

# Kapasitas difusi karbon monoksida dlco pada pasien gagal ginjal terminal dan faktor-faktor yang mempengaruhi = Lung diffusion capacity for carbon monoxide dlco in end stage renal disease and the influencing factors

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Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20447452&lokasi=lokal>

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## Abstrak

### <b>ABSTRAK</b><br>

Latar Belakang: Gagal ginjal terminal dapat mempengaruhi seluruh sistem dalam tubuh, termasuk sistem respirasi. Penelitian ini bertujuan mengetahui kapasitas difusi paru terhadap karbon monoksida DLCO pada pasien hemodialisis kronik dan menghubungkannya dengan berbagai faktor demografis dan klinis serta spirometri. Metode: Studi potong lintang ini dilakukan pada pasien hemodialisis kronik berusia ge;18 tahun, stabil dalam 4 minggu terakhir, tidak memiliki riwayat penyakit paru dan jantung sebelumnya. Spirometri dan pemeriksaan DLCO dilakukan dalam kurun waktu 24 jam setelah hemodialisis. Hasil: Terdapat 40 subjek yang sebagian besar adalah laki-laki 67,5 , median usia 51 tahun dan bukan perokok 55 . Rerata indeks massa tubuh IMT 22,6 3,9 kg/m<sup>2</sup>, Hb 9,5 1,3 g/dl, median dialysis adequacy 1,62 dan durasi hemodialisis 31,5 bulan. Penyebab terbanyak gagal ginjal terminal adalah hipertensi 62,5 . Sesak napas dialami oleh 20 subjek. Prevalens penurunan DLCO adalah 52,5 dengan derajat ringan-sedang. Sebanyak 47,5 subjek mengalami restriksi dan 5 mengalami obstruksi pada pemeriksaan spirometri. Terdapat hubungan antara riwayat merokok dan penurunan DLCO dengan odds ratio 4,52 95 IK 1,04 ndash; 19,6 serta antara gangguan restriksi dan penurunan DLCO dengan odds ratio 5,58 95 IK 1,29 ndash; 23,8 . Diperkirakan terdapat gangguan parenkim paru yang menyebabkan restriksi dan menghambat difusi. Kesimpulan: Penurunan kapasitas difusi paru pada pasien hemodialisis kronik cukup sering terjadi meskipun tidak selalu disertai keluhan sesak napas. Faktor risiko penurunan DLCO adalah riwayat merokok dan gangguan restriksi pada spirometri. Kata Kunci: DLCO, hemodialisis, kapasitas difusi paru

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### <b>ABSTRACT</b><br>

Background End stage renal disease affects all systems in human including respiratory system. This study aimed to discover the lung diffusion capacity of carbon monoxide DLCO in chronic hemodialysis patients and to discover its relation to several demographic and clinical factors, as well as spirometry parameters. Method This was a cross sectional study among chronic hemodialysis patients aged ge 18 years old, clinically stable in the last 4 weeks without prior history of lung and cardiac disorder. Spirometry and DLCO examination were performed in the span of 24 hours after hemodialysis. Results There were 40 subjects analyzed. Majority of them were male 67.5 , median age 51 years old and non smoker 55 . Mean Body Mass Index BMI 22.6 3.9 kg m<sup>2</sup>, Hb 9.5 1.3 g dl, median dialysis adequacy 1.62 and hemodialysis duration of 31.5 months. Hypertension was the most common underlying disease. Some 20 of subject had varying degrees of dyspnea. Prevalence of DLCO reduction was 52.5 with mild to moderate degree. Restrictive spirometry pattern was evident in 47.5 and obstructive pattern in 5 of subjects. There was a significant relation between DLCO reduction with smoking history OR 4.52 95 CI 1.04 ndash 19.6 , also with restrictive disorder OR 5.5 95 CI 1.29 ndash 23.8 . Reduction of DLCO in restrictive subjects was

related to the diminished alveolar volume VA . This VA reduction was not compensated by the increase of KCO, therefore we suspect a lung parenchymal disorder that inhibit diffusion. There was no correlation between DLCO reduction with gender, age, BMI, dialysis adequacy, hemodialysis duration, underlying disease and MMRC score. Conclusion Reduction of lung diffusion capacity in chronic dialysis patients is common although not accompanied with dyspnea. Risk factors for DLCO reduction are smoking history and restrictive disorder in spirometry.