



To Estimate the Cardiac Diastolic Dysfunction and Global LV function using Myocardial Performance Index evaluated by Echocardiography and Myocardial Tissue Doppler in pregnant women with Preeclampsia and Normotensive pregnancy.



आरोग्यम् सुख सम्पदा

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INTRODUCTION:

Preeclampsia, a complex medical disorder occurring during pregnancy, poses significant risks to both maternal and fetal health. It is crucial to diagnose and manage this condition promptly to prevent adverse outcomes. In this scientific poster presentation, we delve into the structure and function of the heart in pregnant women with preeclampsia and normotensive pregnancies. By utilizing echocardiography and myocardial tissue Doppler, we evaluated cardiac diastolic dysfunction and global left ventricular function, specifically using the myocardial performance index(MPI). Normal range of MPI is 0.39 +/- 0.05. Our study seeks to shed light on the importance of early detection and careful management of cardiac abnormalities associated with preeclampsia, ultimately reducing morbidity and improving outcomes for high-risk patient. The aim of this study was to To estimate the cardiac diastolic dysfunction and global LV function using myocardial performance index evaluated by Echocardiography and myocardial tissue doppler in pregnant women with Preeclampsia and normotensive pregnancy.

Materials and Methods:

It was Prospective Observational Case Control study comparing total 50 Pregnant women with preeclampsia diagnosed by ISHHP recommendation and matching controls attending the ANC OPD or admitted in IPD over 8 months duration.The Echocardiography and myocardial tissue doplpler parameters of both groups were compared and MPI was calculated by formula (IVCT*+IVRT**)/ ET***

RESULTS:

In our study of 50 (25 case and 25 control) patients, various echocardiographic parameters of cases and controls with their respective mean and standard deviation are described in Table 1. Here, mean Left ventricular ejection fraction among cases was 71.24±8.12 and among control was 66.54±5.71. Tissue Doppler imaging value demonstrated by Table 2 suggested that higher mean arterial pressure correlated with worsening cardiac function, as measured by Myocardial Performance index. The Tei index(MPI) was on higher side in cases with mean 0.42 ± 0.12 compared to control group which was 0.31± 0.03. The p value was <0.001 which was found to be significant.

*IVCT- Isovolumetric Contraction Time
**IVRT- Isovolumetric Relaxation Time
***ET- Ejection Time

