

***A Study on Comparison of Inter-Arm Difference in Blood Pressure
between Patients with Cardiovascular Diseases and Non-Cardiac
Conditions in a Tertiary Care Hospital***

D.M.O.T.K. Bandara^{1*}, K.A.P.P. Samarasingha¹, B.M.C. Rathnayake¹, D.M.P.U.K.
Ralapanawa²

¹*Department of Nursing, Faculty of Allied Health Sciences, University of
Peradeniya, Peradeniya, 20400, Sri Lanka*

²*Department of Medicine, Faculty of Medicine, University of Peradeniya,
Peradeniya, 204000, Sri Lanka*

**omanthathisalbandara@gmail.com*

An "Inter-Arm Difference" (IAD) in blood pressure (BP) is the difference between right and left-arm BP values which can deviate by more than 10 points, indicating a higher risk for cardiovascular diseases (CVD). Therefore, this study was aimed to compare IAD of BP in between CVD patients and non-cardiac patients (NCP) in a selected tertiary care hospital in Kandy. A descriptive study was conducted, including 124 patients with CVDs and 124 with non-cardiac conditions, selected from the medical wards and hypertension clinics at Teaching Hospital Peradeniya. In each participant, BP was measured simultaneously in both arms, three times in 5 minutes apart using a digital BP monitor while participants were in sitting position. The average of the second and third readings was calculated for each participant. Data were analysed by SPSS version 26. Average right arm systolic BP (SBP) among CVD patients and NCPs were 133±24 mmHg and 117±16 mmHg (p<0.001). Average left arm SBP among CVD patients and NCPs were 131±24 mmHg and 116±16 mmHg (p<0.001). The mean absolute systolic inter-arm difference of BP (SIAD) was 10±8 mmHg in CVD group as compared to 4±3 mmHg in NCP group (p<0.001) and the mean absolute diastolic inter-arm difference of BP (DIAD) was 5±5 mmHg in CVD patients whereas it was 3±3 mmHg in NCP group (p<0.001). In the CVD group, 38.7% had clinically significant SIAD of ≥10 mmHg and 12.9% had DIAD of ≥10 mmHg. A statistically significant association was found between the presence of CVDs with SIAD >10 mmHg (p< 0.001). Finally, binary logistic regression suggested that SIAD of BP is an independent predictor of CVDs with an odds ratio of 1.25 (95% CI; 1.15 - 1.36). An IAD of BP is associated with the presence of cardiovascular diseases. While the findings lead to the recommendation of measuring BP in both arms at the first instance to prevent the misdiagnosis of hypertension, this local study also emphasizes the significance of SIAD in BP for predicting the CVD risks.

Keywords: Inter-Arm Difference (IAD), Cardiovascular Diseases (CVD), Systolic Inter-Arm Difference (SIAD), Diastolic Inter-Arm Difference (DIAD)