Temporal Dynamics of Soluble HLA-G and its Inverse Relation with Systemic Inflammatory Index in Women with a History of Recurrent Pregnancy Loss

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INTRODUCTION

- Recurrent pregnancy loss (RPL) is defined as 2 or more consecutive losses of pregnancy before 20 weeks of gestation affects 1-5% of couples globally and has unknown causes for 50% of cases.
- HLA-G, a non-classical class-I MHC molecule plays a crucial role in maintaining immune tolerance during pregnancy. It is expressed as cell surface glycoprotein and soluble isoforms throughout pregnancy.
- The systemic inflammation index (SII), a composite biomarker combining neutrophil, platelet, and lymphocyte counts, is a prognostic indicator in various inflammatory conditions.

Interaction of soluble HLA G with various immune cells at the maternal-foetal interface
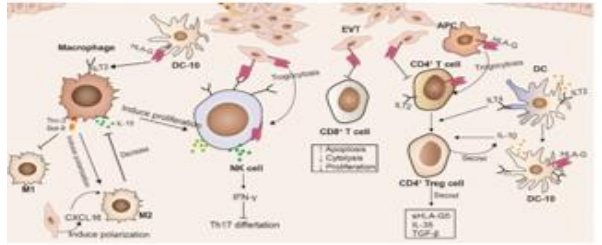
4 membrane-bound & 3 soluble isoforms of HLA G
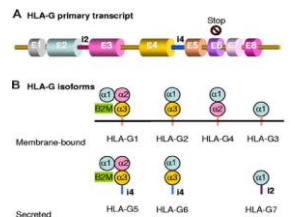
Formula to calculate Systemic Inflammation Index

$$SII = \frac{Neutrophil\ count \times Platelet\ count}{Lymphocyte\ count}$$

OBJECTIVES

To investigate the inter-gestational variation of s HLA G and its relation with SII in pregnant women with a history of RPL

METHODOLOGY

150 women recruited from Obstretrics & Gynaecology department, Niloufer Hospital

Blood samples collected and demographic and clinical data recorded

Quantification of soluble HLA G through ELISA
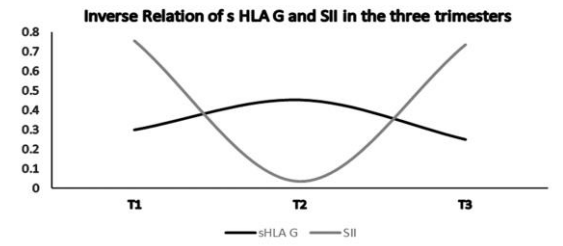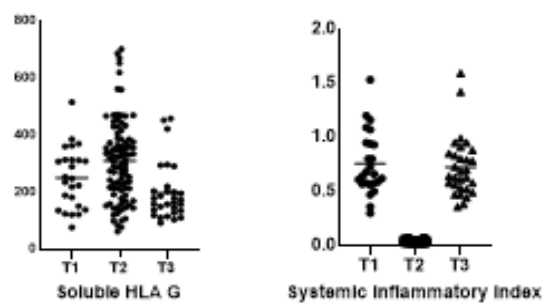
Statistical Analysis

RESULTS/DISCUSSION

- The results indicated a temporal pattern or shift of both soluble HLA G and SII in the three gestational phases of pregnancy.
- The inter-gestational patterns of sHLA G & SII were opposite to each other and showed an inverse relationship.
- sHLA G concentrations were low in the first and third trimesters and comparatively high in the second trimester.
- An exact reverse pattern was observed for SII, where the mean SII values were found to be highin the first and third trimesters and very low in the second trimester.

Table – Demographic & Clinical characteristics

	Trimester 1	Trimester2	Trimester3
Age	25.72±3.36	25.9±4.22	26.19±2.97
Gestational age	11.20±2.00	15.11±5.64	12.44±8.34
Number of miscarriages	2.40±0.86	2.38±0.82	2.65±0.93
Soluble HLA G	250.1±106.6	309.4±143.1	197.5±98.99
Systemic Inflammatory Index (SII)	0.7568±0.29	0.032±0.01	0.72±0.27

Intergestational variation of soluble HLA G and systemic inflammatory index(SII)

Soluble HLA G

Systemic Inflammatory Index

Inverse Relation of s HLA G and SII in the three trimesters

sHLA G — SII

❖ This study gives insight for future research for in-depth analysis of immunological shift that occurs during pregnancy and a vision for a longitudinal case-control study considering the combined use of sHLA-G and SII as dual or independent biomarkers for the study of RPL and other reproductive disorders

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