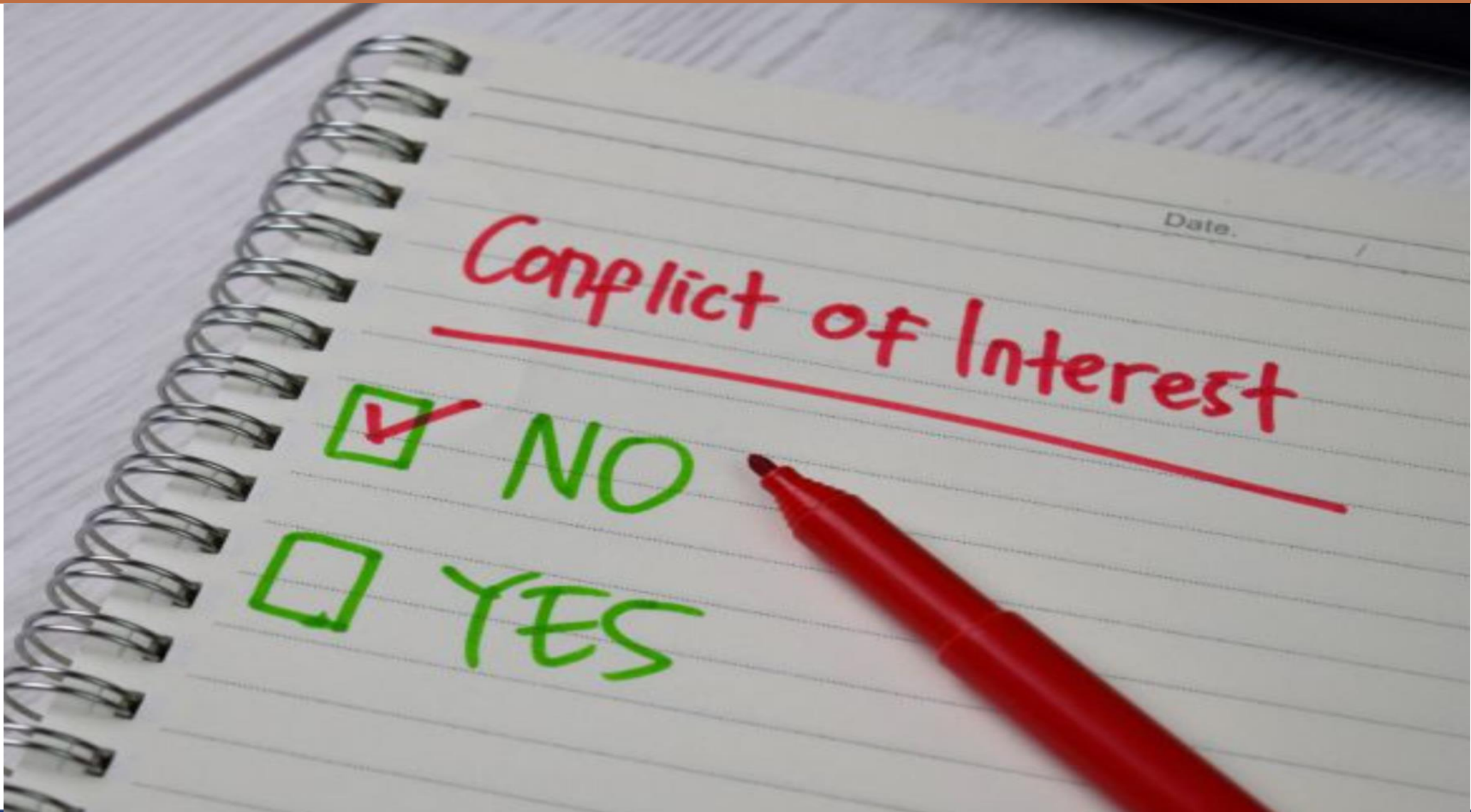


# Predicting Pregnancy at the First Year following Metabolic-Bariatric Surgery: Development and Validation of Machine Learning Models

