

PEAK EXPIRATORY FLOW RATES DURING PREGNANCY

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SUMMARY

Peak expiratory flow rates were measured in 149 pregnant women and 44 nonpregnant women between the age group of 16-35 and 16 to 45 years respectively. Significant difference in peak expiratory flow rate of pregnant women was observed as compared to non pregnant control. There was significant decrease in peak expiratory flow rate when compared to gestational age of pregnancy.

Key Words : Peak expiratory flow rate (PEFR), Pregnancy, Gestational age.

INTRODUCTION

During pregnancy, profound changes in respiratory physiology because of physical biochemical adaptations are observed. Many parameters vary as per gestational age of pregnancy (1). Present study aims at finding out changes in Peak expiratory flow rates during pregnancy.

MATERIAL AND METHODS

This study was conducted in Govt. Maternity Hospital, Hanamkanda. Peak expiratory flow rates were measured in 149 pregnant & 44 non-pregnant women as control. These women were of age group between 16 to 35 and 16 to 45 yrs respectively. They did not have any nutritional, cardiac or respiratory disorders. Routine measurement of height, weight, were recorded. Peak expiratory flow rates were measured using **WRIGHT'S PEAK EXPIRATORY FLOW**

METER in standing position. They were asked to take maximal inspiration before starting manoeuvre. Then they were asked to hold mouth-piece in such a way that air does not slip from sides of mouth piece of peak flow meter, & blow into it as rapidly as possible. After a couple of times' practice of blowing three attempts in succession are recorded. The highest reading was taken as PEFR.

RESULTS

When PEFR was compared between pregnant & non-pregnant women there was a significant decrease in pregnant women. (Table I) by using z test.

When PEFR compared with duration of pregnancy, there was significant decrease in second and third trimester as compared to first trimester (Table II).

Mean peak flow rate of pregnant women was found to be more during first trimester of pregnancy than other two trimesters.

Table - I

Comparison of Pregnant & Non-pregnant Women

	Mean - P.		S. E. E.		Mini.		Max.	
	Preg.	Non-Preg.	Preg.	Non-Preg.	Preg.	Non-Preg.	Preg.	Non-Preg.
Age in years	25.8752	32.9545	0.32977	1.067	16	16	35	45
	± 4.0250	± 7.0075						
Ht. in Cms.	148.6242	150.8864	0.4386	0.9277	137	127	160	157
	± 5.3443	± 6.1539						
Wt. in Kgs.	44.8658	46.0227	0.4542	1.0756	35	35	64	64
	± 5.5442	± 7.1349						
P. E. F. R. in Litres/minute	236.2081	255.9091	4.0994	6.2143	160	180	380	320
	± 50.0393	± 41.2208						

* Z Value (observed) -2.55, $P < .05$

Z value (Expected) 1.96 at 5% Singificance.

Table - II

Trimesterwise PEFR

Gestational Age	PEFR in Litres/Minute			Min.	Max.
	Mean	S. D.			
First Trimester	277.69	± 59.21		160	320
Second Trimester	236.00**	± 47.79		160	320
Third Trimester	244.93*	± 55.62		160	380

* $P < .05$

** $P < .01$

When PEFR compared with height, weight, in non-pregnant women was less significant.

When PEFR compared with height, weight, in pregnant women was also less significant.

R^2 Value in non-pregnant women with PEFR were

For age	0.004
For Ht.	0.00017
For Wt.	0.00132

R² Value in pregnant women with PEFR were

For age	0.0052
For Ht.	0.0124
For Wt.	0.0032

Correlation Co-efficient were in non-pregnant women

Age Vs PEFR	- 0.0193 (Non - Significant)
Ht. Vs PEFR	- 0.0349 (Non - Significant)
Wt. Vs PEFR	- 0.0391 (Non - Significant)

In case of pregnant women

Age Vs PEFR	- 0.0724 (Non - Significant)
Ht. Vs. PEFR	- 0.0872 (Non - Significant)
Wt. Vs PEFR	- 0.1595 (Non - Significant)

DISCUSSION

There are various studies on pulmonary function tests during pregnancy like changes of respiratory frequency, tidal volume, maximum, voluntary ventilation, vital capacity, inspiratory capacity, expiratory reserve volume, forced expiratory volume in one second etc. (Chabra et al 1988, Pandy et al 1984, Saxena et al 1979, Shaikh

et al. 1983.) There are no reports regarding peak expiratory flow rates during pregnancy. In the present study we observed that there are significant changes in peak expiratory flow rates in pregnant women as compared to non-pregnant controls. (Table I). Similarly there were significant variations in PEFR in relation to gestational age (Table II). There was no significant correlation between PEFR and height, weight, age in pregnant and non-pregnant women. The present study reveals that like vital capacity, inspiratory reserve volume and expiratory reserve volume (Chabra et al 1988, Pandy et al 1984, Saxena et al 1979, Shaikh et al 1983,) peak expiratory flow rate also decreases during pregnancy.

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