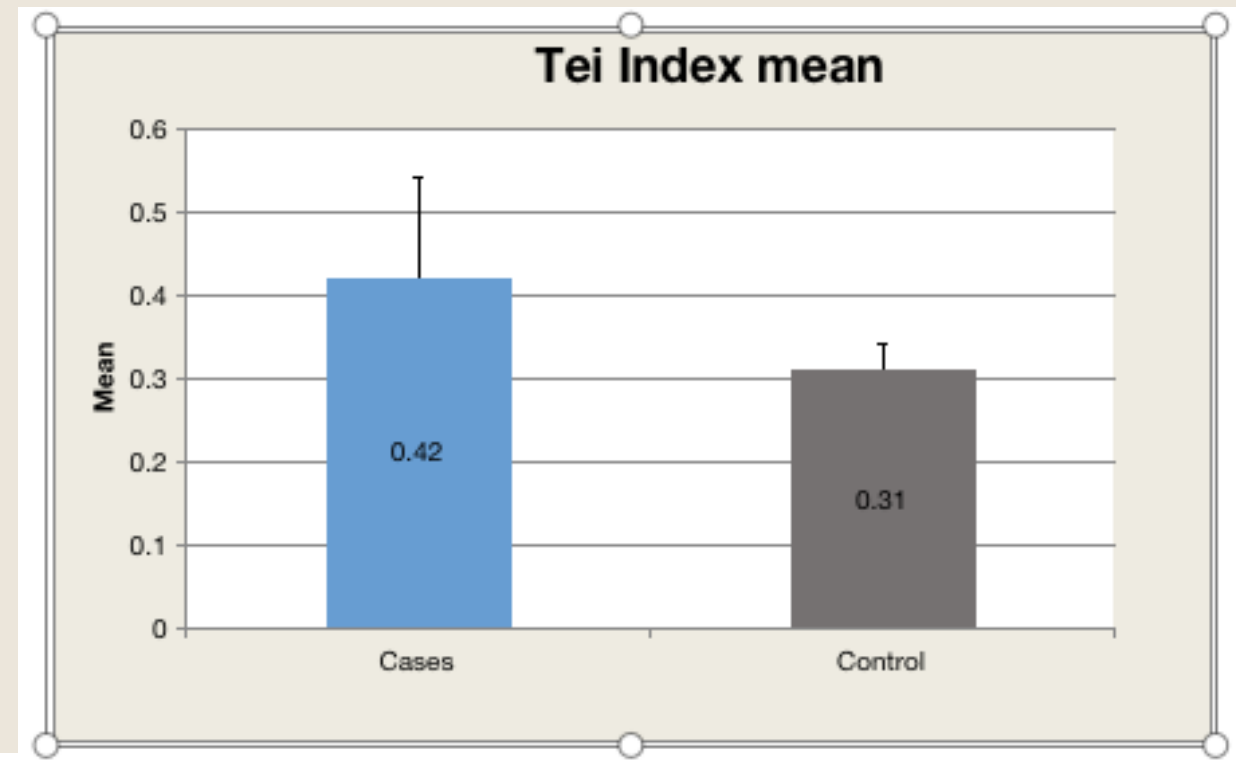
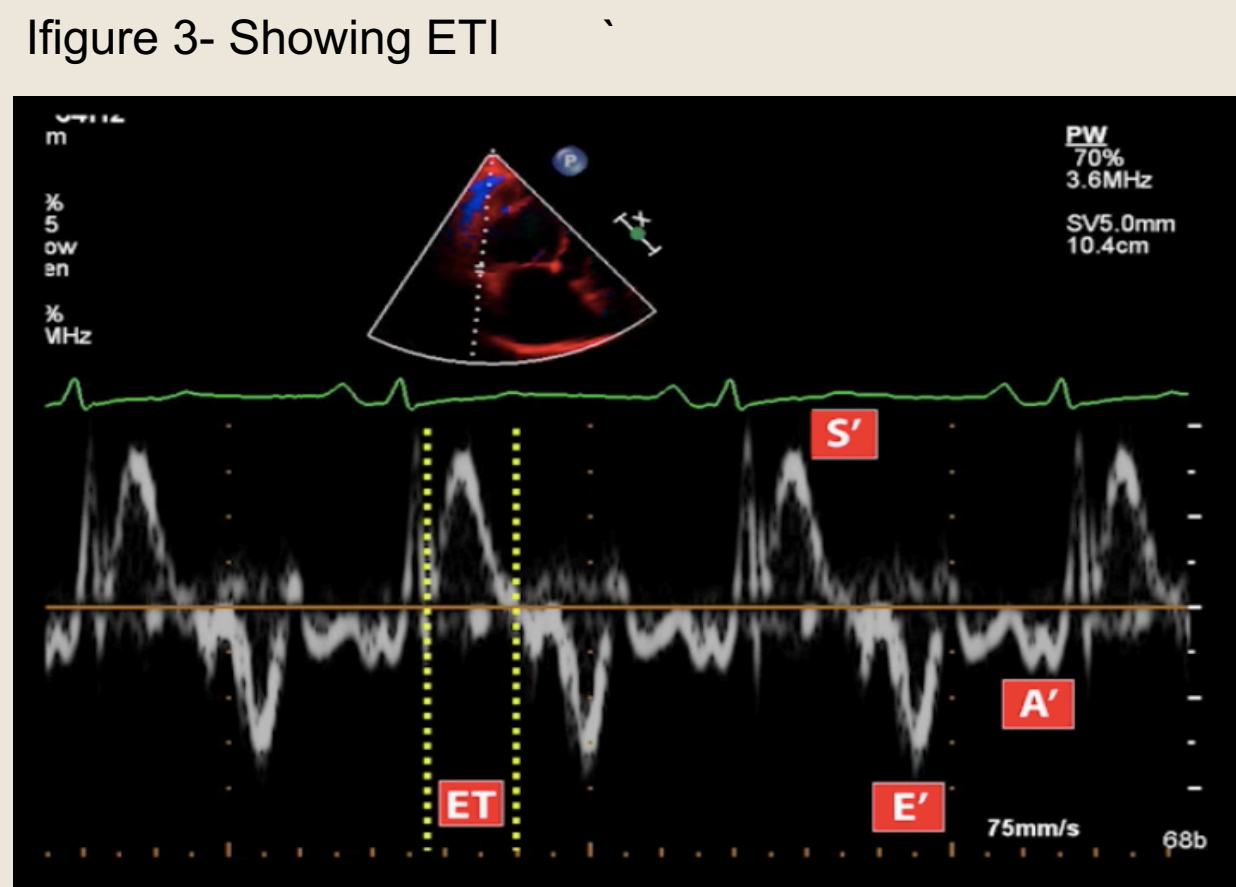
