ORIGINAL ARTICLE

INCIDENCE OF SUB-CLINICAL AIRFLOW OBSTRUCTION IN APPARENTLY HEALTHY MEDICAL PERSONNEL; DIAGNOSIS AND COMPARISION BY SPIROMETRY AND PEAK FLOW METRY

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ABSTRACT: AIM & OBJECTIVES OF THE STUDY: To diagnose sub-clinical airflow obstruction in apparently healthy medical personnel, and to compare Peak Expiratory Flow Rate (PEFR) by using Spirometry and by Wright's peak flow meter. **METHODOLOGY:** About 80 apparently healthy medical students including Post Graduates, internees and medical technicians were taken in to the study, all of them had no past history of Bronchial Asthma or any allergies. Spirometry was performed by Spirowin version 0.2 and simultaneously peak expiratory flow rate by Wright's peak flow meter was done and FVC, FEV1, FEV1/FVC, PEFR were recorded. **RESULTS:** About 13 subjects (16.25%) showed moderate obstruction (FEV1 about 70%), and at that point a family history of atopies and allergies could be elicited in most of them. PEFR showed a variation -3.42 to 2.76 ltrs/sec (-205.74 to 165.62 ltrs/min) between Spirometry and Wright's peak flow meter. **INTERPRETATION AND CONCLUSION**: In spite of being medical personnel and having a family history of Bronchial Asthma and other atopies none of the 13 (16.25%) subjects with sub clinical obstruction had ever approached us for a pulmonary function test. This shows that Spirometry has to be popularized in medical personnel as well as in lay men as a means to diagnose Bronchial Asthma and COPD. Also there is difference in PEFR measured by Spirometry and Wright's peak flow metry though the difference is not significant with a p=0.5398.
KEYWORDS: spirometry, pear flow metry, sub-clinical, airflow obstruction.

INTRODUCTION:

FEV1: FEV1 is the maximal volume of air exhaled in the first second of a forced expiration from a position of full inspiration, expressed in litres at body temperature and ambient pressure saturated with water vapour (BTPS).

PEFR: Peak expiratory flow is the highest flow achieved from a maximum forced expiratory manoeuvre started without hesitation from a position of maximal lung inflation (L/sec or L/min).[2]

The present study was conducted with the objective of identifying air flow obstruction in apparently healthy medical personnel by using Spirometry and to compare PEFR by Spirometry and Wright's peak flow metry.

MATERIALS AND METHODS: The present study is a prospective study conducted in the Department of Pulmonary Medicine, S.V.R.R.G.G. Hospital, Tirupati.

INCLUSION CRITERIA: Medical personnel who are studying and working in S.V.R.R.G. Hospital, with no history of Bronchial Asthma or any allergies, and who are non-smokers.

EXCLUSION CRITERIA:

1. All smokers.
2. Known Asthmatics and known COPD Patients.
3. Those who are not willing to participate in the study.

STATISTICAL ANALYSIS: The data was analyzed using Microsoft Excel and EPI- INFO-3.5.4 version and SPSS-16 version. Differences between proportions were analyzed using T-test and correlation represented by scattered diagrams. A 'P' value of less than 0.05 is considered statistically significant.

RESULTS: In our study, the total number of subjects was 80. About 13 subjects (16.25%) showed moderate obstruction (FEV1 about 70-80%), and at that point a family history of atopies and allergies could be elicited in most of them. 67 subjects had normal air flow (83.75%).

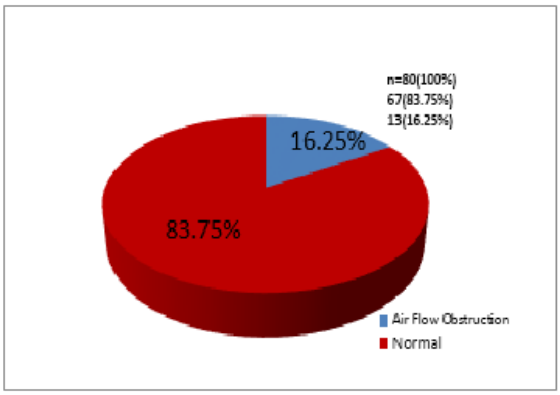

Fig. 1

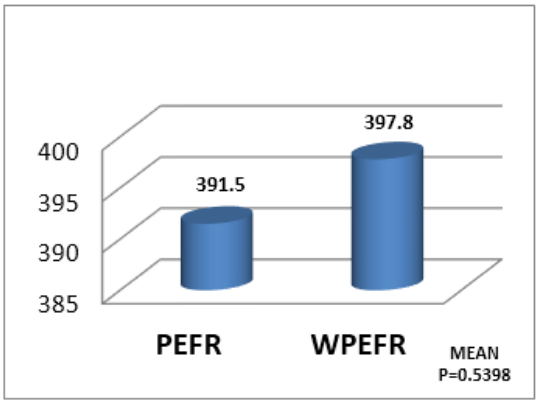

Fig. 2

PEFR showed a variation of -3.42 to 2.76 ltrs/sec between Spirometry and Wright's peak flow meter, and this was statistically not significant with P value 0.5398.