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**MBS-** effective way to induce significant weight loss

More than 75% of patients are women

More than 50% are at reproductive age

Interval of 12 months between MBS and pregnancy



## Predicting pregnancy less than 12 months after MBS

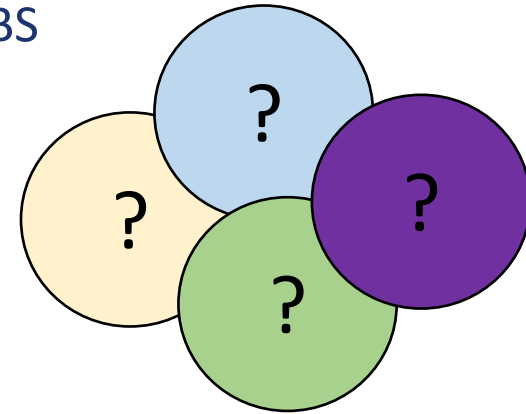


nested case-control study **473 women** with a history of pregnancy after MBS  
**between January 2009 and December 2023**

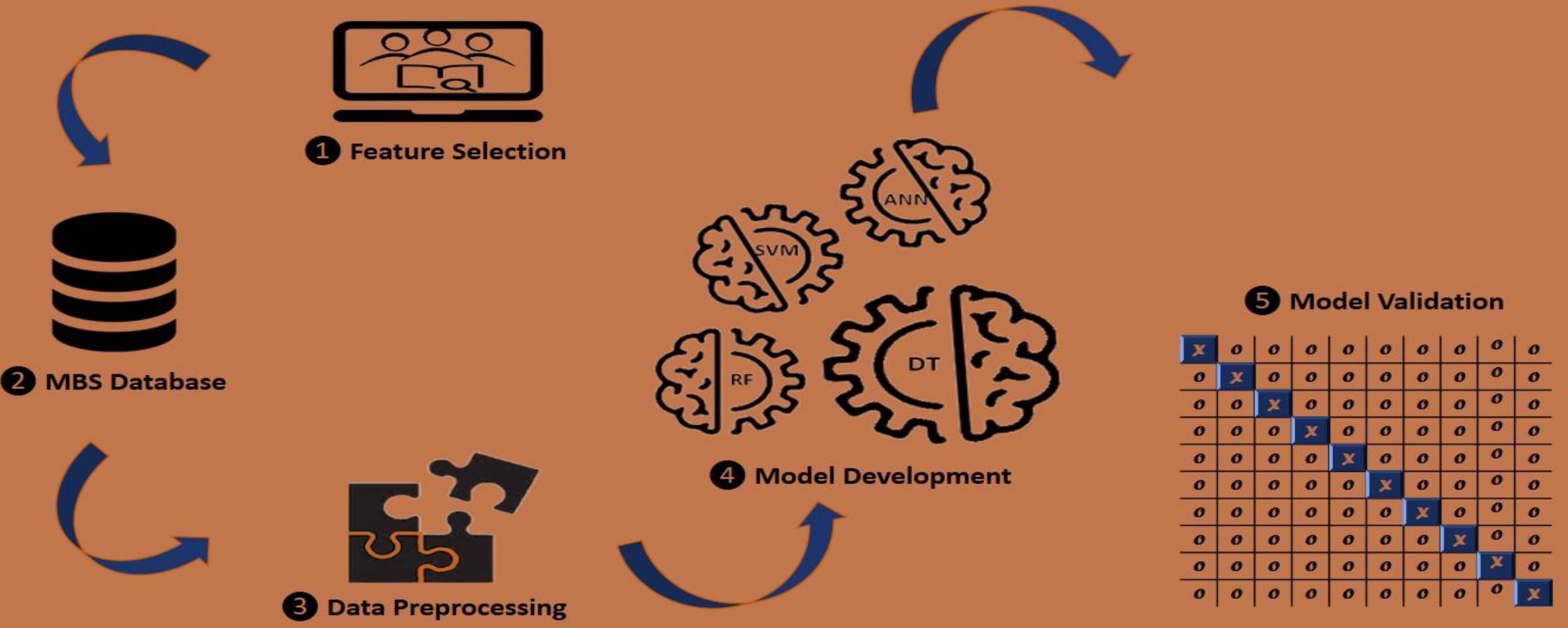
**Predisposing factors** in pregnancy less than 12 months after MBS

