Artificial Intelligence Methods for the Prediction and Diagnosis of Heterotopic Pregnancy: A Systematic Review

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ABSTRACT

Introduction: Heterotopic pregnancy is a rare and dangerous clinical condition in which two pregnancies occur at the same time but with different implantations, one inside the uterus and the other outside the uterus, usually in the fallopian tube. Since this type of pregnancy is at risk of ectopic pregnancy rupture, its early diagnosis can prevent mortality in these patients. The use of artificial intelligence methods allows to create a rational strategy for the prediction and diagnosis of heterotopic pregnancy. The purpose of this study was to evaluate artificial intelligence methods for predicting heterotopic pregnancy.

Search Strategy: This study was conducted as a systematic review and search in the reliable databases of PubMed, Web of Science, Science Direct, and Google Scholar search engine. The keywords “heterotopic pregnancy”, “Artificial intelligence”, “Prediction”, and “Diagnosis” were investigated in the related studies. English-language studies using an artificial intelligence method to predict heterotopic pregnancy met the inclusion criteria. Titles and abstracts were independently screened against eligibility criteria. The full-text of articles were then independently assessed. An identical form with the fields of study title, publication year, number of participants, study objectives, and main findings of the study was used for the data extraction stage.

Results: A total of 508 articles were examined, of which six related articles were included in the study after reading the full text of the articles. Artificial intelligence can recognize the patterns of pregnancy complications through the analysis of medical data and help doctors better identify the symptoms of heterotopic pregnancy. Using machine learning algorithms, artificial intelligence systems can help analyze pregnancy signs and symptoms, find progressive patterns, and help improve pregnancy outcomes by predicting and preventing heterotopic pregnancy complications.

Conclusion and Discussion: The results of this study showed that artificial intelligence algorithms can help physicians diagnose the signs and symptoms of heterotopic pregnancy in the early stages and manage this condition properly. This method can significantly improve the prediction and diagnosis of pregnancy complications, especially heterotopic pregnancy.

Keywords: Artificial intelligence, Diagnosis, Heterotopic pregnancy

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