

ABSTRACT

Background: Blood glucose testing is a crucial parameter in evaluating metabolic conditions, especially in hypertensive patients who are at high risk for glucose regulation disorders. The accuracy of test results is greatly influenced by the pre-analytical phase, including the type of collection tube used. Serum Separator Tube (SST) and Sodium Fluoride (NaF) tubes are commonly used for glucose testing, but they differ in their ability to preserve glucose stability.

Objective: To determine the difference in blood glucose levels between blood collected in a Serum Separator Tube (SST) left to stand for 40 minutes and blood collected in a Sodium Fluoride (NaF) tube that is examined immediately.

Method: This study used a pre-experimental design with a one-group pretest-posttest approach. The research sample consisted of 30 hypertensive patients who met the inclusion criteria, and blood collection was carried out at Kraton Public Health Center. Glucose levels were examined using the GOD-PAP method with a Mindray BA-88A photometer.

Results: The results of the study showed that the average glucose level in the NaF tube was 100.13 mg/dL, while in the SST tube it was 99.80 mg/dL. The Paired Sample T-Test yielded a significance value of 0.134 ($p > 0.05$), indicating that there was no significant difference between the two tubes. In addition, the relative bias value of 0.33% remained within the tolerance limit set by the Clinical Laboratory Improvement Amendments (CLIA), which is $\pm 8\%$.

Conclusion: There was no statistically or clinically significant difference in glucose levels between the SST and NaF tubes. Both types of tubes can be used interchangeably for blood glucose testing in hypertensive patients, providing results that remain accurate and clinically acceptable.

Keywords: Blood glucose, Serum Separator Tube (SST), Sodium Fluoride (NaF), Hypertension, GOD-PAP

ABSTRAK

Latar Belakang: Pemeriksaan kadar glukosa darah merupakan salah satu parameter penting dalam evaluasi kondisi metabolik, terutama pada pasien hipertensi yang memiliki risiko tinggi terhadap gangguan glukosa darah. Ketepatan hasil pemeriksaan sangat dipengaruhi oleh fase praanalitik, termasuk jenis tabung yang digunakan. Tabung Serum Separator Tube (SST) dan Natrium Flourida (NaF) merupakan dua jenis tabung yang sering digunakan dalam pemeriksaan kadar glukosa, namun keduanya memiliki karakteristik berbeda dalam mempertahankan stabilitas glukosa.

Tujuan: Mengetahui perbedaan kadar glukosa darah antara tabung Serum Separator Tube (SST) yang didiamkan selama 40 menit dan tabung Natrium Flourida (NaF) yang segera diperiksa.

Metode: Penelitian ini menggunakan desain pre-eksperimental dengan pendekatan one group pretest-posttest. Sampel penelitian terdiri dari 30 pasien hipertensi yang memenuhi kriteria inklusi, dan pengambilan darah dilakukan di Puskesmas Kraton. Pemeriksaan glukosa dilakukan menggunakan metode GOD-PAP dengan alat Photometer Mindray BA-88A.

Hasil: Hasil penelitian menunjukkan bahwa kadar glukosa rata-rata pada tabung NaF sebesar 100,13 mg/dL dan pada tabung SST sebesar 99,80 mg/dL. Uji Paired Sample T-Test menghasilkan nilai signifikansi 0,134 ($p > 0,05$), menunjukkan bahwa tidak terdapat perbedaan signifikan antara kedua tabung. Selain itu, nilai bias relatif sebesar 0,33% masih berada dalam batas toleransi yang ditetapkan oleh Clinical Laboratory Improvement Amendments (CLIA), yaitu $\pm 8\%$.

Kesimpulan: Tidak terdapat perbedaan kadar glukosa yang signifikan secara statistik maupun klinis antara tabung SST dan NaF. kedua jenis tabung dapat digunakan secara bergantian dalam pemeriksaan glukosa darah pasien hipertensi, dengan hasil yang tetap akurat dan layak secara klinis.

Kata Kunci: Glukosa darah, Serum Separator Tube (SST), Natrium Flourida (NaF), Hipertensi, GOD-PAP