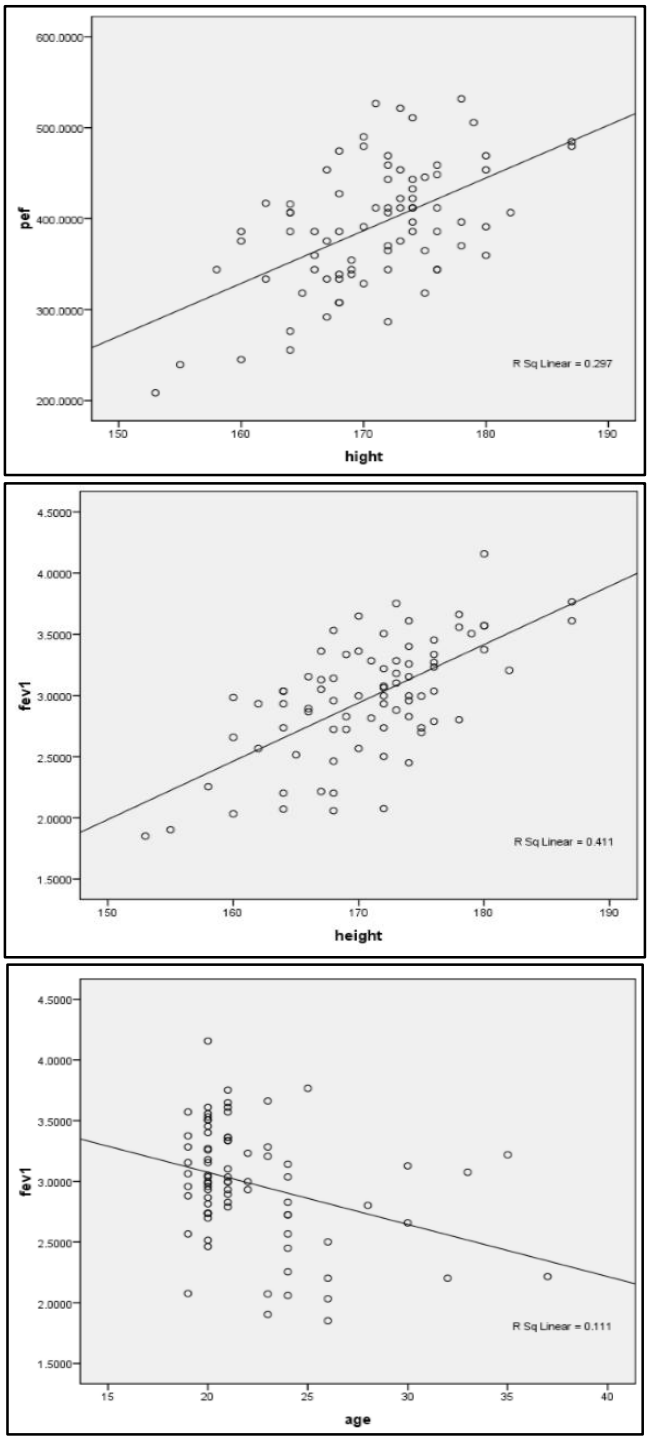

Fig. 3

DISCUSSION: In normal individuals, as age increases the pulmonary function test values decrease by 20ml/year, taller the persons, higher the values and with increase in weight the values also increase.

In our study as age increased the values decreased with a significant P value-0.003, as height increased values increased with a significant P value-0.000 and with increase in weight there was no significant rise in values.

Being medical personnel, the above 13 subjects with air flow obstruction, should have known that with a family history of Bronchial asthma and allergies, they were at risk of developing Bronchial asthma and should have approached us, on their own, for spirometry and for further evaluation. However they did not.

CONCLUSIONS: In spite of being medical personnel and having a family history of Bronchial Asthma and other atopies none of the 13 (16.25%) subjects with sub clinical air flow obstruction had ever approached us for pulmonary function test, this shows that Spirometry has to popularised in medical personnel as well as in lay men as a means to diagnose Bronchial Asthma and COPD.

Also there is difference in PEFR measured by Spirometry and Wright's peak flow metry though the difference is statistically not significant with P value 0.5398.

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