62nd Annual Conference, Cardiological Society of India

Kolkata, India

2 - 5 Disember 2010

Dr. Wan Nor Arifin Wan Mansor
Unit Biostatik & Metodologi Penyelidikan
PPSP

Title: Assessment of reliability of blood pressure measurements among assessors in a clinical trial

Wan Nor Arifin[1], Wan Arfah Nadiah Wan Abdul Jamil[2], Muhammad Irfan Abdul Jalal[3], Nani Draman[4], Nyi Nyi Naing[5]

[1,2,3,5]Unit of Biostatistics and Research Methodology, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

[4]Department of Family Medicine, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang, Kerian, Kelantan, Malaysia

Introduction: To ensure the reliability of blood pressure (BP) readings in a clinical trial, sources of errors due to measurement must be reduced as much as possible. Apart from following standard procedures for BP measurement and ensuring good equipments, the measurement errors that arise from the assessors themselves should be assessed.

Objective: To assess reliability of BP readings among assessors involved in a clinical trial requiring BP measurement using intraclass correlation (ICC).

Methodology: A reliability study on blood pressure readings of 5 assessors was conducted. 11 volunteers were recruited for the study. Precalculated sample size was 10.3, and the number of participants in this study exceeded the required sample size. BP was measured using regularly maintained mercury sphygmanometers. Recommendations by Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7) for BP measurement in office setting were followed. The outcomes were systolic and diastolic BP readings. Intraclass correlation (ICC) two-way random model, absolute agreement type, was chosen for the analysis of the systolic and diastolic BP readings to assess the reliability of the assessors.

Results: The inter-rater reliability for systolic and diastolic BP measurements as expressed by ICC (single measure) were 0.87 (95% confidence interval [CI] 0.722, 0.956) and 0.77 (95% CI 0.560, 0.918) respectively.

Conclusion: The reliability for systolic BP measurements was very good (in range of 0.81 - 1.0) with ICC (single measure) of 0.87, while the reliability for diastolic measurements was considered good (in range of 0.61 – 0.8) with ICC (single measure) of 0.77. We concluded that assessors were reliable in their assessment of BP on his/her own, as indicated by the ICC using single measure results.

Keywords: hypertension, blood pressure measurement, reliability, intraclass correlation