

Clinical assessment of COPD with CAT and comparing the results with pulmonary function tests

Abstract:

Background: Chronic obstructive pulmonary disease is a progressive condition leading to morbidity and mortality and characterized by persistent airway limitation. COPD represents a major burden on patients and healthcare systems. It is projected to become the third leading cause of death by 2020. A short, easy to use health status questionnaire is needed in the multidimensional assessment of chronic obstructive pulmonary disease (COPD) in routine practice.

Objective: To evaluate the correlation between airflow obstruction by FEV1 and global initiative for obstructive lung disease (GOLD) classification and health status of COPD by CAT score and CAT groups.

Materials and methods: The performance of the eight-item COPD assessment test (CAT) was analyzed in a cross-sectional study on 100 patients attending Emam Khomeini Hospital of Ardabil University of medical sciences suffering from wide range severity of COPD between March 2010 and April 2011. The CAT has a scoring range of 0-40 (high score representing poor health status). Differences between means were tested with student's T-test and reported with 95% confidence interval. Differences of the CAT score and GOLD stages were tested by one way ANOVA. To evaluate the correlation between variables, the Pearson and Spearman coefficient were utilized for parametric and non-parametric variables respectively

Results: The mean CAT score in male and female were 19.36 ± 8.27 and 24.00 ± 4.42 respectively and there was no significant difference ($p=0.17$). The mean age of the patients and the mean period of smoking (pack/year) were 59.19 ± 11.84 and 35.63 ± 15.52 respectively. The mean FEV1%predicted was 70.41 ± 27.64 and the mean FVC%predicted was 90.56 ± 27.82 . The mean FEV1/FVC was 61.08 ± 13.12 . The mean total score of CAT was 19.64 ± 8.15 with minimum score of 2 and maximum of 34. The correlation between FEV1%predicted and total CAT score was significant ($r=0.58$, $p<0.001$). The correlation between total CAT score and FVC was also significant ($r=0.54$, $p<0.001$). The severity of smoking increased with increasing GOLD stages significantly ($p<0.001$). The differences among CAT scores and smoking severity was significant ($p=0.009$, $r=0.3$). The differences among FEV1%predicted and smoking severity was significant ($p=0.009$, $r=0.3$). The comparison of mean FEV1%predicted with mean CAT score among CAT groups 1 (low impact level) to 4 (very high impact level) were 96.93 ± 28.45 , 78.21 ± 22.75 , 59.82 ± 22.90 and 46.90 ± 16.37 respectively ($p<0.001$). The mean FEV1/FVC in CAT groups 1, 2, 3 and 4 were 66.12 ± 11.12 , 65.03 ± 13.04 , 58.92 ± 13.01 and 49.72 ± 7.82 respectively ($p<0.001$).

Conclusion: This study supported the hypothesis that there is a correlation between airflow obstruction and health status questionnaires such as CAT.

Key words: COPD, CAT, PFT, health status