

THE USE OF URIC ACID REAGENT HALF PRESCRIPTION FOR URIC ACID LEVEL INSPECTION METHOD TBHBA (2,4,6-tribromo-3-hydroxybenzoic acid) IN PATIENTS WITH ABNORMAL URIC ACID LEVELS

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ABSTRACT

Background: Uric acid level testing is essential for the diagnosis and monitoring of gout, a disease whose prevalence continues to rise in Indonesia. Several health centers in Bantul Regency have adopted the use of half-dose reagent and sample volumes. This method is beneficial for saving reagents, reducing resource waste, minimizing environmental impact, and facilitating blood sample collection from elderly patients with small veins, particularly in regions with a high prevalence of joint diseases.

Objective: To determine whether the use of half-dose uric acid reagents can be applied in TBHBA (2,4,6-tribromo-3-hydroxybenzoic acid) method uric acid testing and to assess the difference in uric acid levels between half-dose and full-dose reagent and sample usage.

Methods: This study is a pre-experimental design with a static group comparison. Two groups of subjects were given different treatments, one with half-dose and the other with full-dose reagent and sample volumes for uric acid testing using the TBHBA (2,4,6-tribromo-3-hydroxybenzoic acid) method. Uric acid levels were measured using the Mindray BA-88A photometer.

Results: The use of half-dose reagents resulted in an average uric acid level of 9.99 mg/dL, while the full-dose method resulted in 10.27 mg/dL, with a difference of 0.27 mg/dL. The Wilcoxon test showed a significant difference ($p = 0.009$), and the mean difference analysis (2.67%) along with a 95% CI (0.72% - 4.62%) remained within clinically accepted limits according to CLIA guidelines and desirable bias, making half-dose a valid alternative.

Conclusion: The uric acid testing results using TBHBA (2,4,6-tribromo-3-hydroxybenzoic acid) with both full-dose and half-dose reagents showed statistically significant differences, yet remained within clinically accepted limits according to Clinical Laboratory Improvement Amendments (CLIA) standards.

Keywords: Uric acid, Half-dose, TBHBA, Photometer

**PENGUNAAN REAGEN ASAM URAT SETENGAH RESEP UNTUK
Pemeriksaan Kadar Asam Urat Metode TBHBA (2,4,6-tribromo-
3-hydroxybenzoic acid) Pada Pasien Dengan Kadar Asam Urat
Tidak Normal**

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ABSTRAK

Latar Belakang: Pemeriksaan kadar asam urat penting untuk diagnosis dan pemantauan terapi penyakit asam urat, yang prevalensinya terus meningkat di Indonesia. Beberapa puskesmas di Kabupaten Bantul telah mengadopsi penggunaan setengah resep volume reagen dan sampel. Metode ini bermanfaat untuk menghemat reagen, mengurangi pemborosan sumber daya, meminimalkan dampak lingkungan, serta memudahkan pengambilan sampel darah pada pasien lansia dengan pembuluh darah kecil, khususnya di daerah dengan prevalensi penyakit sendi tinggi.

Tujuan: Mengetahui apakah penggunaan reagen asam urat setengah resep dapat digunakan dalam pemeriksaan kadar asam urat metode TBHBA (2,4,6-tribromo-3-hydroxybenzoic acid) dan untuk mengetahui perbedaan hasil pemeriksaan kadar asam urat antara penggunaan setengah resep dan satu resep.

Metode: Penelitian ini merupakan pre-eksperimental dengan desain *static group comparison*. Dua kelompok subjek diberi perlakuan berbeda, yaitu penggunaan setengah resep dan satu resep volume reagen dan sampel untuk pemeriksaan kadar asam urat menggunakan metode TBHBA (2,4,6-tribromo-3-hydroxybenzoic acid). Kadar asam urat tersebut diukur menggunakan fotometer Mindray BA-88A.

Hasil: Penggunaan setengah resep reagen menghasilkan rata-rata kadar asam urat 9.99 mg/dL, sementara satu resep menghasilkan 10.27 mg/dL, dengan perbedaan 0.27 mg/dL. Uji Wilcoxon menunjukkan perbedaan signifikan ($p = 0.009$), dan analisis *mean difference* (2.67%) serta CI 95% (0.72% - 4.62%) berada dalam batas klinis yang diterima, sesuai pedoman CLIA dan desirable bias, sehingga setengah resep dapat dijadikan alternatif yang valid.

Kesimpulan: Hasil pemeriksaan asam urat dengan metode TBHBA (2,4,6-tribromo-3-hydroxybenzoic acid) menggunakan satu resep dan setengah resep menunjukkan perbedaan secara statistik, namun tetap berada dalam batas yang diterima secara klinis menurut standar *Clinical Laboratory Improvement Amendments* (CLIA).

Kata Kunci: Asam urat, Setengah resep, TBHBA, Fotometer