Perubahan diameter alveolus tikus wistar dengan hipoksia hipobarik intermiten ketinggian 25.000 kaki dari permukaan laut. = Changes in wistar rats alveolus diameter with intermittent hypobaric hypoxia altitude 25.000 feet from sea level

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Abstrak

ABSTRAK
 Latar belakang: Hipoksia hipobarik intermiten adalah suatu kondisi yang dialami oleh para penerbang maupun awak pesawat TNI AU, mereka akan bernapas dengan tekanan oksigen yang relatif rendah selama penerbangan. Tubuh manusia akan beradaptasi terhadap kekurangan oksigen tersebut, sehingga terjadi adaptasi fisiologis, dikenal sebagai hypoxia preconditioning. Tujuan dari penelitian ini adalah dapat menilai perubahan histologi pada alveolus organ paru tikus Wistar yang terpajan terhadap frekuensi hipoksia hipobarik intermiten pada ketinggian 25.000 kaki selama lima menit dalam interval tujuh hari.Metode: Penelitian eksperimental in vivo pada 25 organ paru hewan tikus Wistar Rattus norvegicus , jenis kelamin jantan, usia 40-60 hari, berat badan 150-200 gram. Dilakukan paparan hypobaric chamber sebanyak 4 kali, dimana setiap minggu dilakukan terminasi. Kemudian dilakukan pemeriksaan histologi melihat terjadinya pelebaran diameter alveolus organ paru hewan tikus Wistar. Parameter yang di ukur dan dibandingkan adalah diameter alveolus.Hasil: Sebanyak 25 sampel tikus Wistar yang diperiksa. Hasil penelitian menunjukkan terjadi pelebaran diameter alveolus 1,5 kali sampai 2 kali dari tiap-tiap paparan dibandingkan kontrol dan pelebaran 3 kali lipat pada paparan ke-4 dibandingkan kontrol. Hasil analisis statistik dengan uji Anova didapatkan perbedaan yang bermakna, dengan p 0,001. Setelah dilakukan analisis Post Hoc didapatkan perbedaan signifikan dengan p 0,001 antara kelompok tikus Wistar yang mendapat pajanan ketinggian 25.000 kaki sebanyak 1 kali, 2 kali, 3 kali, dan 4 kali terhadap kelompok tikus Wistar kontrol tanpa pajanan .Kesimpulan: Terdapat perbedaan diameter alveolus hewan coba tikus Wistar yang bermakna antara kelompok kontrol terhadap hewan coba tikus Wistar yang mendapat pajanan ketinggian 25.000 kaki sebanyak 1 kali, 2 kali,3 kali dan 4 kali.ABSTRACT
  Intermittent hypobaric hypoxia is a condition experienced by airmen and crew of Indonesian Air Force aircraft crew, they will breathe with relatively low oxygen pressure during flight. The human body will adapt to the lack of oxygen, causing a physiological adaptation, as hypoxia preconditioning. The purpose of this study was to identify the alteration of histology in alveolus lung organs of rat Wistar which exposed to frequency of intermittent hypobaric hypoxia 25.000 feet altitude for five minutes in seven day intervals.Method In vivo experimental research on 25 lungs organ from Wistar rats Rattus norvegicus , male sex, age 40 60 days, body weight 150 200 grams. The exposure was conducted at hypobaric chamber 4 times, which every term is done, we terminate the respective rat. Then histology examination was performed to examine the occurrence of alveolar dilatation of lung tissue. Alveolus diameter was measured and compared as a parameter of this study. Results A total of 25 samples of Wistar rats were examined. There was a widened alveolus diameter of 1.5 ndash 2 times of each exposure compared to control and widening 3 times in the 4th exposure compared to control. The result of statistical analysis with Anova test showed significant difference of alveolus diameter between Wistar group of mice with p 0,001, after Post Hoc analysis got significant difference with p 0,001 between Wistar group of mice that got exposure height 25.000 feet once, twice,

three times and four times compared to Wistar control without exposure group. Conclusion There was a significant difference in Wistar rats 39 mean alveolus diameter in the Wistar rats control group compared to Wistar rats who received 25.000 foot altitude for 1, 2, 3, and 4 times.