Editorial

Samrakshan Program—An Indian Radiological and Imaging Association Initiative to Reduce Perinatal Mortality in India

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India has a high perinatal mortality rate of 36 per 1,000 pregnancies as per the National Family Health Survey-4 (2015–16) and contributes to more than a quarter of global neonatal deaths.[1,2] The perinatal mortality rate is considered one of the key indicators of the healthcare system of a society. A major determinant of poor perinatal health in India is a high prevalence of preterm births (PB) and this in turn is attributable to high rates of pregnancy-induced hypertension, pre-eclampsia (PE), and fetal growth restriction (FGR). An estimated 8 to 10% of pregnant women in India develop PE during pregnancy and an estimated 3.5 million children are born preterm every year. Indian Radiological & Imaging Association (IRIA) has taken a major step toward addressing the high rates of perinatal mortality, low birth weight, and preterm babies in India in the form of a national program called Samrakshan, initiated in June 2019.

Samrakshan program aims to reduce perinatal mortality in India through an approach that focuses on the integration of trimester-specific fetal Doppler studies with routine antenatal ultrasound examinations to estimate a customized risk status for preterm PE and FGR for each pregnant woman based on globally accepted risk estimators.[3] Screening for PE will start in the first trimester and women identified in the first trimester as high risk for preterm PE are recommended a daily low-dose aspirin regime (150 mg daily) to be initiated before 16 weeks of pregnancy.[4] A stage-based protocol will be used to manage fetuses identified in the third trimester of pregnancy with growth restriction.[5] Dedicated trimester-specific forms, based on the variables of interest, have been developed and are available online to download on the dedicated Samrakshan page of the IRIA Web site or through the Samrakshan app. Radiologists with user credentials can fill up and submit these forms online to a centralized database that will be updated in real-time, thus contributing to the development of India-specific data and protocols at the national, regional, and state levels.

The data collated from the initial 2 years of Samrakshan in India are analyzed on a regular basis by the Samrakshan team. In this edition of the *Indian Journal of Radiology and Imaging*, Choorakuttil et al present the results of some of the studies conducted under the Samrakshan program of IRIA. The first one was conducted to assess the diagnostic effectiveness of third-trimester fetal Doppler studies in pregnancy to predict late and term stillbirth (SB) and neonatal mortality.[6] The Doppler parameters studied were mean uterine artery pulsatility index (PI), umbilical artery PI, middle cerebral artery PI, and cerebroplacental ratio in the third trimester. The authors found that an abnormal Doppler study was significantly associated with and had an excellent discriminatory ability for late SBs but not for term SB or neonatal deaths.

In the next study, the authors describe the role of color Doppler ultrasonography in the third trimester of pregnancy to reclassify FGR.[7] A fetus with FGR shows Doppler signs of hemodynamic redistribution as a fetal adaptation response to undernutrition or hypoxia in addition to an estimated fetal weight less than 10th percentile, whereas a small for gestational age (SGA) fetus is defined as a constitutionally small fetus without Doppler changes. The fetal Doppler parameters studied are the same as in the previous study. The integration of Doppler assessments to the biometry resulted in a significant reclassification of FGR from 20.22 to 11.39%, the remaining 8.83% being reclassified as SGA and these SGA fetuses can be carried to term similar to normal growth fetuses. This reduction will have significant implications on the healthcare system of India by reducing the cesarean section rates, PB rates, and perinatal mortality rates. The trends in various aspects of perinatal health after 2 years of the Samrakshan program were presented by the authors and they found a

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significant reduction in perinatal mortality, neonatal mortality, PB rates, and rates of PE and FGR compared with national rates as well as compared with the first-year data of Samrakshan taken as baseline.[8,9]

Based on these encouraging results after 2 years of Samrakshan, the Samrakshan 757 project was proposed that aims to have at least one Samrakshan fetal radiologist (Samrakshan Yodhas) in every district of India, who will lead the integration of fetal Dopplers and ultrasound assessment with antenatal care in each district in collaboration with other stakeholders in perinatal healthcare, ultimately aiming to reduce PE to less than 3% and FGR to less than 10% in India over an 8-year period.

Through a multipronged approach including nationwide data collection, research collaborations, skill development, training, and awareness programs, Samrakshan under the auspices of IRIA is slowly moving toward achieving the proposed long-term targets. As responsible radiologists, I urge you all to join hands with IRIA in this national mission to help India achieve a low perinatal mortality rate as visioned.

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