Several machine learning models were applied

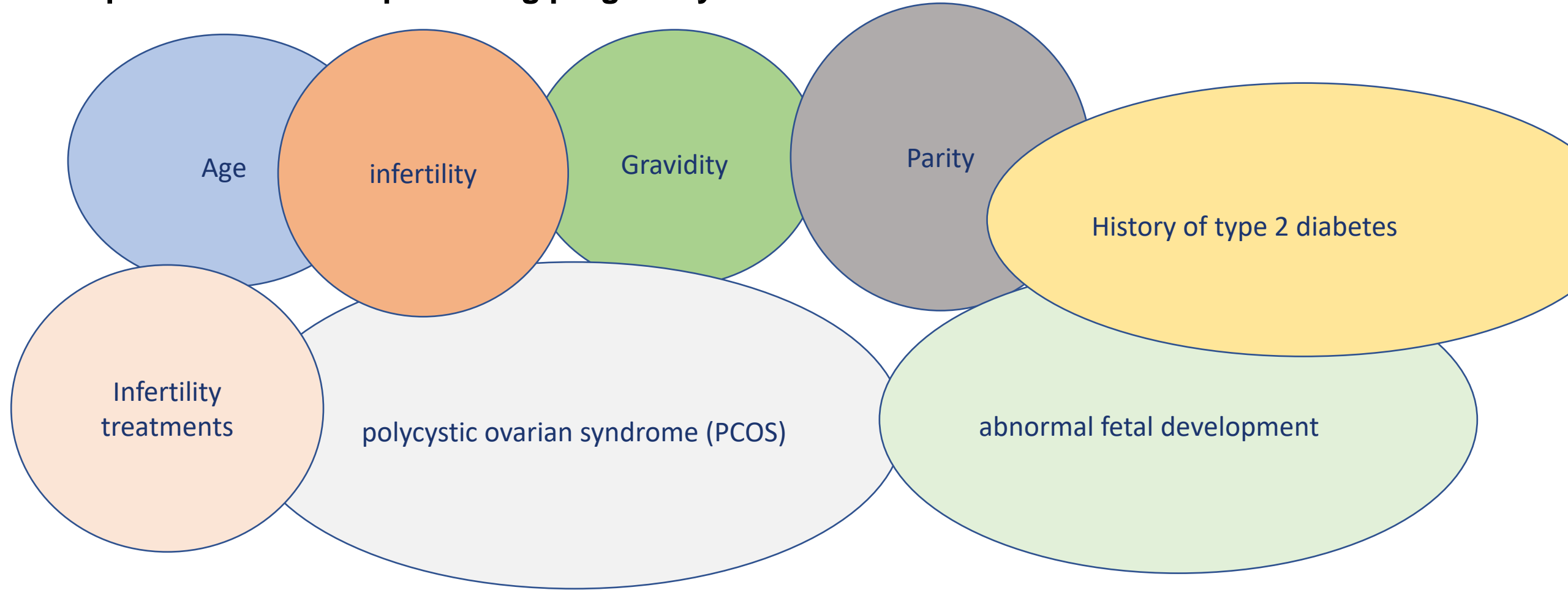
- Random Forest (RF)
- Artificial Neural Network (ANN)
- Support Vector Machine (SVM)
- Decision Tree (DT)



