INPLASY PROTOCOL

Corresponding author:
Ming Tan

tanm76126@126.com

Author Affiliation:
Hubei Maternal and Child Health Hospital

Support: Hubei

Review Stage at time of this submission: The review has not yet started.

Transvaginal ultrasound cervical length for prediction of spontaneous labor at term: a protocol for systematic review and meta-analysis

Wu, L[1]; Lei, G[2]; Tan, M[3].

Review question / Objective: The predictive accuracy of transvaginal ultrasound (TVU) cervical length (CL) for spontaneous onset of labor in singleton gestation enrolled at term by a meta-analysis.

Condition being studied: The accuracy of TVU CL in prediction of spontaneous onset of labor in singleton gestations with vertex presentation.

Quality assessment /Risk of bias analysis: Two reviewers will evaluate independently the risk of bias of included studies using a modified version of Cochrane tool in which we will to check for allocation concealment, blinding, incomplete outcome data, selective reporting, and other bias, each of which makes high risk, low-risk, and unclear grades. Any discrepancy was resolved by discussion or by a third reviewer.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 15 August 2020 and was last updated on 15 August 2020 (registration number INPLASY202080065).

INTRODUCTION

Review question / Objective: The predictive accuracy of transvaginal ultrasound (TVU) cervical length (CL) for spontaneous onset of labor in singleton gestation enrolled at term by a meta-analysis.

Condition being studied: the accuracy of TVU CL in prediction of spontaneous onset

of labor in singleton gestations with vertex presentation.

METHODS

Search strategy: A systematic search was performed in PubMed, Web of Science, Cochrane Library and Embase until 15th of August 2020. The MeSH search and text word will be used with the terms related to "cervical length", "delivery" and "transvaginal ultrasound". To perform a comprehensive and focused search, experienced systematic review researchers will be invited to develop a search strategy.

Participant or population: Pregnant women.

Intervention: Transvaginal ultrasound cervical length.

Comparator: No use of transvaginal ultrasound cervical length.

Study designs to be included: Studies were included if they reported data allowing construction of a 2 × 2 table. We included only studies assessing the accuracy of TVU CL.

Eligibility criteria: Inclusion criteria: Studies were included if they reported data allowing construction of a 2 × 2 table. We included only studies assessing the accuracy of TVU CL in prediction of spontaneous onset of labor as defined by the authors, including spontaneous rupture of membranes, in singleton gestations with vertex presentation who were enrolled at term. Exclusion criteria: Exclusion criteria included studies on women enrolled before 37 weeks or after 41 weeks, studies on women with premature rupture of membranes, studies on women with multiple gestations and case-report studies.

Information sources: A systematic search was performed in PubMed, Web of Science, Cochrane Library and Embase until 15th of August 2020.

Main outcome(s): The area under the curve (AUC) and the Q* index will be also

computed to evaluate the overall performance of the diagnostic test accuracy.

Data management: The data will be extracted out by two independent reviewers in accordance with the Cochrane Handbook of Systematic Reviews of Interventions. Two investigators will independently screen all the included studies.

Quality assessment / Risk of bias analysis: Two reviewers will evaluate independently the risk of bias of included studies using a modified version of Cochrane tool in which we will to check for allocation concealment, blinding, incomplete outcome data, selective reporting, and other bias, each of which makes high risk, low-risk, and unclear grades. Any discrepancy was resolved by discussion or by a third reviewer.

Strategy of data synthesis: For all the included studies we will construct a 2 × 2 table cross-classifying CL and the outcome of spontaneous onset of labor within 7 days using each CL measurement mentioned in the included studies. We will generate the Forest plot for the pooled sensitivity and specificity with 95% confidence interval (CI). A linear regression was performed to analyze the relation between CL (predictor variable; X) and the most important test characteristics (criterion variable; Y), i.e. sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV). Additionally, summary receiver-operating characteristics (sROC) curves will be plotted. The area under the curve (AUC) and the Q* index will be also computed to evaluate the overall performance of the diagnostic test accuracy. The AUC of an sROC curve is a measure of the overall performance of a diagnostic test in accurately differentiating those cases with and those without the condition of interest. The Q* index is defined by the point at which sensitivity and specificity are equal, which is closest to the ideal top-left corner of the sROC space. Both values range between 0 and 1, with higher values indicating better test

performance. The following guidelines have been suggested for interpretation of AUC values: low (0.5 ≥ AUC < 0.7), moderate (0.7 ≥ AUC < 0.9) or high (0.9 ≥ AUC ≤ 1) accuracy.

Subgroup analysis: If there is enough research, we will conduct a subgroup analysis to investigate differences in age, gender and et al.

Sensibility analysis: If included studies were more than ten, funnel plot will be used to identify the possible publication bias. Additionally, Egg regression and Begg's tests will be utilized to detect the funnel plot asymmetry.

Language: English.

Country(ies) involved: China.

Keywords: transvaginal ultrasound; cervical length; labor; meta-analysis.

Contributions of each author:
Author 1 - Lirong Wu.
Author 2 - Gang Lei.
Author 3 - Ming Tan.