

Diagnostic Accuracy of Shear Wave Elastography Compared to Cervical Length in Predicting Preterm Birth in Patients Encountered in a Tertiary Medical Center in the Philippines over a 6-month period: A Prospective Study

Ana Kristina M. Gloda, MD, DPOGS, Ramon T. Reyes, MD, FPOGS, FPSMFM, FPSUOG

Obstetrics and Gynecology, Makati Medical Center, Makati City, Philippines



INTRODUCTION

Preterm birth is basically defined as child birth prior to 37 weeks of gestation completion. Preterm birth is believed to be the major cause of perinatal morbidity and mortality; hence this event presents a major challenge in the field of obstetrics. In 2010, it is estimated that more than 15 million livebirths have been reported to be preterm worldwide. Of these cases, around 1 million children have died as a consequence of complications related to preterm. Therefore, preterm birth and its

long-term effects can represent economic and social burden for the society, the health sector, and their families.

GENERAL OBJECTIVE

To determine the prognostic significance of cervical length and shear wave elastography in predicting preterm birth in patients at risk for preterm birth encountered in the Section of Ultrasound of the Department of Obstetrics and Gynecology of a tertiary hospital from April to September 2024

METHODOLOGY

Prospective research design was used. Baseline demographics of each

patient was collected: age, gravidity and parity, age of gestation, body mass index, and co-morbidities. Cervical length was measured through transvaginal ultrasonography and was categorized accordingly to normal and short. A short cervix would measure less than 25mm. A long cervix would measure more than and equal to 25mm. Shear wave elastography was measured after obtaining cervical length. The region of interest window was placed on the image of the cervix on a sagittal view. Six measurements of shear wave were attempted at each portion of the cervix, 3 measurements anteriorly and 3 measurements posteriorly, on subsequent shear wave maps. This used a 5mm circular region of interest.

RESULTS

There were 15 (18.1%) patients who had preterm birth. Sensitivity of 87% was obtained when a cut off of < 2.5 cm for cervical length was considered. The AUC value was .935 [95% CI .875-.995, p .000 < .05]. In terms of shear wave elastography, a value of 7.60 kPa had a sensitivity of 93%. This had an AUC of .983 [95% CI .961-1.00, p .000 < .05].

CONCLUSION

The use of cervical length and shear wave elastography were found to be good prognostic tools in predicting possible incidence of preterm birth based on the analysis done in the research study. In this line, cervical elastography can be considered as a useful marker for predicting incidence of preterm birth.

