



Respiratory Medicine Pattern for Spirometry Diagnostic Evaluation

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Abstract

Patient proper history was taken and subjected to spirometry for evaluation of lung function on the basis of above inclusion and exclusion criteria. Pulmonary function test was performed in sitting position by uniem. Before recording the Pulmonary Function Tests, subjects were shown demonstration of the tests. Subjects were asked to begin relaxed tidal breathing through the mouth piece and then to take a deep breathe in. Immediately after this the subject was asked to blow out as hard and fast as possible and to continue blowing for six seconds.

Keywords: Reproducibility; Pulmonary toxins; Fitting clothing; Airway condition; Spirometry results; Lung function

Introduction

Then the subject was instructed to take another deep breath in, with the mouthpiece still in his mouth, until the lungs were full with air. When finished the effort/manoeuvre was completed. Consequently, minimum three readings were recorded of each test for every subject and the best of the three was selected for having reproducibility and validity of the recorded test [1]. Indications for performing pulmonary function tests are patient presenting symptoms like cough, breathlessness, wheeze, abnormal chest radiography. Monitoring patient with known pulmonary disease for progression and response to treatment e.g. interstitial fibrosis, chronic obstructive pulmonary disease, asthma etc. Preoperative evaluation prior to lung resection, abdominal surgery, cardiothoracic surgery [2]. Evaluation of patient with higher risk of lung disease like exposure to pulmonary toxins such a radiation, medication, or environmental or occupational exposure. Contraindications to performing pulmonary function tests are Myocardial infarction, unstable angina, recent thoracic-abdominal surgery, recent ophthalmic surgery, Current pneumothorax. Patients with active respiratory infections such as tuberculosis are not precluded from having Pulmonary function tests, however the tests should ideally be deferred until the risk of cross contamination is negligible. A sitting position is typically used at the time of testing to prevent the risk of falling and injury in the event of a syncopal episode, although pulmonary function tests can be performed in the standing position [3]. Patients are advised not to smoke for at least one hour before testing, not to eat a large meal two hours before testing and not to wear tight fitting clothing as under these circumstances results may be adversely effected.

Methodology

Pulmonary function test should be performed three times to ensure that the results are reproducible and accurate. Our study reveal following important observation about the value of spirometry [4]. That these values were found to be altered or decline with age, sex, weight, height and underlying lung and airway condition Present study data showed that patient was diagnosed to have Chronic obstructive pulmonary disease, bronchial asthma on the basis of spirometry results. Secondly patient who came to obstructive pulmonary disease for with the complaints of cough were found to have normal lung function test, apart from their age [5]. Patient who came to obstructive pulmonary disease for pre-operative evaluation were having normal lung function up to a particular age and found to have decline in lung function in elderly person. Our study also shows a decline in forced vital capacity,

forced expiratory volume in a second, forced mid-expiratory flow and peak expiratory flow rate with increment in age [6].

Discussion

As the age increases lung function decreases. Our study also showed patient's lung function also decreases with cigarettes smoking, environmental exposures, family history of bronchial asthma is also an important factor and lastly occupation exposures also plays an important role in decline of the lung function testing in healthy and young individuals [7]. In study patient was diagnosed to have chronic obstructive pulmonary disease on the basis of Global Initiative for Chronic Obstructive Lung Disease guidelines that is by predicting forced expiratory volume in a second and forced expiratory volume in a second / forced vital capacity ratio [8]. And also diagnosed to have bronchial asthma on the basis of gina guidelines as show in (Figure 1). Although it has been suggested that peak expiratory flow can be

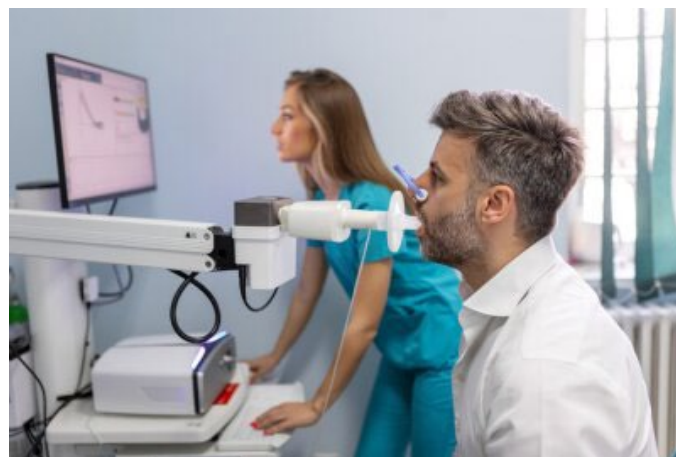


Figure 1: Patient diagnosed on the basis of Global Initiative for COLD guidelines.

