VITAMIN B12 AND FOLATE DEFICIENCY IN PREGNANCY: REASON OF ADVERSE COMPLICATIONS

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ABSTRACT
Deficiency of Vitamin B12 (cobalamin) is linked with increased risk of many complications and dreadful birthing outcome. It is evident by many research studies that during the third trimester that the level of vitamin B12 drops down up to 30%. Vitamin B12 enact a crucial function in the development of new cells, a deficiency can be associated with barrenness and persistent miscarriages. If the deficiency of vitamin B12 is left untreated that can lead to some complicated and serious neurological outcomes in infants. The main objectives of this article is to evaluate cyanocobalamin and pteroylglutamic acid deficiency that occurs during pregnancy due to adverse complications occurring in neonatal and maternal outcomes. A systematic search of relevant studies was conducted in the MEDLINE/PubMed, Ind Med or Google Scholar datum. We researcher prefer literature that met the criteria for inclusion in the study. It was concluded that low maternal vitamin B12 (cobalamin) levels is linked with serious maternal and infant outcomes. Other literature supports the addition of vitamin B12 vitamin B12 (cobalamin) supplementation can be improve the health status of mother and also prevent the maternal and infant outcomes.

Keywords: Vitamin B12 deficiency, folate deficiency, adverse complications, neural tube defect, pregnancy, birth defect, preeclampsia, anemia, fetal growth restriction, miscarriage

INTRODUCTION
This article summarizes that cyanocobalamin and pteroylglutamic acid deficiency in pregnancy are the most likely cause of adverse maternal and neonatal outcomes. Vitamin B12 (cobalamin) is required for the growth and functions of the brain and it also helps in production of red blood cells i.e RBC. Many studies have suggested that B12 deficiency not only causes health problems for the mother, but may also increase the likelihood of serious birth defects in new-borns. Vitamin B12 (cobalamin) level in pregnancy is crucial because maternal vitamin B12 (cobalamin) deficiency can lead to serious complications for mother and infants. Vitamin B12 (cobalamin) deficiency during pregnancy lead to higher risk to progress Preeclampsia condition, Intrauterine growth restriction
(IUGR) and premature births. Vitamin B12 (cobalamin) deficiency in neonatal developmental stage can seriously strike the growth of the brain with innumerable neurological problems. It is evident by many research studies that during the third trimester that the level of vitamin B12 drops down up to 30%. Vitamin B12 enact a crucial function in the development of new cells, a deficiency can be associated with barrenness and persistent miscarriages. If the deficiency of vitamin B12 is left untreated that can lead to some complicated and serious neurological outcomes in infants.

LITERATURE RELATED TO VITAMIN B12 AND FOLATE ACID DEFICIENCY IN PREGNANCY:

Rishikesh V. Behere (2021) conducted a systematic literature reviews from PubMed and Ind Med datum. Of the 635 reviewed articles, 46 researches met the inclusion criteria. During the study, it was observed that excessive pervasiveness of cyanocobalamin deficiency (40-70%) in pregnant women. Non-experimental observational researches aid inter relation between (sociodemographic factors, body weight of mother, factors that contribute after birth) of deficient vitamin B12 level, higher amino acid or vitamin B12 cobalamin- vitamin B9 folate imbalance with greater risk of birth defects i.e. Neural tube defect (6 researches) and serious outcomes in new-borns (neurological function, obesity, impaired insulin levels) (11 researches). There is significant proofs to support a function for deficient maternal vitamin B12 (cobalamin) level are the factor to cause birth defects and Intrauterine growth restriction (IUGR) in new-borns, and modest deficient level proof for abnormally high level of sugar during pregnancy.

Dr. Urvashi Kumawat (2021) conducted a non-experimental i.e. observational study on 100 antenatal women who are in the gestational period of 28 to 40 weeks and those who visiting in antenatal outpatient department and inpatient wards at one of the medical college in Indore Madhya Pradesh. Sample gathered from period of 2017 to 2019. The objective of the research to analyse level of cyanocobalamin and its effects on pregnancy outcomes. The result shows a crucial relationship between deficient vitamin B12 (cobalamin) levels and serious birthing outcomes in the mother and new-borns.

Mona Leirvik Hesto (2021) conducted a study on the cyanocobalamin and pteroylglutamic acid deficiency frequency found Northern Europe pregnant women and their maternal and foetal outcomes. The method used for the study was randomized controlled trial i.e. RCT. The research took the sample of 855 healthy and educated women that belongs to age group of 19 to 46 years from two cities. The researcher recorded that high frequency of vitamin B12 (cobalamin) deficiency occurs during third trimester, while the frequency Vitamin B9 (folate and folic acid) deficiency was in very low frequency. And these deficiencies can lead to serious outcomes and long term consequences in health of new-borns.

Nithya Sukumar (2016) conducted a study on the ubiquity of cyanocobalamin deficiency that occur in pregnancy and their outcome on new-born poundage immediately after birth to assess universal ubiquity of cyanocobalamin deficiency during gravidity and their relation with weight of the baby immediately after birth. The research design used for the study was meta-analysis by earthly region during second and third trimester of pregnancy in a subview of prevalence and by categorical BW measures. A review of the study shows cyanocobalamin and pteroylglutamic acid deficiency during pregnancy are also usual in non-vegetarian women, and their levels decline from...
the 1st to IIIrd trimester. Research showed that there is no compatible connection between the deficiency of cyanocobalamin and pteroylglutamic acid deficiency with low birth weight of newborns.

H. Van Sande (2013) produced a review report on cyanocobalamin during gravidity: Mother or foetal/new-born outcomes. The methodology used as a PubMed data was conducted in month of August 2011 and it revised in month of February 2013 with the title: "vitamin B12 and pregnancy", "cobalamin and pregnancy", "vitamin B12 and fetus or newborn", "cobalamin and fetus or newborn" " vitamin B12 and lactation" "cobalamin and lactation". The study concluded that cyanocobalamin and pteroylglutamic acid deficiency during pregnancy cause Preeclampsia, Intrauterine growth restriction (IUGR), premature birth, congenital abnormalities, pernicious anaemia etc.

CONCLUSION
According to many researchers it is observed deficiency of cyanocobalamin and pteroylglutamic acid deficiency are the leading cause of preterm deliveries, spontaneous abortions, barrenness, neural tube defects in infants low birth weight etc. and half of the infant mortality rate is also associated with deficiency of cyanocobalamin and pteroylglutamic acid. During pregnancy B category of micronutrients is have major role in nutritional aspect in which some of the essential micronutrients are cyanocobalamin, pteroylglutamic acid, vitamin B9 because these nutrients helps to prevent the birth defect in new-borns. It is evidenced by many researches the women who are vegetarian are deficient in cyanocobalamin and pteroylglutamic acid levels because the rich source of the vitamin B12 are meat, fish, eggs, chicken. So it is required to provide the vitamin B supplementation during pregnancy and also is very essential the such supplementation can provide the preconception period so that we can prevent the future complications that can occur in pregnancy.

REFERENCES
and Implications for Policy in India.


