

ABSTRACT

Background: Hypertriglyceridemia is a condition characterized by elevated triglyceride levels in the blood which may affect the stability of the erythrocyte membrane. Changes in the erythrocyte membrane can increase erythrocyte osmotic fragility, causing erythrocytes to undergo hemolysis more easily. The Osmotic Fragility Test (OFT) is used to assess erythrocyte resistance to osmotic pressure.

Objective: To determine the relationship between triglyceride levels and the results of the Osmotic Fragility Test (OFT) in patients with hypertriglyceridemia at Jetis Primary Health Center, Yogyakarta City.

Methods: This study was an observational analytic study with a cross-sectional approach. The study sample consisted of 35 respondents selected using purposive sampling technique. Triglyceride levels were examined using the enzymatic method, while the OFT examination was performed using the Dacie method to determine the onset of hemolysis and complete hemolysis of erythrocytes. Data analysis was conducted using the Shapiro-Wilk normality test, Pearson correlation test, and simple linear regression.

Results: The results showed that the mean triglyceride level was 222.69 mg/dL, the mean onset of hemolysis was 0.4600%, and complete hemolysis was 0.2929%. Correlation analysis showed a significant relationship between triglyceride levels and the onset of erythrocyte hemolysis ($r = -0.870$; $p < 0.001$) with a very strong negative correlation. The relationship between triglyceride levels and complete erythrocyte hemolysis showed a moderate negative correlation ($r = -0.441$; $p = 0.008$). Linear regression analysis showed that triglyceride levels contributed 75.7% to the onset of hemolysis and 19.5% to complete hemolysis.

Conclusion: Triglyceride levels were significantly associated with the results of the Osmotic Fragility Test (OFT) in patients with hypertriglyceridemia. Increased triglyceride levels affect erythrocyte osmotic fragility, causing erythrocytes to undergo hemolysis more easily.

Keywords: Hypertriglyceridemia, Triglycerides, Osmotic Fragility Test, Erythrocytes, Hemolysis

ABSTRAK

Latar Belakang : Hipertrigliseridemia merupakan kondisi peningkatan kadar trigliserida dalam darah yang dapat memengaruhi stabilitas membran eritrosit. Perubahan membran eritrosit dapat meningkatkan fragilitas osmotik eritrosit sehingga eritrosit lebih mudah mengalami hemolisis. Pemeriksaan *Osmotic Fragility Test* (OFT) digunakan untuk menilai ketahanan eritrosit terhadap tekanan osmotik.

Tujuan Penelitian : Untuk mengetahui hubungan kadar trigliserida terhadap hasil *Osmotic Fragility Test* (OFT) pada pasien hipertrigliseridemia di Puskesmas Jetis Kota Yogyakarta.

Metode Penelitian : Penelitian ini merupakan penelitian analitik observasional dengan pendekatan *cross sectional*. Sampel penelitian berjumlah 35 responden yang dipilih menggunakan teknik *purposive sampling*. Pemeriksaan kadar trigliserida dilakukan menggunakan metode enzimatik, sedangkan pemeriksaan OFT menggunakan metode Dacie untuk menentukan awal hemolisis dan hemolisis lengkap eritrosit. Analisis data menggunakan uji normalitas Shapiro-Wilk, uji korelasi Pearson, dan regresi linear sederhana.

Hasil Penelitian : Hasil penelitian menunjukkan rata-rata kadar trigliserida sebesar 222,69 mg/dL, nilai awal hemolisis sebesar 0,4600%, dan hemolisis lengkap sebesar 0,2929%. Hasil uji korelasi menunjukkan terdapat hubungan signifikan antara kadar trigliserida dengan awal hemolisis eritrosit ($r = -0,870$; $p < 0,001$) dengan kekuatan hubungan sangat kuat dan arah negatif. Hubungan antara kadar trigliserida dengan hemolisis lengkap eritrosit menunjukkan nilai ($r = -0,441$; $p = 0,008$) dengan kekuatan hubungan sedang dan arah negatif. Hasil regresi linear menunjukkan kadar trigliserida memberikan pengaruh sebesar 75,7% terhadap awal hemolisis dan 19,5% terhadap hemolisis lengkap eritrosit.

Kesimpulan : Kadar trigliserida berhubungan signifikan dengan hasil *Osmotic Fragility Test* (OFT) pada pasien hipertrigliseridemia. Peningkatan kadar trigliserida memengaruhi fragilitas osmotik eritrosit sehingga eritrosit lebih mudah mengalami hemolisis.

Kata Kunci : Hipertrigliseridemia, Trigliserida, *Osmotic Fragility Test*, Eritrosit, Hemolisis