ABSTRAK

Latar Belakang : Bilirubin merupakan zat hasil pemecahan hemoglobin dalam sel darah merah yang harus dikonjugasi di hati agar dapat dikeluarkan dari tubuh. Stabilitas bilirubin dalam serum dipengaruhi oleh berbagai faktor, salah satunya adalah paparan cahaya lampu dengan intensitas tertentu.

Tujuan : Penelitian ini bertujuan untuk mengetahui pengaruh paparan cahaya lampu dengan intensitas 500 lux terhadap kadar bilirubin direk dalam serum.

Metode : Penelitian ini menggunakan metode eksperimental dengan desain *post-test only control group* yang melibatkan sampel serum dari mahasiswa Jurusan Teknologi Laboratorium Medis Politeknik Kesehatan Kementerian Kesehatan Yogyakarta. Sampel serum dibagi menjadi kelompok kontrol dan kelompok perlakuan dengan variasi durasi paparan cahaya selama 10, 20, 30, 40, 50, dan 60 menit. Pemeriksaan kadar bilirubin direk dilakukan menggunakan spektrofotometer dengan Panjang gelombang 546 nm. Analisis statistik dilakukan dengan *Repeated Measures ANOVA* untuk menentukan signifikansi perubahan kadar bilirubin direk.

Hasil : Hasil menunjukkan bahwa paparan cahaya lampu menurunkan kadar bilirubin direk dalam serum. Data statistik menunjukkan bahwa semakin lama paparan cahaya, semakin besar penurunan kadar bilirubin. Analisis *Repeated Measures ANOVA* menunjukkan nilai p 0,000 < 0,05, yang berarti paparan cahaya lampu memiliki pengaruh signifikan terhadap penurunan kadar bilirubin direk dalam serum.

Kesimpulan : Paparan cahaya lampu 500 lux secara signifikan menurunkan kadar bilirubin direk dalam serum, sehingga pencahayaan perlu diperhatikan dalam pemeriksaan laboratorium guna mencegah kesalahan diagnostik dan memastikan hasil yang akurat.

Kata Kunci : Bilirubin direk, paparan cahaya, cahaya lampu

ABSTRACT

Background : Bilirubin is a substance resulting from the breakdown of hemoglobin in red blood cells that must be conjugated in the liver in order to be excreted from the body. The stability of bilirubin in serum is influenced by various factors, one of which is exposure to light with a certain intensity.

Objective : This study aims to determine the effect of exposure to light with an intensity of 500 lux on bilirubin rec levels in serum.

Methods: This study used experimental method with post-test only control group design involving serum samples from students of Medical Laboratory Technology Department of Health Polytechnic, Ministry of Health Yogyakarta. Serum samples were divided into control and treatment groups with varying duration of light exposure for 10, 20, 30, 40, 50, and 60 minutes. Examination of bilirubin levels was recorded using a spectrophotometer with a wavelength of 546 nm. Statistical analysis was performed with Repeated Measures ANOVA to determine the significance of changes in recombinant bilirubin levels.

Results : The results showed that exposure to lamp light decreased the level of bilirubin direct in serum. Statistical data showed that the longer the light exposure, the greater the decrease in bilirubin levels. Repeated Measures ANOVA analysis showed a p value 0,000 < 0,05, which means that exposure to lamp light has a significant effect on reducing the level of bilirubin rec in serum.

Conclusion : Exposure to 500 lux lamp light significantly reduced serum bilirubin rec levels, so lighting needs to be considered in laboratory examinations to prevent diagnostic errors and ensure accurate results.

Keywords : Direct bilirubin, light exposure, lamp light