ULTRASONOGRAPHY CERVICAL VOLUME AS A PREDICTOR OF SUCCESSFUL INDUCTION OF LABOR IN PREGNANT WOMEN WITH INDUCTION OF LABOR, A SYSTEMATIC REVIEW AND META-ANALYSIS.

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ABSTRACT

Numerous sonographic cervical assessments have been used to predict successful induction of labor (IOL), but the definitive assessment to use in clinical practice remains inconclusive. This systematic review and meta-analysis (SRMA) studied a novel cervical assessment, cervical volume, to evaluate diagnostic performance and compare the association between successful and failed IOL in pregnant women who underwent IOL. This SRMA was registered before the study was conducted, and data were searched via electronic bibliographic databases including Embase, MEDLINE, Scopus, and Google Scholar, from inception until September 15, 2024. Of the 269 eligible studies, 7 studies met the inclusion criteria. Data analysis was done for cervical volume with or without cut-off values. The results show that two studies with a cut-off value of cervical volume indicate it is a strong predictor for successful VD within 24 hours, with an odds ratio of 7.19 (95% CI; 3.31, 15.64), but with wide precision. Six studies also show that a smaller cervical volume by $1.32 \, cm^3$(95% CI; -6.37, 5.72) and $5.73 \, mm^3$ (95% CI; -10.64, -0.81) in the group with successful vaginal delivery (VD) and achieving the active phase of labor within 12 hours, respectively. In addition, subgroup analysis of 3 studies in VD without time showed that moderately smaller cervical volume by $6.88 \, cm^3$ (95% CI; -14.6, 0.83) was associated with successful VD, with low heterogeneity. In conclusion, cervical volume is a potential parameter to predict successful IOL, with a smaller cervical volume being associated with successful IOL.
Keywords: Induction of Labor, Ultrasonography, Cervical volume

Data Availability Statement: The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Conflicts of Interest: The authors declare that the research was conducted in the absence of anycommercial or financial relationships that could be construed as a potential conflict of interest.

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