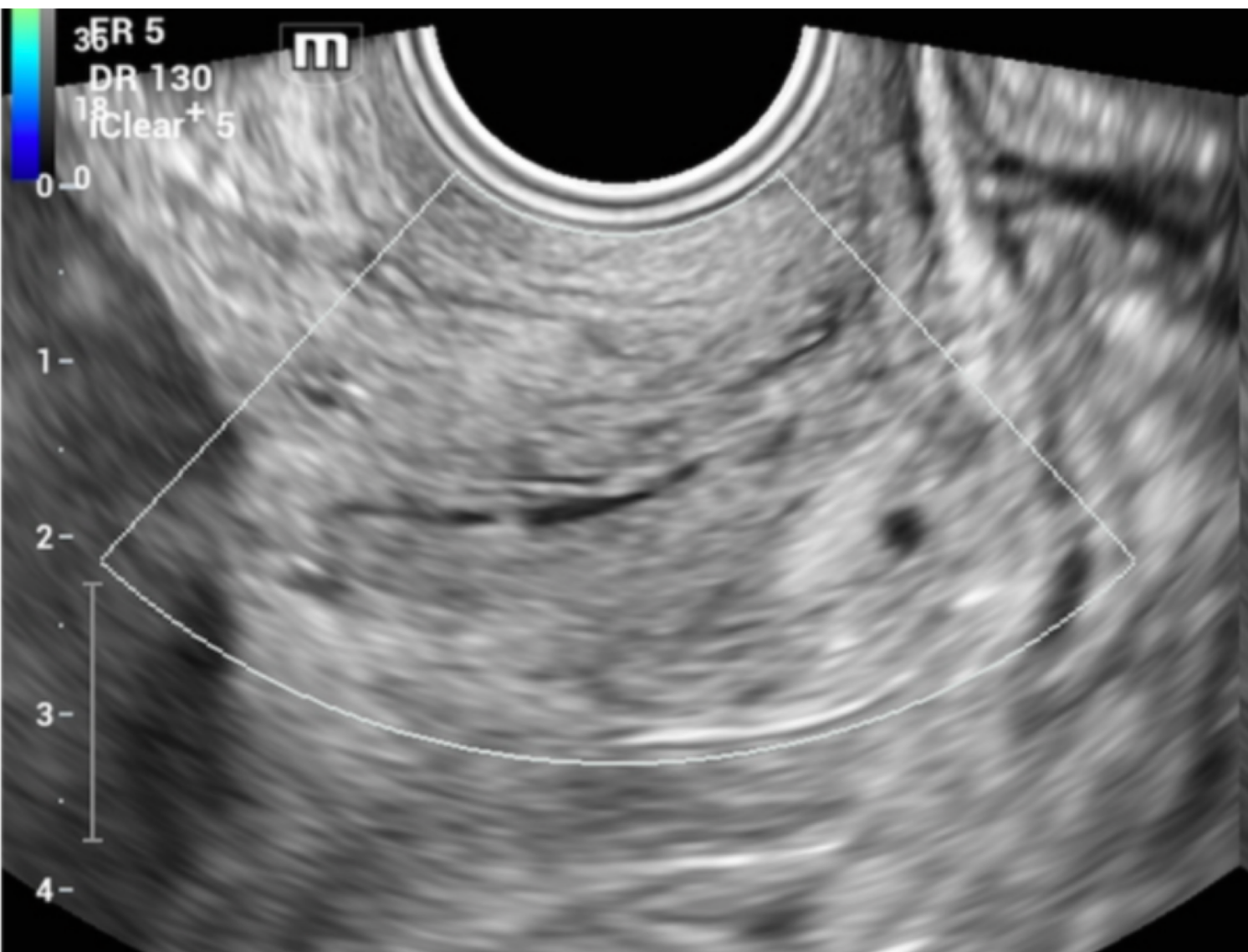


FIG 1. Region of Interest for Shear Wave Elastography

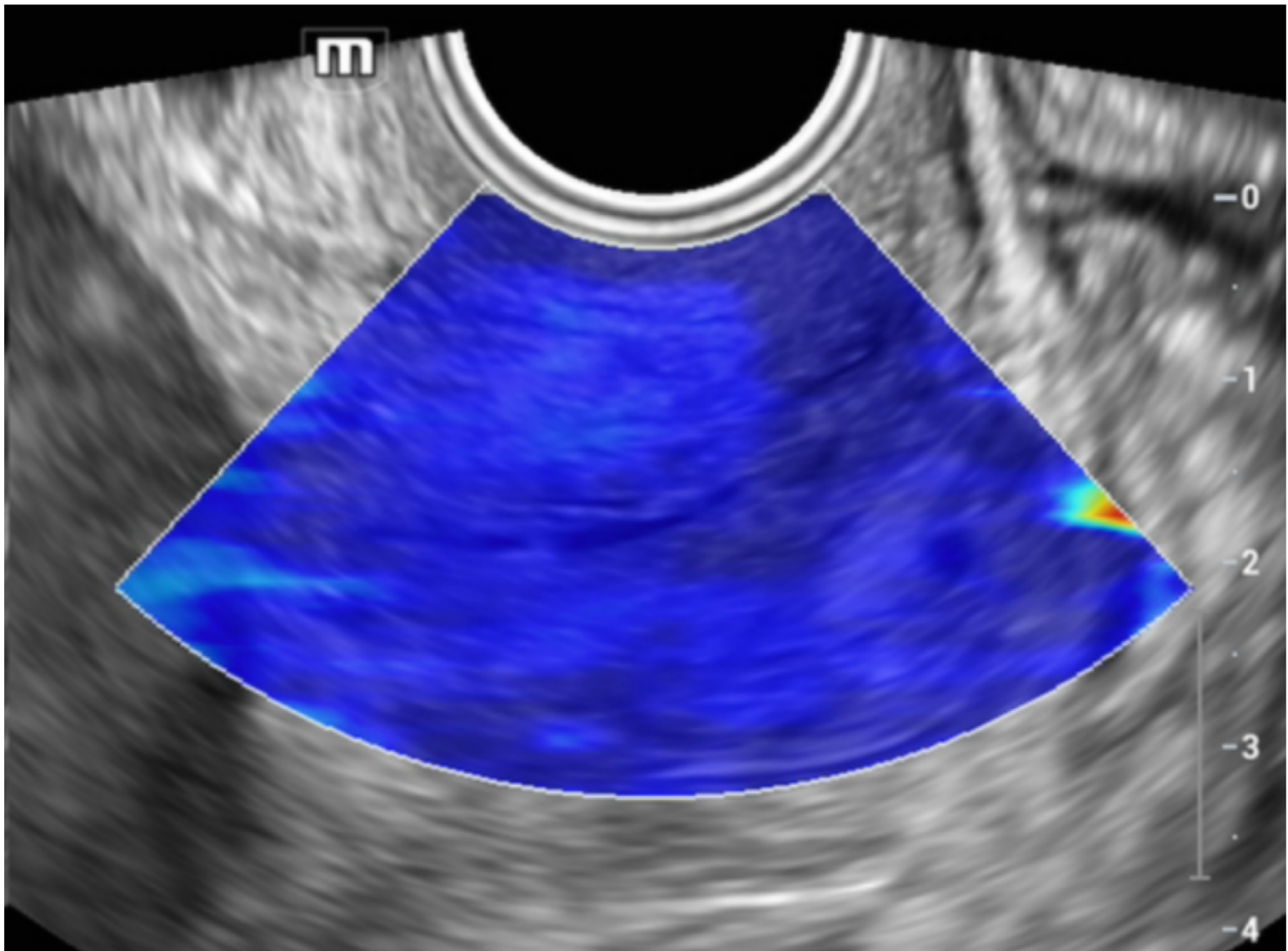


