Hubungan antara ketebalan dinding Alveolus paru dengan panjang diameter Alveolus pada perkembangan Paru Pascanatal = Correlation between septum interalveolar thickness and diameter length on lung development of postnatal rat

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Abstrak

Perkembangan paru yang terjadi sejak masa embrio hingga pascanatal menentukan efektivitas pertukaran gas, khususnya pada alveolus. Penelitian mengenai struktur ketebalan dinding alveolus paru dan kaitannya dengan diameter alveolus pascanatal belum pernah dilaporkan. Penelitian ini bertujuan untuk mengetahui hubungan antara ketebalan dinding alveolus paru dengan panjang diameter alveolus pada perkembangan paru neonatus tikus Sprague-Dawley. Jaringan paru tikus Sprague Dawley usia 2, 4, 10, dan 16 hari yang telah diproses secara histologis dengan pewarnaan Trichrome Masson, diamati dan difoto di bawah mikroskop, kemudian diukur ketebalan dinding dan panjang diameter alveolus-nya dengan Optilab Image Raster. Data disajikan masing-masing dalam bentuk proporsi total ketebalan dinding alveolus atau panjang diameter alveolus terhadap total panjang horizontal garis di sepertiga lapang pandang foto. Hasil penelitian menunjukkan adanya peningkatan ketebalan dinding alveolus paru dan penurunan panjang diameter alveolus dengan korelasi negatif sedang (uji Pearson; r=-0,523; p=0,009). Disimpulkan bahwa peningkatan ketebalan dinding alveolus berkorelasi dengan penurunan panjang diameter alveolus pada paru neonatus tikus Sprague Dawley.

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Lung development, which happens during embryonic period until postnatal, will determine the effectiveness of the gas exchange process. Until recently, study about the thickness of septum interalveolar and the diameter length of alveolus has not been reported yet. This study aimed to know the correlation between the thickness of septum interalveolar and the diameter length of alveolus on postnatal lung development of Sprague Dawley rat. The Sprague Dawley rats aged 2, 4, 10, and 16 days tissues that were processed histologically with Masson’s Trichrome stain were observed and photographed using microscope. Subsequently, the septum interalveolar and diameter were measured by using Optilab Image Raster. The data were presented each in ratio of total alveolar septum or total alveolar diameter to the horizontal length of one-third visual field. Our study showed that there is a significant moderate correlation between the thickness of septum interalveolar and the diameter length of alveolus on Sprague Dawley rat (Pearson’s test; r=-0.523 ; p=0.009). As summary, the septum interalveolar increase while the diameter decrease on lung development of postnatal Sprague Dawley rat.