

Clinical Use of Pulse Wave Analysis: Proceedings From a Symposium Sponsored by North American Artery

Clinical Case Example III: Hypertensive with Comorbidity

Clinical Question: Alter regimen?

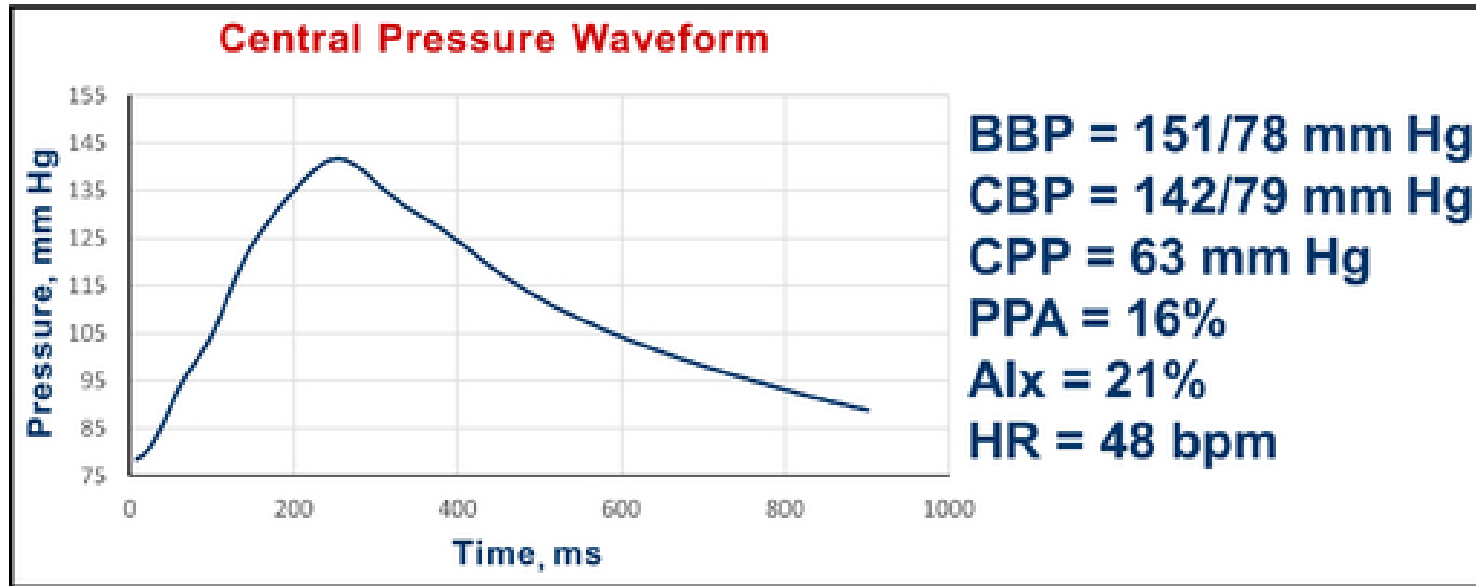
- 64-year-old man
- Smoker
- History of heart attack and placement of two coronary stents
- Brachial BP is 151/78 mm Hg
- Current regimen: Metoprolol XL 200 mg daily, hydralazine 100 mg twice daily, lisinopril 20 mg daily, furosemide 20 mg daily, and atorvastatin 40 mg daily

Initial PWA is shown in Figure 8.

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Clinical Case Example III

Figure 8



Interpretation:

The central pressure profile indicated a pulse pressure amplification of 16% (less than the desired value of 30%). The central systolic pressure of 142 mm Hg is more than 124 mm Hg. The Alx was 21%.

BBP indicates brachial blood pressure systolic/diastolic; CBP, central blood pressure systolic/diastolic; CPP, central pulse pressure; Alx, augmentation index; HR, heart rate; bpm, beats per minute.

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Clinical Case Example III

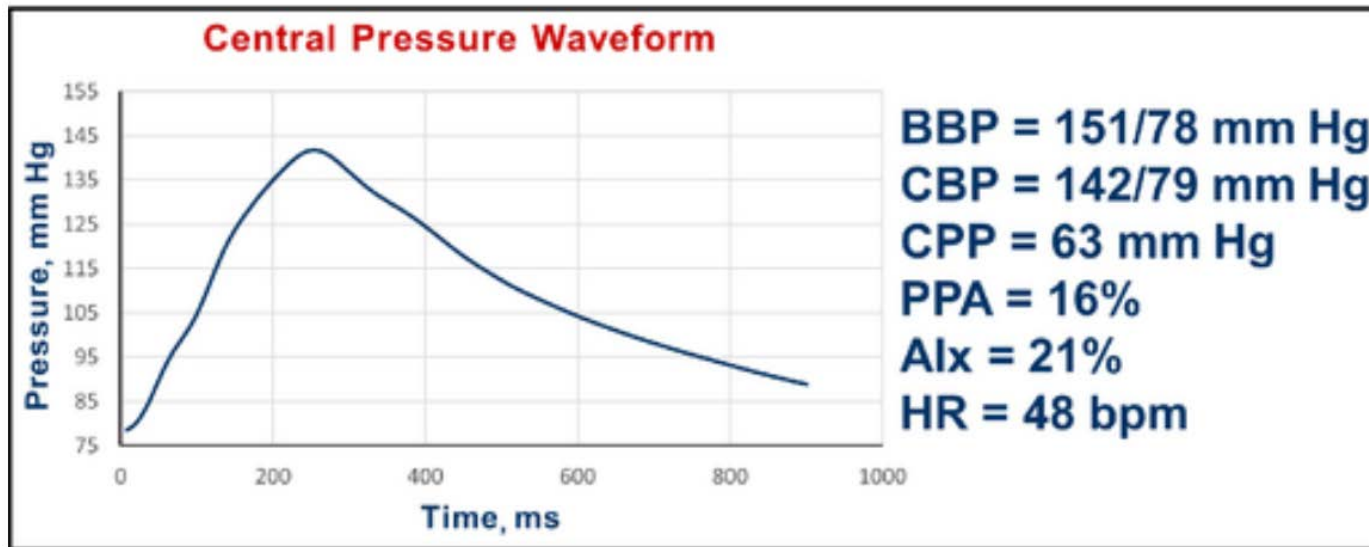
Intervention:

