



A study to assess the prevalence of pulmonary embolism among COPD patients in SMCH

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Abstract

The present study aim was the assess the pulmonary embolism among COPD patients in SMCH. A quantitative research approach and descriptive research design have adopted for the present study. 30 COPD patients who are satisfied the inclusion criteria were selected by purposive sampling technique. A structured questionnaire to collect the demographic variables and Revised Geneva score and D dimer test to assess the scoring interpretation of the patients. Among 30 study participants the 18(60%) had high probability of pulmonary embolism and 12(40%) had intermediate probability, 10(33.3%) and 2(6.7%) had negative result of pulmonary embolism among patients with COPD was found. Hence the findings of present study concluded, that COPD patients has high significant prevalence of pulmonary embolism.

Keywords: Chronic obstructive pulmonary disease, pulmonary embolism, D dimer test

Introduction

Chronic obstructive pulmonary disease (COPD) is a common ailment with excessive morbidity and mortality worldwide. From 1969 to 2017, it became the 0.33 main purpose of death, and mortality is projected to boom with inside the subsequent 20 years. Acute exacerbations of COPD, described through an acute worsening of breathing signs main to a extrade in medication, make a contribution to this mortality (Francis Couturaud, *et al.*, 2021) [6]. Chronic obstructive pulmonary ailment (COPD) is a common, preventable, and treatable ailment characterised through chronic breathing signs and airflow limitation. The prevalence of COPD increased by 44.2% to 174.483 million individuals from 1990 to 2015 and the death toll increased by 11.6%. Owing to its high prevalence, mortality, and medical costs, COPD imposes a heavy socioeconomic burden globally and has become amajor public health problem (Weihong Han, *et al.*, 2022) [1]. The clinical indications of AE-COPD incorporate an unexpected crumbling of respiratory side effects and respiratory capability, which are very like PE. Distinguishing AE-COPD patients joined with PE is a test since it is challenging to decide if signs and side effects are brought about by AE-COPD, PE, or both. There is proof that PE might be normal in intense intensifications of COPD in past deliberate surveys. Rizkallah *et al.* uncovered that one of four AE-COPD patients who require hospitalization might have PE. Aleva *et al.* not just portrayed the high occurrence of PE among AE-COPD patients yet in addition summed up the confinement of thrombi, potential medicines and the prognostic meaning of PE among AE-COPD patients. Be that as it may, there is some disparity among concentrates on in the gamble factors for expanded PE in patients with AE-COPD. However, there is some discrepancy among studies in the risk factors for increased PE in patients with AE-COPD. Although the indicators employed in the above mentioned studies are quite comprehensive, clinical studies of AE-COPD combined with PE have been increasing in recent years.

Material and methods

The study used was quantitative research approach and Descriptive research design with sample size of the study was 30 who has COPD who were selected by the purposive sampling technique and who were satisfied with the inclusion criteria. The inclusion criteria were Both the genders are included, Clients who are willing to participate in the study, Clients with other chronic disease condition and the exclusion criteria were Clients who are absent at the time of data collection, Clients who are not willing to participate in the study. The study was conducted in saveetha medical College and hospitals. A structured questionnaire to collect the demographic variables and Revised Geneva score was used to assess the clinical probability of pulmonary embolism among COPD patients and D dimer test to assess the scoring interpretation of the patients. The demographic characteristics were collected by using the demographic tool constructed for the study. The probability of pulmonary embolism was assessed by using the revised Geneva score and the D Dimer test was administered to assess the prevalence of pulmonary embolism among COPD patients. Each sample took 25 minutes for data collection and the data collected were then coded and entered in Excel for further data analysis and interpretation.

Result and Discussion

Section A: Demographic characteristics

In the present study, with regards to the demographic characteristics, majority of the obese children, 14(46.7%) were aged between 50 to 75 years, 23(76.7%) were male, 15(50%) were Hindus and were illiterates, 14(46.7%) were unemployed and had no income, 28(93.3%) were married, 19(63.3%) were both vegetarian and non-vegetarian, 15(50%) had limited activity, 16(53.3%) had tuberculosis as co-morbid disease, 13(43.4%) had more than two children, 14(46.7%) had not practiced exercise and belonged to poor economic status, 16(53.3%) belonged to nuclear family and

had habit of smoking and 14(46.7%) had cough and chest pain as symptoms of respiratory infections.

Section B: Assessment of Probability of Pulmonary Embolism and Prevalence of Pulmonary Embolism Using D-Dimer Test among COPD Patients.

