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Effects of diabetes mellitus on neonatal neural tube defects: A scoping review

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Introduction: The first system that develops during the embryonic period is the central nervous system (CNS), and the neural tube defect (NTD) is a common congenital disease in newborns that includes spina bifida, anencephaly and meningomyelocele. Disturbance in the endocrine part of the pancreas causes diabetes mellitus (DM). Gestational diabetes has many effects on the fetus, and some studies associate a high risk of miscarriage and congenital malformations with increased glucose levels. Therefore, the current study is a scoping review that aims to investigate the effects of diabetes mellitus on neonatal neural tube defects.
Materials and Methods: The study was carried out in five stages, including: 1) design of the research question, 2) search and extraction of research-related articles, 3) selection of related studies, 4) tabulation and summarization of data and 5) report of results. The key words diabetes, neural tube defect, neonate along with their mesh terms were used in the search of articles. Study was conducted according to the PRISMA-ScR protocol.
Results: After searching in Search in Scopus, Web of science, Pubmed and Google Scholar search engine, 69 articles were found. Of the 69 articles found, 6 articles were removed due to duplication and 52 articles due to lack of relevance, and 6 articles were removed from the remaining 11 articles due to lack of access, and finally 5 articles were included in the scoping review.
Conclusion: The majority of studies have stated that diabetes mellitus during pregnancy increases the probability of neural tube defects in the infant and can be a predisposing factor for this category of defects.
Keywords: neural tube defects, diabetes mellitus, neonate