Automated vs. Manual BP Monitoring for Systolic Hypertension

Automated blood pressure monitoring was more accurate.

Office manual blood pressure (BP) monitoring is fraught with problems, including variable BP measuring skills among healthcare workers, "white-coat hypertension," and digit preference (readings ending in "0"). In this trial, Canadian investigators randomized 67 primary care practices to use either ongoing manual office BP monitoring (control) or automated office BP monitoring using the BpTRU device (intervention; after the BpTRU cuff is positioned properly, the patient is left alone, and the device automatically takes five BP readings and displays an average). Awake ambulatory BP monitoring was the gold standard.

Overall, 555 patients with systolic hypertension participated in the study. Compared with manual office BP readings, automated office BP readings correlated more strongly with ambulatory BP monitoring. For example, the mean manual office systolic BP after enrollment was 6.5 mm Hg higher than ambulatory BP, whereas mean automated office systolic BP was only 2.3 mm Hg higher than ambulatory BP; this difference was significant. For diastolic BP, mean automated and manual office measurements were both about 4 mm Hg higher than ambulatory measurements. Another striking finding was a fall in automated systolic BP while the patient rested in the exam room: Mean systolic BP fell from 147 to 133 mm Hg during a 10-minute period.

Comment: Automated BP monitoring (with multiple readings taken while the patient is resting) is more accurate than manual BP monitoring in primary care patients with systolic hypertension. The results have obvious clinical implications, such as limiting unnecessary treatment. Indeed, several years ago, my institution systematically eliminated manual BP monitoring in favor of automated BP monitoring.

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