

EP18.02. Artificial intelligence, intrapartum ultrasound and dystocic delivery:AIDA, a promising helping decision support system



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Objectives

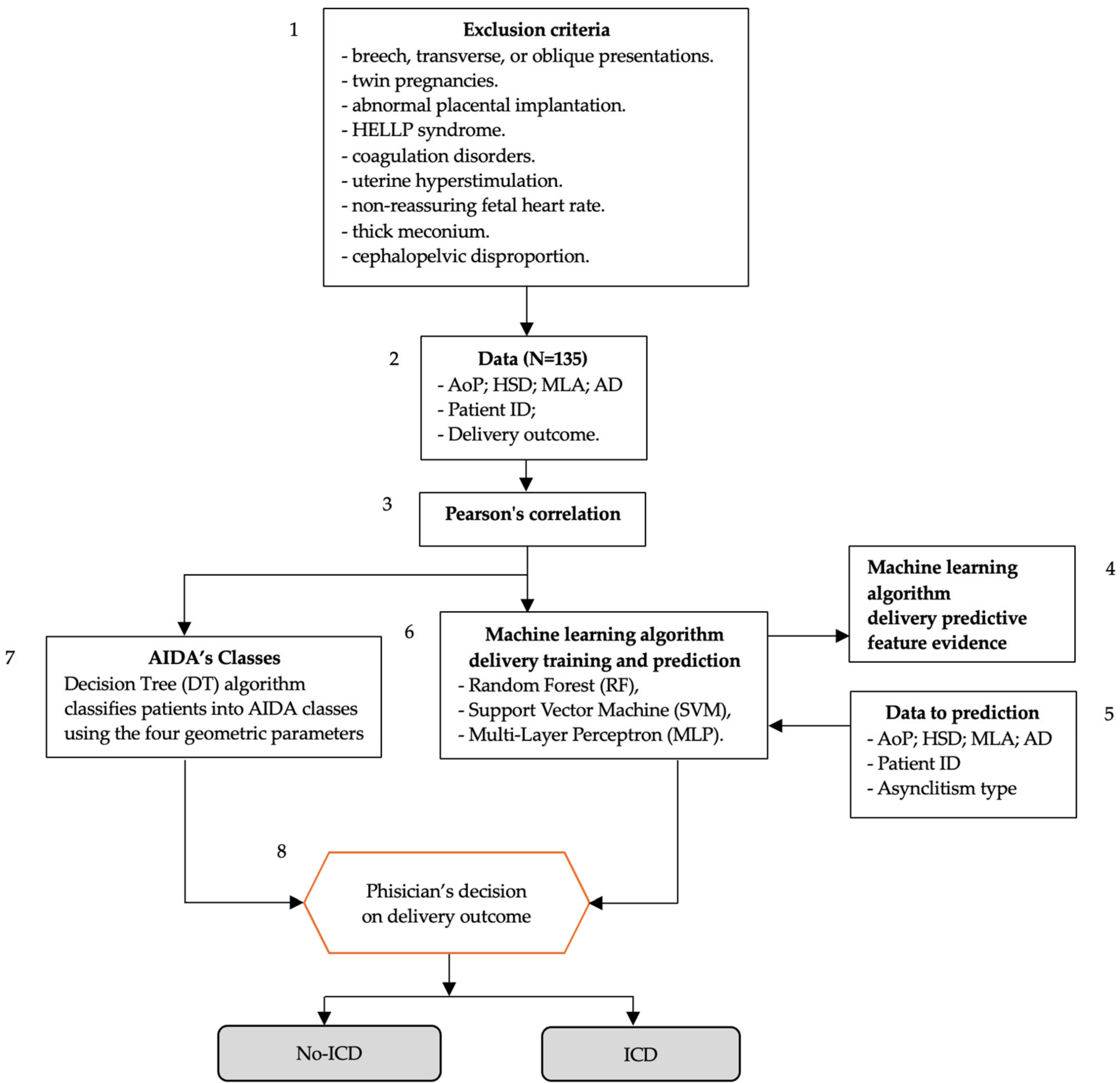
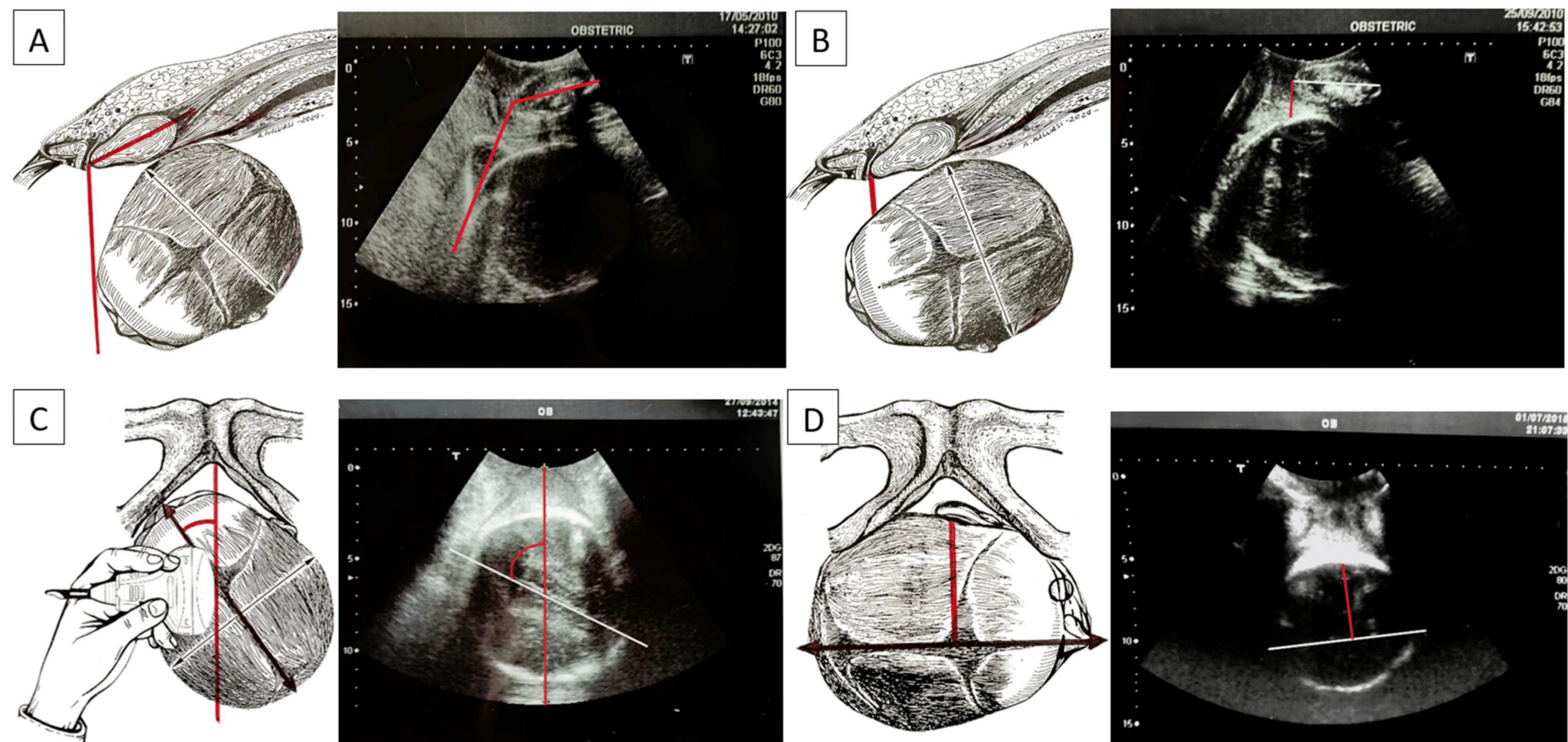
With the use of artificial intelligence, we tried to evaluate certain ‘geometric’ parameters measured with an intrapartum ultrasound during dystocic labour to see if the type of birth outcome can be predicted by building a specific algorithm.

