

# Relationship between maternal serum iron and pre-eclampsia: A case-control study

Evelyn Ting Lee Pian<sup>1</sup>, Liew Pei Yee<sup>2</sup>, Yong Soon Leong<sup>3</sup>, Kang Marcus<sup>1</sup>

<sup>1</sup>Department of Obstetrics and Gynaecology, Hospital Sibul, Sarawak, Malaysia, <sup>2</sup>Department of Obstetrics and Gynaecology, Hospital Tuanku Ja'afar, Seremban, Negeri Sembilan, Malaysia, <sup>3</sup>Department of Obstetrics and Gynaecology, Hospital Tengku Ampuan Afzan, Kuantan, Pahang, Malaysia

## ABSTRACT

**Introduction:** It is postulated that excess ferritin and iron, which are generated from a hypoperfused placenta, produce free radicals and promote lipid peroxidase activity, leading to vascular endothelial cell damage and the development of pre-eclampsia. The aim of this study is to assess the association between maternal iron parameters and pre-eclampsia. **Methods:** This case-control study was conducted in Sibul Hospital, Sarawak from November 2020 to May 2023. Cases were pregnant women with pre-eclampsia, whereas controls were healthy pregnant women. Thirty-three cases and 33 controls were recruited. Blood samples of both case and control groups were collected for serum ferritin and serum iron levels. **Results:** Mean serum ferritin concentrations were significantly higher in the pre-eclamptic than in the healthy pregnant women (118.8 ng/ml versus 62.4 ng/ml,  $p=0.03$ ). Serum iron levels were similar in both groups. Serum ferritin  $>15$  ng/ml was significantly associated with the risk of developing pre-eclampsia (OR=5.81; 95% CI: 1.15-29.44,  $p=0.033$ ). **Conclusions:** Elevated serum ferritin is associated with the risk of pre-eclampsia. Therefore, all pregnant women should have a serum ferritin blood test as part of their routine investigations during antenatal booking visits. It is also relevant to avoid oral iron supplementation in non-anaemic pregnant women with risk factors of pre-eclampsia.

# Echogenic cardiac foci during second-trimester detail scan: Clinical characteristic and pregnancy outcome

Fathi Ramly<sup>1</sup>, Shuhaila Ahmad<sup>2</sup>, Rahana Abd Rahman<sup>2</sup>, Nor Azlin Mohamed Ismail<sup>2</sup>

<sup>1</sup>Department of Obstetrics & Gynaecology, Faculty of Medicine, UiTM Sungai Buloh, Sungai Buloh Selangor, Malaysia, <sup>2</sup>Department of Obstetrics & Gynaecology, Hospital Canselor Tuanku Mukhriz (HCTM), Cheras, Kuala Lumpur, Malaysia

## ABSTRACT

**Objective:** To determine the prevalence and clinical characteristics of echogenic intracardiac foci (EIF) found during a second-trimester detail scan, as well as the pregnancy outcome at a tertiary care hospital. **Method:** The findings of an EIF detail scan performed during the second trimester (18-28 weeks) at Hospital Canselor Tuanku Mukhriz (HCTM) over a 2-year period were analyzed. Maternal clinical characteristics, the antenatal course of EIF, and the immediate pregnancy outcome were evaluated. **Results:** During the study period, 1,317 patients had a second-trimester detailed scan. 198 (15.0%) fetuses had EIF. Most mothers were over the age of 35. 160/198 (80.8%) were single echogenic foci, with the left ventricle being the predominant location of EIF (96.0%). EIF was isolated in 75.8% of cases, followed by association with a non-cardiac abnormality (21.2%). During prenatal imaging, only 10.1% of EIF disappeared in the late third trimester. The majority of pregnancies with EIF delivered at HCTM reached term (84.7%), with a mean gestational age at delivery of 37.54 ( $\pm 2.00$ ) weeks and a mean birth weight of 2.92 ( $\pm 0.46$ ). Approximately two-thirds of pregnancies with EIF experienced spontaneous labor onset (59.2%), with only half achieving a normal delivery (51.6%). Most newborns had a good Apgar score. **Conclusion:** The prevalence of EIF during the detail scan in HCTM was high, and this had no predilection with advanced maternal age. The sonographic characteristics of EIF were similar to those found in the international study. Favorable pregnancy outcomes were observed in both isolated and non-isolated EIF cases.