

Perubahan ketebalan septum interalveolar pada proses pematangan paru pascanatal = Inter-alveolar septum thickness changes in postnatal lung maturation process

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Abstrak

Salah satu komponen alveolus yang berperan penting dalam proses pertukaran gas adalah septum interalveolar. Diketahui bahwa dengan bertambahnya usia, terjadi perubahan-perubahan dalam komponen interstitial seperti serat elastin dan kolagen yang dapat berpengaruh pada ketebalan septum interalveolar. Penelitian ini bertujuan untuk mengetahui korelasi perubahan ketebalan septum interalveolar dengan usia selama proses pematangan paru. Desain penelitian ini berupa analitik observasional menggunakan metode cross sectional dengan subjek penelitian tikus Sprague-Dawley berusia 2, 4, 10, dan 16 hari. Paru tikus yang sudah dijadikan sediaan histologis dan diwarnai dengan pewarnaan Trichrome Masson difoto di bawah mikroskop cahaya, kemudian diukur dengan Optilab Image Raster. Ketebalan septum interalveolar diukur menggunakan proporsi panjang total septum interalveolar dengan panjang total lapang pandang di garis sepertiga tengah lapang pandang foto. Data dari pengukuran ketebalan septum interalveolar (0,434 pada usia dua hari, 0,412 pada usia empat hari, 0,394 pada usia 10 hari, dan 0,407 pada usia enam belas hari) diolah dengan program IBM SPSS Statistics 11.5 dan diuji dengan uji korelasi Spearman; didapatkan $p = 0,861$ dengan nilai $r = -0,038$. Disimpulkan bahwa terdapat penurunan ketebalan septum interalveolar seiring bertambahnya usia, namun tidak terdapat korelasi signifikan antara keduanya.

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One of the alveoli component that plays an important role in oxygen and carbon dioxide gas exchange is interalveolar septum. It is known that with increasing age, changes occur in the interstitial components such as elastin and collagen fibers that can affect the thickness of the interalveolar septum. This study aimed to determine the correlation of interalveolar septum thickness changes with age during lung maturation. This research is an analytic observational with cross-sectional method to study the subject of Sprague-Dawley rats aged 2, 4, 10, and 16 days. Rats' lung histological preparations that have been made and stained with Trichrome Masson staining were photographed under a light microscope and then measured with an Optilab Image Raster. Inter-alveolar septum thickness was measured using the proportion of one-third the length of the visual field divided by the total length of visual field. Data from the measurement of interalveolar septum thickness (0,434 at the age of two days, 0,412 at the age of four days, 0,394 at the age of ten days, and 0,407 at the age of sixteen days) processed by the IBM SPSS Statistics 11.5 program and tested with Spearman's test, $p = 0.861$ obtained with a value of $r = -0.038$. From these results, it can be concluded that there is a decrease in the thickness of the interalveolar septum with age, but there is no significant correlation between the two.