POST ANESTHESIA PATIENTS WITH LARGE UPPER ARM CIRCUMFERENCE: IS USE OF AN “EXTRA-LONG” ADULT CUFF OR FOREARM CUFF PLACEMENT ACCURATE?

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National guidelines for blood pressure (BP) measurement recommend use of the upper arm for BP cuff placement. Clinicians sometimes use the forearm location for placement of the BP cuff in patients with large arm circumferences when the correct BP cuff size for upper arm BP is not available. The purpose of this study was to determine if blood pressures obtained in the forearm or with an extra-long BP cuff in the upper arm accurately reflects BP measured in the upper arm with an appropriately sized BP cuff in patients with large upper arm circumference. A method-comparison study design was used, with each subject serving as their own control. In a convenience sample of PACU patients, noninvasive blood pressures were obtained in two different locations (forearm; upper arm) and in the upper arm with an extra-long adult and recommended large adult cuffs. The same arm was used for each measurement with the time between measurements based on the American Heart Association (AHA) recommendations. Data were analyzed by calculating bias and precision for the BP cuff size and location and Student’s t-tests, with p < 0.0125 considered significant. Forty-nine postanesthesia patients participated in the study. Significant differences were found between forearm and upper arm systolic (p< 0.0001) and diastolic (p< 0.0002) BP measurements. Significant differences were found between the systolic BP measured with the extra-long cuff at the upper arm site compared to the upper arm, reference standard BP (t_{48df} = 5.38, p< 0.0001) but not for the diastolic BP (t_{48df} = 4.11, p< 0.019). The magnitude of the discrepancies in BP measurement found with the forearm cuff location and the upper arm, extra-long cuff compared to the AHA recommended upper arm, proper-sized BP cuff could lead clinicians to incorrectly identify or miss hypotension or hypertension in PACU patients, predisposing them to serious complications. Further studies should be done in order to determine accurate blood pressure measurement in this population of patients.