

LETTER TO THE EDITOR

PEFR IN RELATION TO PHASES OF PREGNANCY

Sir,

(Received on June 22, 2000)

We wish to report PEFR changes during different trimesters of pregnancy. The study was conducted in collaboration with Department of Obstetrics and Gynaecology, Princess ESRA Hospital. Subjects belonging to same socioeconomic status, having normal Hb and BP were randomly picked up from antenatal clinic. A total number of 117 pregnant women (I, II and IIIrd gravida) in the age group of 19-27 years were the subjects for this study. After asking the subjects to relax for 15 minutes, following parameters were recorded : Height, Weight, BSA, BMI, RR, Chest expansion in respiration and PEFR. PEFR was studied using FERRARIS pocket peak flowmeter (1). Subjects were divided into three groups, i.e. Group 1 Ist Trimester (n = 12), Group 2 IInd Trimester (n = 35) and Group 3 IIIrd Trimester (n = 70).

Mean ± SD values and P-values of above parameters were calculated for each

group. From the above data, it is inferred that :

PEFR of the subjects shows a gradual decrease from Group-I to Group-III. The decrease in PEFR in Group-I versus Group-II & Group-I versus Group-III is highly significant (P<0.01), confirming other studies (2, 3, 4). Gradual reduction in PEFR with increase in gestation period could not be explained on the basis of anthropometric parameters (5). For this, there could be 3 possible explanations.

1. Mechanical effect of enlarging gravid uterus affecting vertical dimension by restricting diaphragmatic movement which contributes normally 75% of the change in intrathoracic volume during quiet inspiration (6).

TABLE I: Shows recorded parameters in relation to Trimester.

Pregnancy	Age (yrs)	Ht (m)	Wt (kg)	BSA /m ²	BMI wt/ht ²	RR (/min)	Chest Expansion (cm)	PEFR (L/Mint)
1st-Trimester n = 12	23.0±3.6	1.6±0.06	53.0±16.4	1.54±0.09	22.99±0.09	23.5±4.2	2.9±0.63	353.3±60.65
2nd-Trimester n = 35	23.03±1.8 NS	1.31±0.84 NS	50.7±11.6 NS	1.44±0.4 NS	20.56±4.3 NS	23.4±1.95 NS	2.9±0.34 NS	305.4±11.21 P<0.01
3rd-Trimester n = 70	23.2±2.62 NS	1.55±0.98 NS	55.2±9.8 NS	1.54±0.15 NS	21.63±6.21 NS	22.6±1.05 NS	2.97±0.6 NS	301.9±51.12 P<0.01

2. It may be due to hypernea leading to decrease in PACO₂ inducing constriction of bronchial muscle (7), but in our subjects, changes in RR were insignificant.
3. Decline in PEFR could be due to increased progesterone in the blood affecting expiratory muscles (6, 7).

To find out exact mechanism, we suggest simultaneous monitoring of airway

resistance, PACO₂ and blood level of progesterone.

ACKNOWLEDGEMENTS

Authors are thankful to Dr. Shajahan, Professor and HOD, Obstetrics and Gynaecology and Dr. Zainab K. Moinuddin, Professor of Obstetrics and Gynaecology, Princess ESRA Hospital for providing cases attending antenatal clinic.

BILQUIS M. A. RASHEED*, KHAJANI HUSSAIN AND SIKANDAR HUSSAIN

Department of Physiology,
Deccan College of Medical Sciences,
Kanchan Bagh, Hyderabad - 500 258

REFERENCES

1. Hussain S, Moiuiddin M, Shakeel Ur-Rehman M, Rafiq A, Ashafaq Ahmed M. PEFR in Pipe factory workers. *Indian J Physiol Pharmacol* 1999; 43 (3): 405-406.
2. Mukkapatti R, Prasad EC, Venkatraman, Fathima K. Ventilatory functions in pregnancy. *Indian J Physiol Pharmacol* 1991; 35 (4): 237-240.
3. Puranic BM, Kurhade GA, Kaore SB, Patwardhan SA, Kher Jr. PEFR in pregnancy - A longitudinal study. *Indian J Physiol Pharmacol* 1995; 39 (2): 135-139.
4. Monga U, Kumari K. Pulmonary function in Punjabi pregnant women. *Indian J Physiol Pharmacol* 2000; 44 (1): 115-116.
5. Sexena SC, Rao VSC. A study of pulmonary function test during pregnancy. *J Obstet Gynaec India* 1977; 21: 193-195.
6. Ganong WF. Review of Medical Physiology. 18th edition 1999; PP 416, 607.
7. Milni J, Mills RS, Howie AD, Park Al. Large airway function during pregnancy. *Br J Obstet Gynaecol* 1977; 84: 448-451.

*Corresponding Author