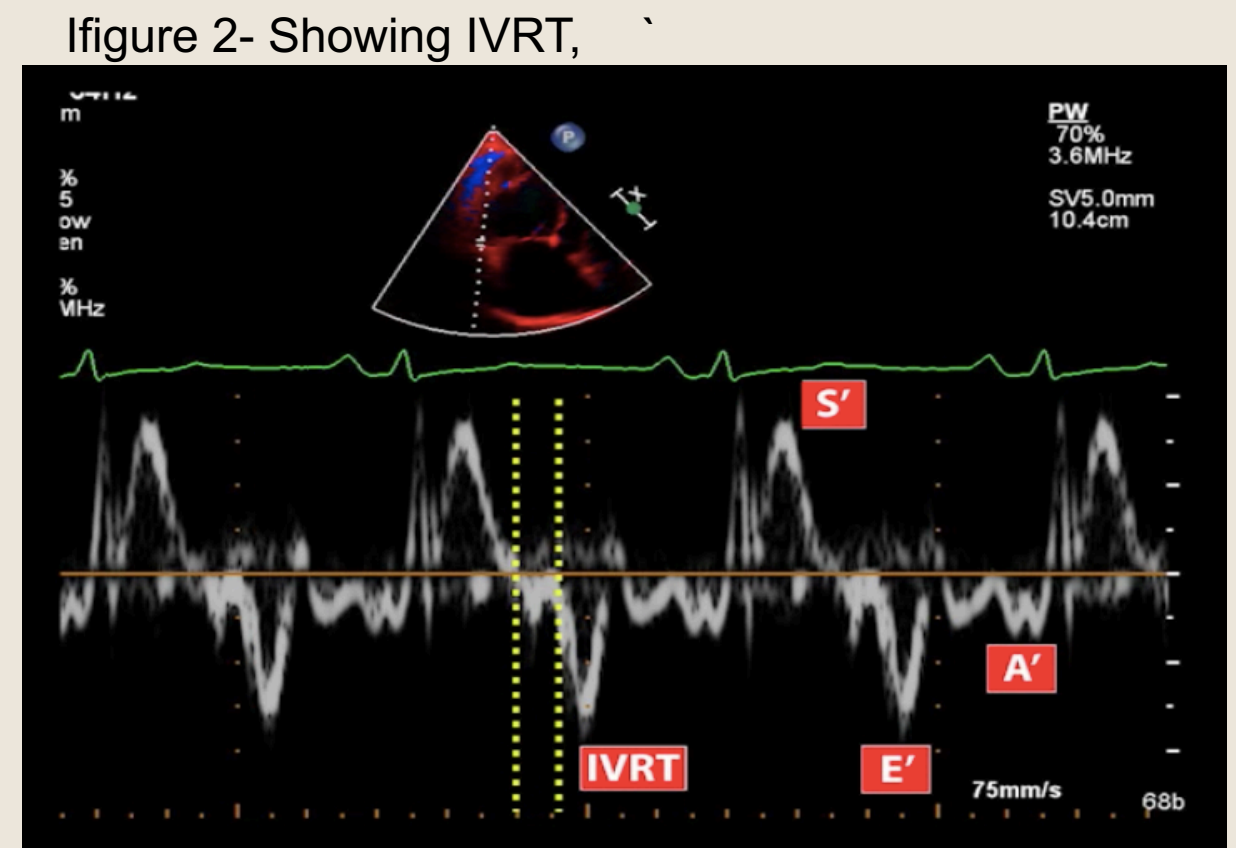
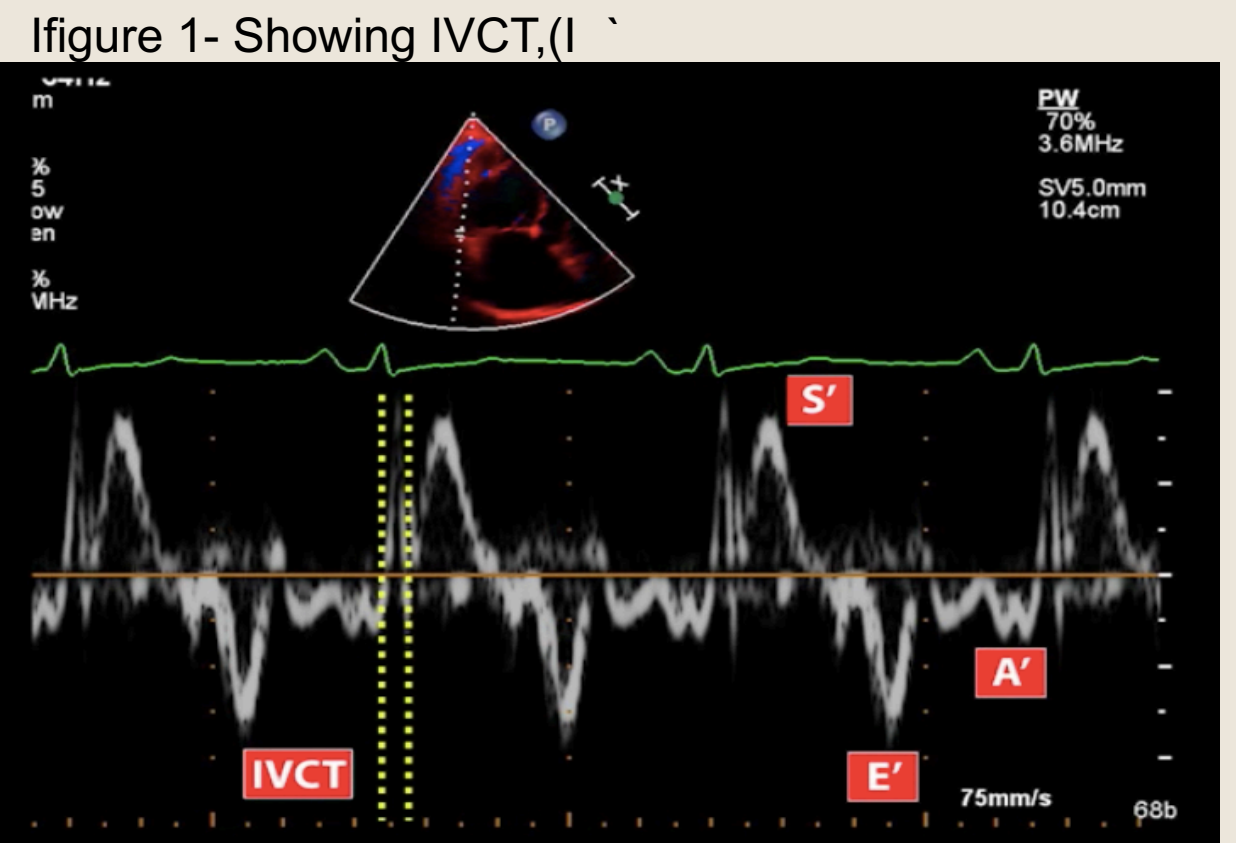