Methods

This study retrospectively analysed nulliparous full-term pregnant women with single fetuses and cephalic presentation, undergoing neuraxial analgesia in the second prolonged stage of labour (greater than three hours according to ACOG). All patients underwent intrapartum ultrasonography to measure the following four parameters for all patients at three hours: Angle of Progression (AoP), Asynclitism Degree (AD), fetal Head-Symphysis Distance (HSD), and MidLine Angle (MLA). All parameters were measured using artificial intelligence and machine learning algorithms, called AIDA (Artificial Intelligence Dystocia Algorithm), which incorporates a human-in-the-loop approach, that is, to use AI (artificial intelligence) algorithms that prioritize the physician's decision and explainable artificial intelligence (XAI).

Results

After a number of "geometric parameters" were collected, the data obtained from the AIDA analysis were entered into a red, yellow, or green zone, linked to the analysis of the progress of labor. Using the AIDA analysis, we were able to identify five reference classes for patients in labor, each of which had a certain sort of birth outcome. A 100% cesarean birth prediction was made in two of these five classes.



Conclusion

The use of artificial intelligence, through the evaluation of certain obstetric parameters in specific decision-making algorithms, allows physicians to systematically understand how the results of the algorithms can be explained. This approach can be useful in evaluating the progress of labor and predicting the labor outcome, including spontaneous, whether operative VD (vaginal delivery) should be attempted, or if ICD (intrapartum Caesarean delivery) is preferable or necessary.