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used rather than spirometry, this is not the case in primary care, as the gold standard in diagnosing and tracking the pathogenesis of chronic obstructive pulmonary disease, bronchial asthma and other lung disease is spirometry [9]. In our study of few patients, spirometry played an important role in diagnosing the patient. This was the study carried in our department to assess the different pattern of spirometry in patient attending pulmonary medicine obstructive pulmonary disease [10]. This study showed different pattern of lung function with different age group, with different underlying lung and airway pathology. Out of such cases few patients were diagnosed to have bronchial asthma, few patients were diagnosed to have Chronic obstructive pulmonary disease, few were those who came to obstructive pulmonary disease with complains of cough and few patients were those who came for medical check-up and pre-operative fitness [11]. There can be a wide range of quality among staff who administers the spirometry tests; however, with a quality assurance program, spirometry can be performed and interpreted for asthma and chronic obstructive pulmonary disease patients, and the spirometry results used to modify care [12]. Even the elderly can perform good spirometry as shown in (Figure 2). In summary, spirometry can guide therapies for chronic obstructive pulmonary disease, asthma pre and post-operative evaluation of patients, and can predict outcomes when used in a primary or tertiary care setting. Pulmonary function testing has come into widespread use since the 19th century [13]. This has been facilitated by several developments. Pulmonary function tests are valuable investigations in the management of patients with suspected or previously diagnosed respiratory disease. They aid diagnosis, help monitor response to treatment and can guide decisions regarding further treatment and intervention. The interpretation of pulmonary functions tests requires knowledge of respiratory physiology [14]. This study was carried out on patient attending pulmonary medicine obstructive pulmonary disease. Pulmonary function, as measured by spirometry is an important predictor in estimating the lung function of persons. Differences in the respiratory patterns of healthy adults and the elderly with no underlying airway and parenchymal pathology, suggesting that age also impacts on lung function. Patient with underlying lung pathology have shown to have poor lung function as compared with the normal individuals. Pulmonary function tests are an important tool in the investigation and monitoring of patients with respiratory pathology. They provide important information relating to the large and small airways, the pulmonary parenchyma and the size and integrity of the pulmonary capillary bed. Although they do not provide a diagnosis per se, different patterns of abnormalities are seen in various respiratory diseases which help to establish a diagnosis. The percentage of predicted normal is used to grade the severity of the abnormality.

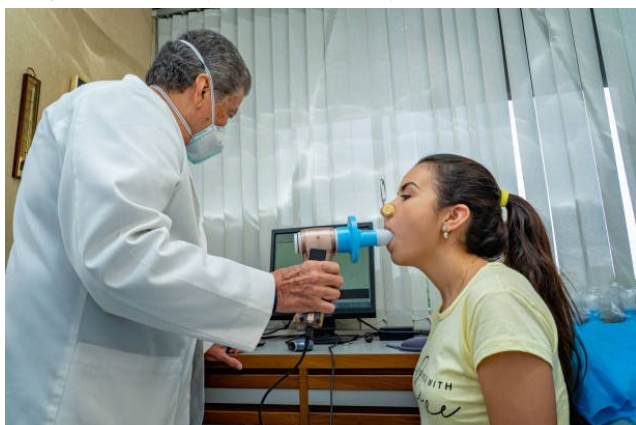


Figure 2: Elderly perform good spirometry.

Conclusion

Practicing clinicians must become familiar with pulmonary function testing because it is often used in clinical medicine for evaluating respiratory symptoms such as dyspnoea and cough, for stratifying preoperative risk, and for diagnosing common diseases such as asthma and chronic obstructive pulmonary disease. Guidelines for performing and interpreting Pulmonary Function Tests have been published both by the European Respiratory and American Thoracic Societies.

Acknowledgement

None

Conflict of Interest

None

References

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