# Graphical Study Protocol



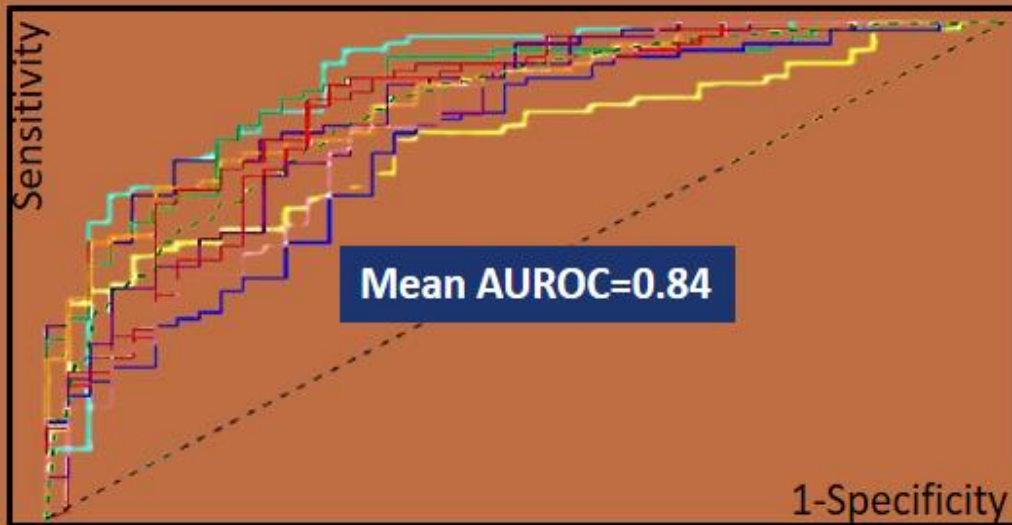
**important factors in predicting pregnancy in less than 12 months after MBS**



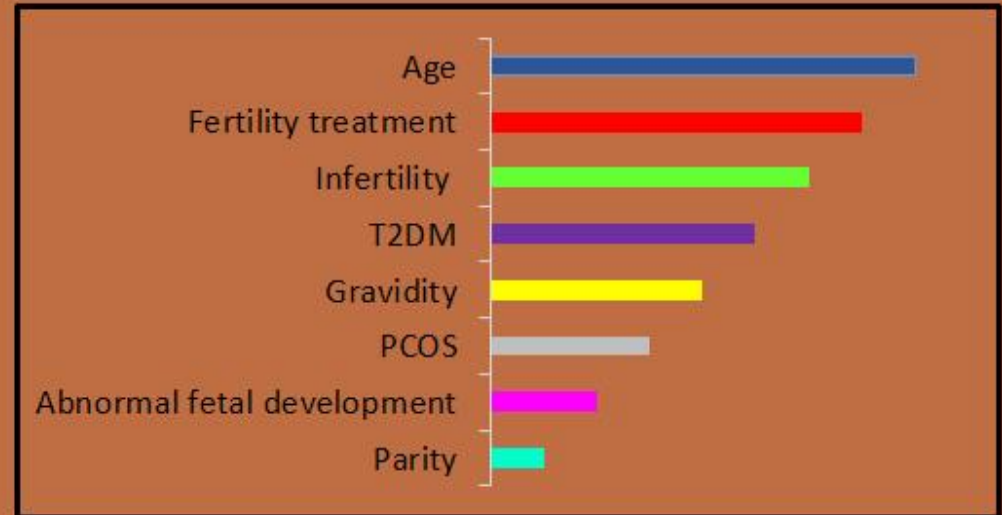
The highest area under the curve (AUC) was 0.84 for the **Decision Tree**  
sensitivity of 0.77  
specificity 0.81



# Graphical Study Results



ROC curves for 10-fold cross validation



Predictors Importance Ranking

## CONCLUSION

machine learning models which predict pregnancy less than 12 months after MBS  
help **bariatric surgeons** and **obstetricians** to prevent **adverse weight loss** and **pregnancy** outcomes



Closer cooperation between **patients**, **clinicians** and **data specialists** that can translate to the humanistic artificial intelligence (AI) shoring up human limitations or extending our capabilities rather than to control or compete with us

## CONCLUSION

**Machine learning algorithms** provide a precise analytical evaluation for disciplined **critical thinking** that creates reasoned arguments whether the AI recommendation is clinically applicable or not..!



*THANK YOU*



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