During follow-up, a number of changes in medications were made, as well as advice to stop smoking. The goal of the medication changes was to reduce brachial systolic to <140 mm Hg, increase pulse pressure amplification, and reduce central systolic pressure to <124 mm Hg. β -Blockers tend to blunt amplification and the dose of the β -blocker was gradually reduced. Furosemide was changed to indapamide, a longer-acting diuretic. A calcium channel blocker (CCB) was initiated and the ACE inhibitor was changed, with the dose increased and then merged with the CCB in a fixed-dose combination. In addition, counseling on cigarette smoking was provided. These changes were made gradually over the ensuing 8 months.

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Clinical Case Example III

Figure 9

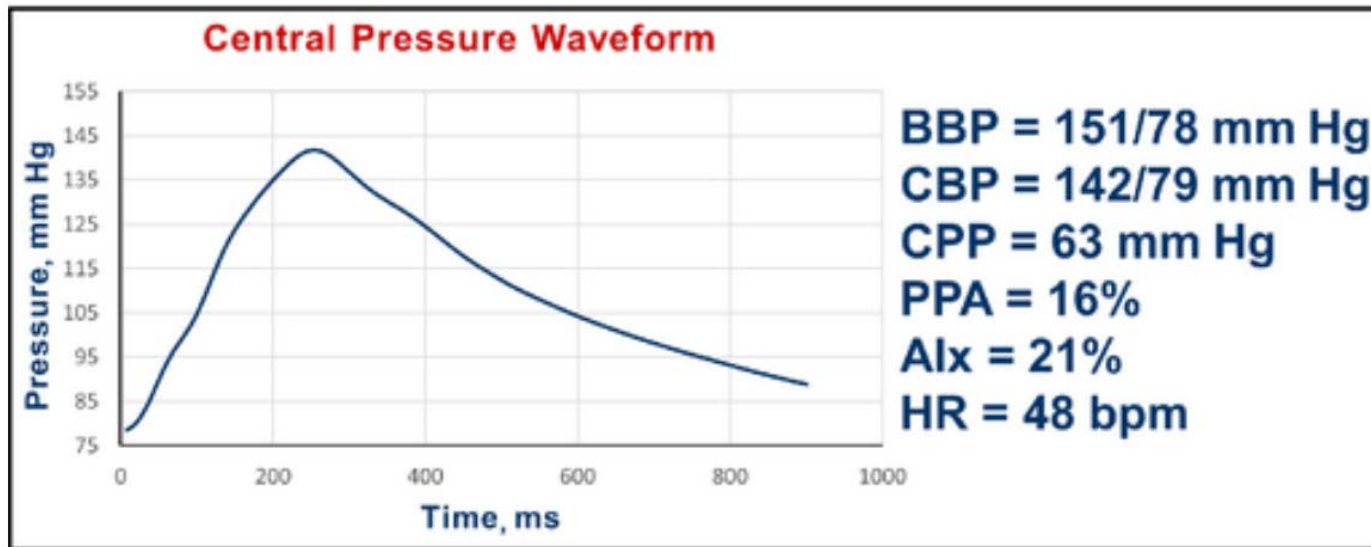


Rx at follow-up (8 months later): Metoprolol XL 25 mg daily, amlodipine / benazepril 10 mg/40 mg daily, spironolactone 25 mg daily, and indapamide 1.25 mg daily. The patient ceased cigarette smoking and a follow-up PWV study was obtained (Figure 9).

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Clinical Case Example III

Figure 9



Interpretation:

The central pressure profile indicates that pulse pressure amplification has increased from 16% to 40%. The central systolic pressure of 128 mm Hg is closer to the desired value of 124 mm Hg. The Alx was lowered slightly from 21% to 19% (from the software, not shown in the figure). In the 8-month interval, the heart rate is now 65 beats per minute (increased from 48 beats per minute).

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Summary:

The initial brachial pressures were in need of attention. Changes were made in the antihypertensive regimen with a goal of maintaining some β -blockade but to increase the vasodilatory aspect of the regimen, relying especially on the central pressure–lowering effects of ACE inhibitors and dihydropyridine CCBs.