

PREVALENCE, RISK ASSESSMENT, AND PREDICTORS OF OSTEOPOROSIS AMONG CHRONIC OBSTRUCTIVE PULMONARY DISEASE PATIENTS.

Ahmad Naoras Bitar¹, Amer Hayat Khan¹, Syed Azhar Syed Sulaiman¹, and Irfhan Ali Bin Hyder Ali²

¹Universiti Sains Malaysia

²Penang General Hospital

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Abstract

The link between COPD and osteoporosis is unclear and yet to be understood. This study aimed at detecting the prevalence and investigate the predictors for low bone mineral density among COPD patients and tested a new risk assessment tool for the early screening of osteoporosis among COPD patients.

This study is a longitudinal observational study conducted from June-2019 until December-2020 at a tertiary care setting in Penang, Malaysia. Follow-ups were arranged every six months. During the study, patients' BMD was checked every visit, and the subjects' pulmonary parameters were recorded, including; mMRC dyspnea scores, CAT scores, spirometry results, exacerbations history, and SpO₂%. Furthermore, a novel risk assessment tool was validated in this study, and logistic regression was conducted to find low BMD predictors among COPD patients.

Based on T-score, more than 50% of subjects were osteoporotic based. The overall mean \pm SD for patients' age was 65.4 \pm 10.04. The overall mean \pm SD for patients' BMI was 23.32 \pm 5.43. Both FEV1% predicted, and FEV/FVC was significantly lower among osteoporotic subjects, and lower mMRC stages were observed among non-osteoporotic patients. For the novel risk assessment tool, a cutoff point of 34 made the optimum balance between sensitivity and specificity (0.867 and 0.087, respectively) with an AUC of 0.934. Furthermore, severe COPD patients were four times at higher risk of getting osteoporosis, FEV% predicted, and FEV/FVC was inversely related to the risk of osteoporosis. Patients with severe dyspnea had twice the risk of getting osteoporosis.

Osteoporosis was prevalent among COPD patients. For a screening tool, the risk assessment tool showed good sensitivity and precision in detecting osteoporotic subjects among COPD patients. Severe COPD patients were significantly at higher risk of getting osteoporosis.

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