FIG 2. Shear Wave Elastography Application

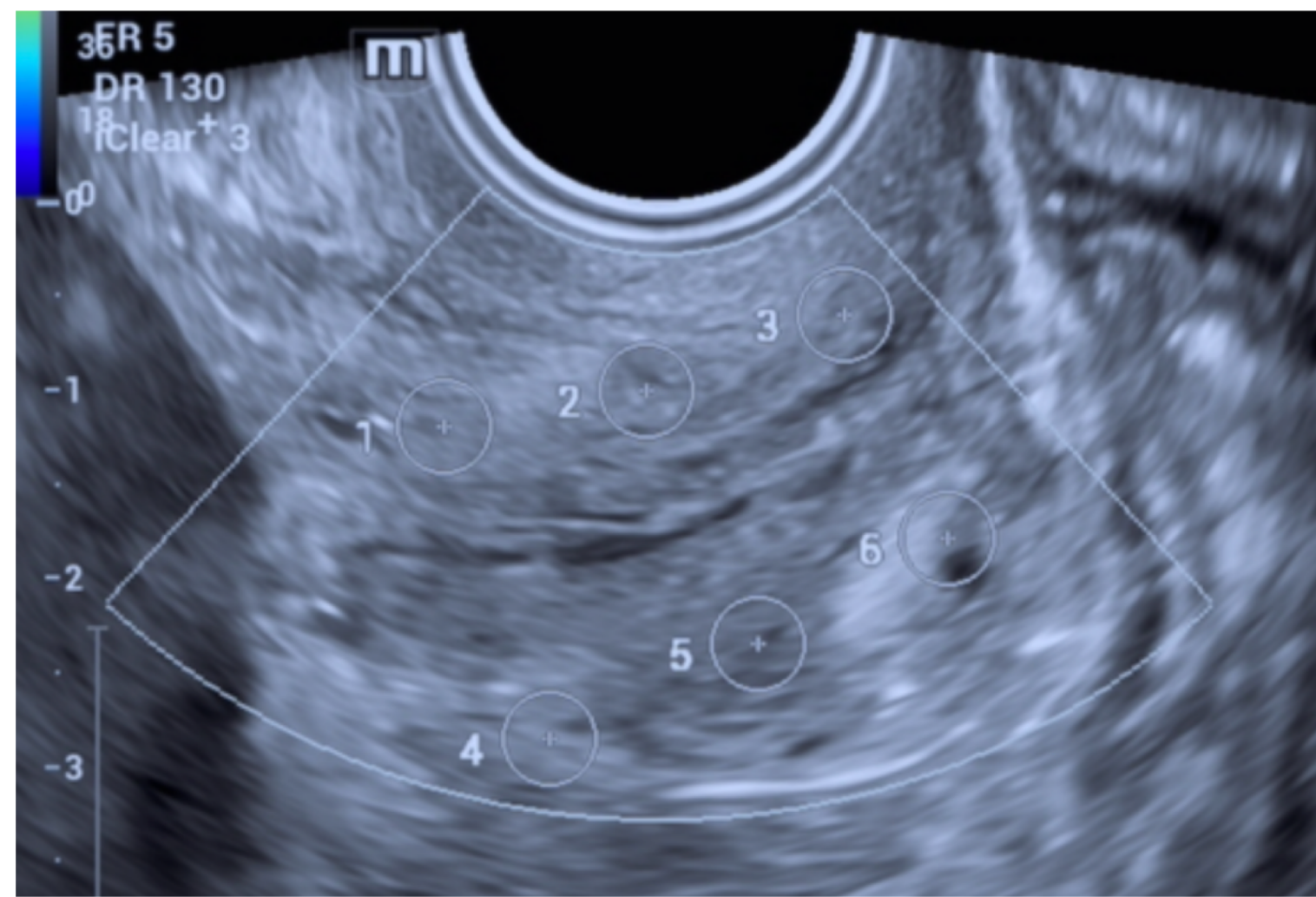


FIG 3. Shear Wave Elastography Measurement