



A Comparative Study of Impact of Obesity on Peak Expiratory Flow Rate in Young Adult Females

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INTRODUCTION

Obesity can cause various deleterious effects on Respiratory function, such as alterations in respiratory mechanics, decrease in respiratory muscle strength and endurance, decrease in pulmonary gas exchange, lower control of breathing, limitations in pulmonary function tests and exercise capacity and impair health and quality of life. Obesity may affect several body systems and therefore, lead to higher morbidity and mortality rates in the population. Of all those affected, the respiratory system derives special attention because obesity promotes important change in its mechanics, intolerance to exercise, gas exchanges, Control of respiration pattern and the strength and endurance of respiratory muscle. It is important risk factor for reduced airflow or lung function. Lower Peak Expiratory Flow rate (PEFR) value in obese subject is due to increase in the total peripheral resistance and airway resistance.

AIMS AND OBJECTIVES

The purpose of this study was to compare PEFR parameter in obese adult females and non-obese

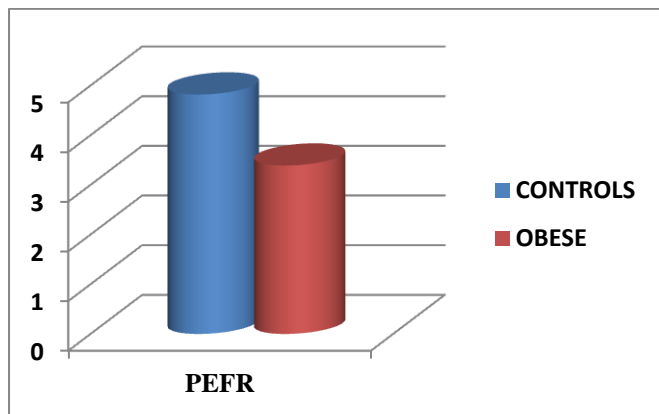
adult female subject, to evaluate the impact of obesity on Peak Expiratory Flow Rate in adult women.

METHODS

Pulmonary Function tests (PFTs) of normal, healthy, non-obese females and healthy but obese females, age group 18-30 years of Hubli city were determined and were compared. Criteria for obesity in our study taken were according to WHO criteria of BMI. The pulmonary function test was carried out with computerized Spirometer Eazy on-PC model. Peak Expiratory Flow rate was used as measure of lung function.

RESULTS

The obese females had PEFR (litres) of 3.89 ± 0.94 whereas corresponding values in non-obese was 4.82 ± 1.83 . There was statistically significant differences between two groups. There was statistically significant lower PEFR in the obese group ($p < 0.05$) than the non-obese controls.



DISCUSSION

Obesity has become a global epidemic. The Prevalence and severity of obesity in young adult females is dramatically increasing worldwide. Along with other organs respiratory system is also compromised. Obesity is likely the cause of pulmonary function decline which is linked to early morbidity and mortality. The changes in the lung function in obesity are caused by Extra Adipose tissue in the chest wall and abdominal cavity, compressing the thoracic cage, diaphragm and lungs, Resulting in decrease in lung volumes. The primary factors that affect PEFR are the strength of the expiratory muscles generating the force of contraction, the elastic recoil pressure of the lungs and the airway size. Accumulation of fat in and around the ribs, the diaphragm and the abdomen results in reduction in the chest wall compliance. Lower PEFR value in obese subject is due to increase in the total peripheral resistance and airway resistance with obesity.

CONCLUSION

In our study PEFR was significantly reduced in obese females compared to non-obese female. These data demonstrate PEFR of obese adult females were significantly reduced when compared to the normal weight counterparts. Obesity had a significant impact on peak expiratory flow rate in young adult females.

KEY WORDS: peak expiratory flow rate; obesity; adult female;

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