In the present study, majority of the samples 18(60%) had high probability of pulmonary embolism and 12(40%) had intermediate probability of pulmonary embolism among patients with COPD. (Table: 1 and Figure: 1)

The present study findings supported by the comparative study conducted by Francis Couturand *et al* (2021)^[5] among 740 consecutive patients with the chronic obstructive pulmonary disease aiming in investigation the pulmonary embolism among patient. D dimer test was carried out for COPD patients to detect pulmonary embolism. The D dimer test was performed in this study. The end result of the study after the D dimer test, identified that there was significant association with level of prevalence of pulmonary embolism among COPD patients.

The present study findings supported by the comparative study conducted by Evrim Eylem Akpinar *et al* (2013)^[13] among 172 patients with COPD aiming in investigating the prevalence of pulmonary embolism among patients. The clinical risk assessment, arterial blood gas analysis, chest CT angiography, and Doppler ultrasonography of the lower extremities, D dimer levels, N- terminal pro- brain natriuretic peptide (NT- pro-BNP) levels. Carried out for the COPD patients to detect pulmonary embolism. The patients with plueritic chest pain, lower limb asymmetry and high NT-pro-BNP levels were more likely to develop PE. The end result of the study, identified that there was 29.1% significant association with level of prevalence of pulmonary embolism among COPD patients.

Table 1: Frequency and Percentage Distribution of Probability of Pulmonary Embolism among Patients with COPD.

Probability	Frequency (F)	Percentage (%)
Low (0-3)	0	0
Intermediate (4-10)	12	40.0
High (≥11)	18	60.0

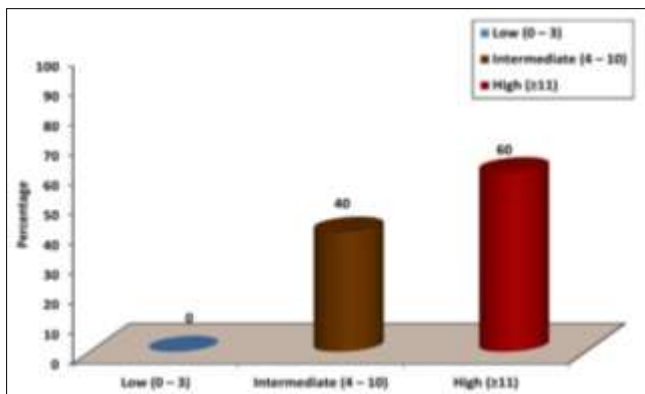


Fig 1: Percentage Distribution of Probability of Pulmonary Embolism among Patients with COPD.

Table 2: Frequency and percentage distribution of prevalence of pulmonary embolism among patients with COPD.

Probability	Frequency(F)	Percentage (%)
Less than 220	2	6.7
220-500 ng/ml	10	33.3
Above 500 ng/ml	18	60.0

The above table shows that 18(60%) had positive result of pulmonary embolism, 10(33.3%) and 2(6.7%) had negative result of pulmonary embolism among patients with COPD.

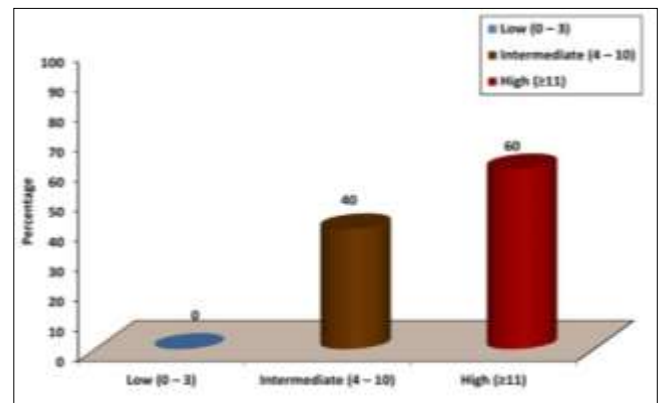


Fig 2: Percentage distribution of prevalence of pulmonary embolism among patients with COPD

Section C: Association of level of probability and prevalence of pulmonary embolism with selected demographic variables.

In the present study, the demographic variables lifestyle ($\chi^2=6.250$, $p=0.042$) and having any symptoms of respiratory infections ($\chi^2=7.745$, $p=0.033$) had shown statistically significant association with level of probability of pulmonary embolism among patients with COPD at $p<0.05$ level and the other demographic variables had not shown statistically significant association with level of probability of pulmonary embolism among patients with COPD.

The demographic variables lifestyle ($\chi^2=12.178$, $p=0.048$) and economic status ($\chi^2=11.602$, $p=0.014$) had shown statistically significant association with level of prevalence of pulmonary embolism among patients with COPD at $p<0.05$ level and the other demographic variables had not shown statistically significant association with level of prevalence of pulmonary embolism among patients with COPD.

Conclusion

Hence this clearly infers that the chronic obstructive pulmonary disease has the high prevalence of pulmonary embolism it is identified by D dimer test values.

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Author's contribution

Every one of the authors effectively took part in this study. All authors read and approved the final manuscript.

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