide who are anaemic than there are in Denmark [8]. Negative birth outcomes including low birth weight and premature births are linked to maternal anaemia. Anemia and adult cancer may be related, according to research [9]. DNA hypo methylation brought on by folic acid deprivation alters gene expression and may lead to cancers [10]. In 1998, the Danish National Board of Health advised all pregnant women to take iron supplements. Over-the-counter iron supplements are widely accessible, and 77% of Danish women reportedly use them at some point while pregnant. Similarly, starting at least a month before conception and continuing through the first 12 weeks of pregnancy, the Danish Health and Medicines Authority has advised Danish pregnant women to take 0.4 mg of folic acid supplements every day.

Discussion

Only 10.4% of Danish women, however, follow this advice. In high-income nations, cancer is the second biggest killer of children. Although the etiology of childhood cancers is largely unknown, known risk indicators include low or high birth weight, older parental age, birth defects, genetic syndromes, and ionizing radiation. It is thought that prenatal exposures have an etiologic effect. There is a dearth of research on the links between maternal anaemia and children malignancies. Despite the paucity of research and inconsistent conclusions, the majority of the evidence points to links between maternal anaemia during pregnancy and juvenile leukaemia, neuroblastoma, and retinoblastoma. The current study's objective was to further investigate, in a population-based study in Denmark, any connections between maternal anaemia during pregnancy and paediatric malignancies. As previously mentioned, the data were collected via connecting several Danish national registers. In

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summary, since 1968, every citizen of Denmark has received a special 10-digit personal ID that includes their date of birth and gender.

Conclusion

All Danish demographic and health registries utilise this ID. Permits linking of register the Danish Cancer Register data allowed us to locate cancer cases recorded between 1977 and 2013. In order to obtain comprehensive information on pregnancy problems as accessible from the Danish National Patient Registry, we confined the current study to births after 1977. Register, which had just been started. The controls matched the instances from the Central Population Register, which is sorted by sex and birthdate and chosen at random. This database also contains details on vital status and location of birth and connects children to their parents. All of the cases and controls included in the research were born in Denmark in order to get comprehensive pregnancy information. The International Classification of Childhood Cancer was used to categorise cancer cases, and we included only those cases in the current analysis. A flowchart outlining the selection of cases and controls for cancer types for which there are at least five exposed cases is displayed. The Medical Births Registry and the National Patient Register provided us with data on maternal anaemia during pregnancy. The Medical Births Registry collects details about the mother's health during pregnancy, labour, and delivery. A Danish expanded version of the International Classification of Diseases, revision till 1993, and from 1993 Onwards, ICD-10, were used to categorise medical diseases. The ICD-10 and ICD-8 codes are utilised to Anemia is seen in the Supplementary.

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