Table 1: Echocardiography Parameters

Variables	Cases (N =25)		Control (N=25)		P value
	Mean	SD	Mean	SD	
LA (mm)	31.45	7.70	31.20	3.18	0.88
LVIDd (mm)	45.52	5.44	44.00	4.71	0.29
LVIDs (mm)	26.80	4.81	27.72	3.40	0.44
EDV(ml)	91.92	30.12	91.64	24.69	0.97
ESV(ml)	28.16	11.68	29.72	9.24	0.60
LVEF	71.24	8.12	66.52	5.71	0.02*
CO(ml/min)	6269.36	2237.46	5665.12	1926.70	0.31
E/A	1.40	0.349	1.43	0.30	0.70
TAPSE	24.81	2.89	24.16	3.38	0.46
MVDT(ms)	154.64	55.45	151.24	47.17	0.81

Independent t test; *p<0.001 highly significant

Table 2: Myocardial Tissue Doppler

Variables	Cases (N =25)		Control (N=25)		P value
	Mean	SD	Mean	SD	
Myocardial S velocity mean	9.07	2.01	9.52	1.43	0.372
E' velocity mean	10.35	2.53	12.02	2.12	0.015*
A' Velocity mean	8.61	2.20	8.92	2.49	0.645
E/e' (average)	9.89	2.55	12.50	12.74	0.321
IVRT mean	69.12	14.84	52.84	9.41	<0.001**
IVCT mean	53.60	14.96	40.72	5.06	<0.001**
ET mean	276.16	54.41	276.80	26.44	0.958
Tei Index mean	0.42	0.12	.3125	.03399	<0.001**

Independent t test; *p<0.05 significant; **p<0.001 highly significant

Conclusion

We demonstrated that higher mean arterial pressure correlated with worsening cardiac function, as measured by Myocardial Performance index. The Tei index(MPI) was on higher side in cases and p value was significant. High MPI suggests left ventricular dysfunction. On 2 D echocardiography significant difference was observed in left ventricular ejection fraction among cases and control. Recognition of impairment in cardiac function is important in the contemporary management of preeclampsia, to improve pregnancy outcomes and long-term cardiovascular health. Pregnancy is an opportunistic window to unnerve any hidden cardiovascular abnormality and to identify those at future risk for same. future studies should include postpartum monitoring to describe long-term changes in cardiac function in relation to cardiovascular morbidity and mortality related to hypertensive disorders of pregnancy.

Bibliography

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