ABSTRACT

Background: The *Pneumatic Tube System* (PTS) is a technique for sending samples quickly and directly to and from the unit for which they are intended. Blood samples sent by the *Pneumatic Tube System* (PTS) are subject to hemolysis due to the high conveying speed, sudden change of direction, and stress caused by the system. Rupture of erythrocytes cause free hemoglobin to enter the serum, result hemolysis. Free hemoglobin interfered with the reaction of ammonium with sodium hypochlorite because sodium hypochlorite reacted with hemoglobin, causing a decrease in urea levels. It needs to be studied whether the difference urea levels examining using the *Pneumatic Tube System* (PTS).
Research objective: to determine the difference urea levels examining using the *Pneumatic Tube System* (PTS).
Research method: This type of research was analytic and observational with a comparative research design. The research was carried out from November 2021 to early December 2022, with a total sample size of 28 samples for 100 m and 28 sampels for 450 m. Research data were analyzed using the Wilcoxon test *SPSS for 23.0 for Windows*.
Research results: The results of this study showed a statistical analysis of *p* 100 m 0,322 and *p* 450 m 0,264 (≥0,05), which means there was no difference in the distance between the *Pneumatic Tube System* (PTS). The average yield of urea content delivered manually at 100 m was 41,89 mg/dL and 450 m was 51,80 mg/dL. The average yield of urea content being sent using a *Pneumatic Tube System* (PTS) at 100 m was 42,75 mg/dL and 450 m was 50,43 mg/dL.
Conclusion: There was no difference urea levels examining using the *Pneumatic Tube System* (PTS)

Keywords: *Pneumatic Tube System* (PTS), hemolysis, urea

ABSTRAK

Latar belakang : *Pneumatic Tube System* (PTS) merupakan teknik pengiriman sampel dimana dapat melakukan pengiriman sampel secara cepat dan dapat langsung dari ke unit yang akan dituju. Sampel darah yang dikirim dengan *Pneumatic Tube System* (PTS) dapat mengalami hemolisis karena kecepatan pengangkutan yang tinggi, perubahan arah yang tiba-tiba, dan tekanan yang disebabkan oleh sistem. Pecahnya eritrosit menyebabkan hemoglobin bebas masuk kedalam serum sehingga menyebabkan hemolisis. Hemoglobin menyebabkan terganggunya reaksi ammonium dengan sodium hipoklorit karena sodium hipoklorit bereaksi dengan hemoglobin, akibatnya kadar ureum mengalami penurunan. Hal ini perlu diteliti apakah perbedaan jarak *Pneumatic Tube System* (PTS) dapat mempengaruhi hasil pemeriksaan kadar ureum.
Tujuan penelitian : untuk mengetahui perbedaan jarak *Pneumatic Tube System* (PTS) terhadap hasil pemeriksaan kadar ureum
Metode penelitian : jenis penelitian ini adalah analitik observasional dengan desain penelitian *komparatif*. Penelitian dilaksanakan pada bulan November sampai dengan awal bulan Desember 2022. Dengan jumlah sampel 28 pada jarak 100 m dan 28 sampel pada jarak 450 m. Data hasil penelitian dianalisis menggunakan Uji *Wilcoxon SPSS 23.0 for Windows*.
Hasil penelitian : hasil penelitian ini menunjukkan analisis statistic *p* jarak 100 m 0,322 *p* jarak 450 m 0,264 (≥ 0,05) yang artinya tidak ada perbedaan jarak *Pneumatic Tube System* (PTS). Hasil rerarta kadar ureum dikirim manual atau petugas antar jarak 100 m 41,89 mg/dL dan jarak 450 m 51,80 mg/dL. Hasil rerarta kadar ureum dikirim *Pneumatic Tube System* (PTS) jarak 100 m 42,75 mg/dL dan jarak 450 m 50,43 mg/dL.
Kesimpulan : tidak ada perbedaan jarak *Pneumatic Tube System* (PTS) terhadap hasil pemeriksaan kadar ureum

Kata kunci : *Pneumatic Tube System* (PTS), hemolisis,ureum