

## **Spirometric Evaluation of Pulmonary Function Tests in Bronchial Asthma Patients**

**Madan, D., Singal, P., Kaur, H.**

Department of Human Biology, Punjabi University, Patiala-147002, Punjab.

### **Abstract**

The present study was undertaken to assess the pulmonary function status of bronchial asthma patients. The results are based on a sample of 403 asthma patients and 347 healthy subjects (control group) in the age range of 20-70+ years. To study pulmonary functions of asthmatic patients, spirometric evaluation of FEV<sub>1</sub>, FVC, FEV<sub>1</sub>/FVC, have been recorded on each subject. The data have been subjected to statistical analysis viz. mean, standard deviation, standard error of mean and test of significance. All the pulmonary parameters in asthmatic patients showed significantly less observed values than the normal predicted values. The difference in the mean values of all the lung function parameters of bronchial asthma patients are lower as compared to normal healthy subjects with statistically significant differences in almost all the age groups.

**Keywords: Pulmonary function test, bronchial asthma, spirometry**

### **Introduction**

Asthma is a complex, recurrent disease of the airways that causes shortness of breath, wheezing, and cough (particularly at night or early in the morning). Asthma is episodic in nature and usually reversible, either spontaneously or with treatment. However, chronic inflammation, associated with persistent symptoms, may contribute to airway remodeling that may not be completely reversible. Airflow limitation occurs as a result of varying degrees of airway hyperresponsiveness, airway edema, and bronchoconstriction

Pulmonary function test (PFT), is a non invasive test, used to detect air flow limitation and/or lung volume restriction. Assessment of ventilatory function is an important investigation because early detection of functional impairment and its appropriate treatment will help to reduce morbidity and mortality related to disease.

Long -term deterioration of lung function in asthmatic subjects has been

described in various studies. For a long time it has been believed that asthma is characterized by totally reversible airway obstruction. Now it is established that prolonged airway inflammation regulated by a variety of inflammatory cells and mediators is the central mechanism in the pathogenesis of asthma. Inflammation leads to injuries and repair including regeneration and replacement by connective tissue. It has been hypothesized that chronic airway inflammation can lead to airway remodeling and in the long term to irreversible airway obstruction. The consequence of this process could be deterioration in pulmonary function.

Asthma is characterized by the presence of reversible airflow obstruction; however, irreversible airflow obstruction develops in some patients. Moreover, accelerated loss of lung function over time has been reported in groups of patients with asthma in longitudinal prospective and retrospective studies (*Lange et al, 1998, Peat et al, 1987, Sears et al, 2003, Covar et al, 2004*) Pascual et al (2005) reported that clinically, airflow