



ORIGINAL RESEARCH PAPER

Physiology

FORCED VITAL CAPACITY AND TOTAL LUNG CAPACITY IS INDEPENDENTLY ASSOCIATED WITH OBESITY IN ADULT MALE POPULATION

KEY WORDS:

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ABSTRACT

INTRODUCTION – Pulmonary function tests in health are influenced by a add up to factors like age, height, sex and weight along with various environmental pollutants and genetic, ethnic, socio-economic and technical variations. Out of the above stated factors affecting pulmonary function values, obesity is considered to be commonest and worst offender which alters relationship between lungs, chest wall and diaphragm leading to profound alterations in pulmonary function values which can be assessed by spirometry To study the effects of obesity on the lung functions in adult male population.

MATERIAL AND METHOD - The PFTs were carried out with a computerized spirometer “Med-Spiror”. The data was collected.

CONCLUSION - There is decline of various respiratory functions in obesity.

INTRODUCTION

Pulmonary function tests in health be influenced by a number of factors like age, sex, height and weight along with various environmental pollutants and genetic, ethnic, socio-economic and technical variations. Out of the above stated factors affecting pulmonary function values, obesity is considered to be commonest and worst offender which alters relationship between lungs, chest wall and diaphragm leading to profound alterations in pulmonary function values which can be assessed by spirometry.[1]

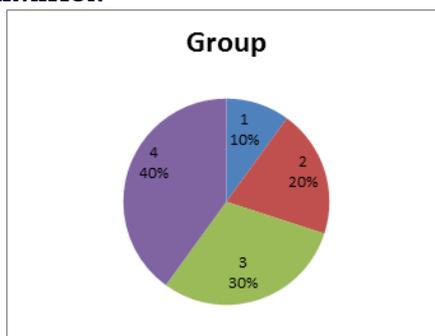
Obesity may affect respiratory function in a number of ways. Carbon dioxide production increases as a function of body weight. Obese subjects consume approximately 25% more oxygen than nonobese subjects at The increased lung and respiratory system resistance in obesity is due to the reduction of lung volume It can profoundly alter pulmonary function and diminish exercise capacity by its adverse effects on respiratory mechanics, resistance with in the respiratory system, respiratory muscle function, lung volumes and energy cost of breathing, control of breathing and gas exchange.[2] Obesity is not a single disease in itself. It places patient at the risk of many diseases including hypertension, dyslipidemia, type II diabetes mellitus, coronary heart disease, cerebral stroke, gall bladder disease, osteoarthritis, some cancers, aspiration pneumonia, pulmonary thromboembolism, obstructive sleep apnoea, obesity hypoventilation syndrome and respiratory failure which are associated with substantial morbidity and increased mortality. Weight loss can reverse many of the alterations of pulmonary function produced by obesity.[3] No thorough study has been undertaken on the effect of obesity on pulmonary function status by computerised spirometer in this part of the country, where the prevalence of obesity is maximum. So, in the present study an attempt will be made to examine the effect of obesity in relation to body mass index on the selected parameters of pulmonary function tests. But these hazardous effects of gaining weight might be reversible and weight loss can improve lung function in obesity as it was observed that most of those who reduced their BMI values also increased their lung function.[4] The extent of lung function loss tends to be higher among those who, at baseline report greater BMI values. This study can encourage losing weight to improve their lung function.[5]

MATERIALS AND METHODOLOGY-

Pulmonary function tests (PFTs) of normal, healthy, non-obese males and healthy but obese males of Dungarpur Rajasthan were determined and were compared and correlated.

Criteria for obesity in our study taken were according to WHO criteria of BMI. ; compiled, statistically analysed and valid conclusions were drawn. Higher lung volumes and flow rates were achieved

OBSERVATION-



GROUPS- 1- weight 70-75 kg, 2- weight 75-80kg, 3- 80-85kg, 4- 85+.

There was statistically highly significant decline in FVC in obese when compared with nonobese groups. The values of FEV1 in both groups when were compared showed significant changes. The ratio of FEV1/FVC, the values of PEFR and FEF25- 75% showed insignificant changes but MVV when were compared showed highly significant changes

Parameters	Group A (Mean±SD)	Group B (Mean ±SD)	't' value
FVC	3.43± 0.51	3.20±0.36	3.68 ** HS
FEV ₁	2.81±0.50	2.63±0.38	2.87 S
PEFR	7.25±1.66	7.20±1.14	0.25 NS
FEF _{25-75%}	3.63±0.87	3.55±1.03	0.59 NS
FEV ₁ /FVC	82.25±12.46	82.33±9.14	0.21 ** NS
MVV	111.19±24.55	92.04±27.93	5.15 **HS

**HS= highly significant p<0.001, *S= significant p<0.05 NS=Nonsignificant p>0.05

CONCLUSION -

There is decline of various respiratory functions in obesity. The cause of decline of various respiratory functions in obesity may be due to decrease in distensibility of chest wall or limited expansion of thoracic cavity and is the cause for reduced ventilatory volumes and total lung capacity.

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