

## INTISARI

**Latar belakang :** Penyakit paru obstruktif kronis (PPOK) merupakan penyakit yang ditandai keterbatasan aliran udara yang disebabkan kombinasi kerusakan parenkim (emfisema) dan penyakit saluran napas kecil (bronkiolitis obstruktif). Emfisema masih menyumbang 5% semua kematian di dunia sehingga penting dikembangkan strategi diagnostik dan terapeutik yang efektif. Pencitraan memainkan peran penting untuk evaluasi distribusi emfisema. Peningkatan tinggi paru menjadi bagian dari kriteria penilaian *barrel chest* masih bersifat kualitatif yang dapat menimbulkan variasi interpretasi antar pengamat. Penelitian ini bertujuan untuk mengetahui peningkatan tinggi paru pada pasien emfisema.

**Metode :** Penelitian ini adalah penelitian *cross sectional*, kuantitatif, serta pengambilan sampel secara retrospektif. Penelitian dilakukan di RSUP Dr. Sardjito Yogyakarta dengan subjek pasien emfisema orang Indonesia yang berobat rawat jalan dari Januari 2016-Desember 2020. Sebanyak 30 sampel kelompok emfisema dan 30 sampel kelompok kontrol diukur tinggi paru kanan dan kirinya. Tinggi paru kanan diukur dari tuberkel iga pertama ke diafragma kanan sedangkan tinggi paru kiri diukur dari tuberkel iga pertama ke garis horizontal pada sudut kostofrenikus kiri. Analisis statistik menggunakan uji T tidak berpasangan ( $p < 0,05$ ).

**Hasil :** Penelitian ini didapat 60 subjek, 66,67% laki-laki dan 33,33% perempuan. Kelompok usia subjek yaitu 20% berusia 18-45 tahun dan 80% berusia 45-65 tahun. Kelompok emfisema yang memiliki data spirometri (20%) memiliki rata-rata FEV1 62,66% nilai prediksi (GOLD 2) dan yang memiliki data AGD (86,67%) rata-rata PaCO<sub>2</sub> 59 mmHg. Rerata tinggi paru kanan kelompok emfisema 26,98 cm, sedangkan kelompok kontrol 24,11 cm. Rerata tinggi paru kiri kelompok emfisema 28,11 cm, sedangkan kelompok kontrol 25,61 cm. Hasil uji t tidak berpasangan menunjukkan tinggi paru kanan dan kiri kelompok emfisema lebih besar secara bermakna dibandingkan kelompok kontrol ( $p < 0,000$ ).

**Kesimpulan :** Tinggi paru orang Indonesia berbeda bermakna antara pasien emfisema dengan orang normal, dimana rata-rata tinggi paru pasien emfisema lebih besar secara kuantitatif dibandingkan orang normal pada foto toraks PA.

**Kata kunci:** Tinggi paru, emfisema pulmonum, foto toraks

## ABSTRACT

**Background:** *Chronic obstructive pulmonary disease (COPD) is characterized by limited airflow due to a combination of emphysema and obstructive bronchiolitis. Emphysema causing 5% of all deaths in the world as it is important to develop effective diagnostic and therapeutic strategies. Imaging holds an essential role in the emphysema distribution evaluation. Increasing lung height is acknowledged as a part of barrel chest qualitative assessment, which may lead to diverse interpretations between observers. This study aimed to determine the increasing lung height among emphysema patients.*

**Methods:** *This is a cross-sectional, quantitative, and retrospective study. The research was conducted at Sardjito General Hospital Yogyakarta. Subjects in this study were Indonesian patients diagnosed with emphysema who received outpatient treatment from January 2016-December 2020. 30 samples of the emphysema group and 30 samples from the control group were enrolled and being measured for the right and left lung heights. The right lung height was measured from the first rib tubercles to the right diaphragm while the left lung height was measured from the first rib tubercles to the horizontal line at the left costophrenic angle. Statistical analysis used in this study was independent t-test ( $p < 0.05$ ).*

**Results:** *The study recruited a total 60 participants with 66.67% male and 33.33% female. 20% of the subjects were aged 18-45 years and 80% aged 45-65 years. Emphysema patients (20% of subjects) with spirometry data have an average of 62.66 FEV1% predicted value (GOLD 2), while patients with BGA (86.67%) were on average PaCO<sub>2</sub> 59 mmHg. The right lung mean height of emphysema group was 26.98 cm, while the control group was 24.11 cm. The left lung mean height of emphysema group was 28.11 cm compared to the control group by 25.61 cm. Independent t-test discovered that right and left lung heights of the emphysema group were significantly greater than the control group ( $p < 0.000$ ).*

**Conclusion:** *Indonesian people's lung height among emphysema patients is significantly higher than normal people on chest X-rays.*

**Keywords :** *Lung height, pulmonary emphysema, chest X-ray*