

Inaccuracy in the Home Use of Automated Blood Pressure Cuffs by Hypertensive Patients Being Treated with β -Blockers

TO THE EDITOR:

There are an estimated 60 million hypertensive patients in the United States. Avorn et al.¹ stated that 11% of the male Medicaid population over 45 years of age are receiving β -blockers, the number one selling drug in the United States.

As the population has become more health conscious, more hypertensive patients are sharing the responsibility for their hypertensive management by using automated home blood pressure monitors. The electronic blood pressure monitors designed for home use are calibrated to deflate at a rate of about 3 mm/sec, which is the rate that will give accurate blood pressure recordings in patients with heart rates greater than 70/min. However, many young, active hypertensive patients being controlled with β -blockers often have drug-induced sinus bradycardia with heart rates of 40 to 50 min. Johnson et al.² have stated that blood pressure measurements may be affected by the speed of cuff deflation and that automated blood pressure machines tend to underread high pressures. The rate of deflation of home blood pressure cuffs is too fast

for accurate readings in patients with these slow heart rates. We have observed that automatic blood pressure cuffs consistently underestimate the β -blocked patient's systolic blood pressure by up to 20 mm Hg because of the fast rate of deflation. Hence, automated blood pressure cuffs should be equipped with valves that provide for variable rates of deflation, which will result in more accurate systolic blood pressure determinations in patients with slow heart rates.

References

1. Avorn J, Euritt DE, Weiss S. Increased antidepressant use in patients prescribed β -blockers. *JAMA* 1986;225:357-360
2. Johnson CJH, Kerr JH. Automated blood pressure monitors. *Anesthesia* 1985;40:471-478

JONATHAN WASSERBERGER, M.D.

GARY J. ORDOG, M.D.

Emergency Department

Charles R. Drew/UCLA School of Medicine

12021 S. Wilmington Ave.

Los Angeles, CA 90059

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