Cognitive Impairment in COPD: A Problem to be Disclosed and Resolved

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Background: Chronic obstructive pulmonary disease (COPD) has been documented to be the risk factor for cognitive impairment due to hypoxia. There are some studies in Europe and USA, but no research conducted in Thailand.

Objective: This study aimed to discover the prevalence of cognitive impairment in Thai COPD patients.

Methods: Seventy-nine COPD patients were included. Baseline characteristics, education levels, frequency of hospitalization, and COPD assessment test (CAT) score were recorded as variables. All volunteers completed neurological and cognitive examinations. Mini-Mental State Examination (MMSE), Montreal Cognitive Assessment (MoCA) and Roland Universal Dementia Assessment Scale (RUDAS) were applied to estimate dementia. MRI brain and/or CT scan of the brain were done in volunteers who failed in any tests.

Results: Male gender is the preference to develop COPD (84.8%). The age-range of all volunteers were between 42 years and 89 years with mean age of 77 (p<0.05). Percents of COPD patients with scores lower than the passing level of MoCA, RUDAS, and MMSE were 79.7, 13.9, and 3.8, respectively. After combining results of all three tests, 16.5% of patients failed all three tests or passed only one cognitive test. This group was classified to be dementia. The statistical analysis showed the significant relation between dementia and age>77 years, patients with advanced age with diagnosed COPD, and neurological deficits (p<0.05). On the other hand, gender, low education, duration of COPD, amount of cigarettes smoking, CAT score >10, history of admission due to exacerbation, coronary artery disease, previous history of stroke, hypertension, and dyslipidemia were not significant. Hyposmia and the non-deafness hearing impairment played a role in neurological deficits. However, both of them showed no statistical significance to dementia. Failed MoCA test score is influenced by education (p<0.05). Domains represent cognitive impairment in MoCA test included the delayed recall, language skill, and abstraction (P<0.05). Failed RUDAS score relates to age>77 years and hyposmia (p<0.05). Impaired cognitions of RUDAS were praxis, drawing, judgment, and recall (p<0.05).

Conclusion: COPD patients have a slightly higher prevalence of dementia than general Thai population. However, some of them have the degree of cognitive impairment which can be detected by MoCA and RUDAS. One outstanding domain to beware is recall.

Keywords: Cognitive impairment, COPD, Recall, MMSE, MoCA, RUDAS