

Tesis

**PERBANDINGAN HASIL *INTERNATIONAL NORMALIZED RATIO*
DENGAN *POINT OF CARE TESTING* DAN *AUTOMATED*
COAGULATION ANALYZER PADA PASIEN FIBRILASI
ATRIUM DENGAN TERAPI WARFARIN**



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PERBANDINGAN HASIL *INTERNATIONAL NORMALISED RATIO* DENGAN *POINT OF CARE TESTING* DAN *AUTOMATED COAGULATION ANALYZER* PADA PASIEN FIBRILASI ATRIUM DENGAN TERAPI WARFARIN

Oleh :

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ABSTRAK

Latar Belakang: Fibrilasi atrium (FA) adalah gangguan irama jantung yang paling umum terjadi dalam praktik klinis dan merupakan beban yang sangat besar di seluruh dunia karena tingginya angka kesakitan, kecacatan dan kematian. Pasien FA yang mendapat terapi warfarin perlu dilakukan pemeriksaan *international normalized ratio* (INR) secara rutin untuk penyesuaian dosis. Metode pemeriksaan INR menggunakan *point of care testing* (POCT) menawarkan waktu yang cepat dan kenyamanan dalam pengambilan sampel. Penelitian ini bertujuan untuk mengetahui perbandingan hasil INR menggunakan POCT metode elektrokimia sampel *whole blood* kapiler dengan *automated coagulation analyzer* metode optik sampel plasma.

Metode: Penelitian analitik dengan rancang potong lintang dilakukan terhadap 34 sampel pasien FA dengan terapi warfarin yang melakukan pemeriksaan INR di laboratorium sentral RS M Djamil Padang pada bulan Mei sampai November 2024. Pemeriksaan INR menggunakan alat POCT dan *automated coagulation analyzer* dilakukan pada sampel penelitian. Analisis statistik menggunakan korelasi spearman dan *Bland and Altman Plot*.

Hasil: Hasil pemeriksaan INR *whole blood* kapiler menggunakan POCT dan *automated coagulation analyzer* pada pasien FA dengan terapi warfarin di RS M. Djamil Padang didapatkan median sebesar 1,56 dan 1,47. Perbandingan hasil INR *whole blood* kapiler menggunakan POCT dan *automated coagulation analyzer* didapatkan $r=0,976$ ($p<0,001$), rerata perbedaan dua pengukuran didapatkan 0,199 (95%CI; -0,161-0,558; $p<0,001$) dan nilai bias 9,83% (95%CI; -2,23% -21,98%) menggunakan *Bland and Altman Plot*.

Simpulan: Ditemukan perbedaan antara hasil INR menggunakan POCT dan *automated coagulation analyzer* pada pasien FA yang mendapat terapi warfarin dengan nilai bias antara dua pengukuran 9,83%.

Kata kunci: Fibrilasi Atrium, POCT, *international normalized ratio*.

COMPARISON OF INTERNATIONAL NORMALIZED RATIO RESULTS WITH POINT OF CARE TESTING AND AUTOMATED COAGULATION ANALYZER IN PATIENTS WITH ATRIAL FIBRILLATION WITH WARFARIN THERAPY

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ABSTRACT

Background: Atrial fibrillation (AF) is the most common heart rhythm disorder in clinical practice and is a huge burden worldwide due to high morbidity, disability and mortality. Atrial fibrillation patients receiving warfarin therapy need to have their international normalized ratio (INR) checked regularly for dose adjustment. The INR examination method using point of care testing (POCT) offers fast results and convenience in sampling. This study aims to determine the comparison of INR results of POCT electrochemical method using capillary whole blood samples with automated coagulation analyzer optical method using plasma samples.

Methods: An analytic study with a cross-sectional design was conducted on 34 samples of FA patients on warfarin therapy who performed INR examination at the central laboratory of M Djamil Hospital Padang from May to November 2024. International Normalized Ratio examination using POCT and automated coagulation analyzer was performed on the study samples. Statistical analysis used Spearman correlation and Bland-Altman Plot.

Results: The results of capillary whole blood INR examination using POCT and automated coagulation analyzer in FA patients on warfarin therapy at M. Djamil Hospital Padang obtained a median of 1.56 and 1.47. Comparison of capillary whole blood INR results using POCT and automated coagulation analyzer obtained $r=0.976$ ($p<0.001$), the mean difference between the two measurements obtained 0.199 (95%CI; -0.161-0.558; $p<0.001$) and a bias value of 9.83% (95%CI; -2.23%-21.98%) using Bland and Altman Plot.

Conclusion: Differences were found between INR results using POCT capillary whole blood samples and automated coagulation analyzer in AF patients receiving warfarin therapy with bias value between the two measurements was 9.83%.

Keywords: Atrial fibrillation, POCT, international normalized ratio.