

# Center for Diagnostic Sciences BULLETIN



October 2004

Issue #8

This bulletin focuses on high blood pressure (HBP), or hypertension (HTN). We thank Dr. Stephen Sobel for his contribution to this issue. As always, we invite your comments, questions, and suggested topics for future bulletins. Please forward your comments to Dr. Mahvash Navazesh at [navazesh@usc.edu](mailto:navazesh@usc.edu).

Thiazide-type diuretics are used in drug treatment for most patients with uncomplicated HTN, and they are usually combined with drugs from other classes. Counseling with respect to diet, exercise, and compliance is critical in maintaining long term control of BP.

## HTN

### So . . . What's the big deal about blood pressure??

High blood pressure (HBP), or hypertension (HTN), affects about 1 in 6 people worldwide. That's a billion people, including approximately 50 million in the United States. Although there is ongoing discussion in the medical profession with respect to these values, blood pressure (BP) is considered normal with a systolic of up to 140 and a diastolic of up to 90 (mm Hg), and these values are consistent with the guidelines at the USC School of Dentistry.

### What is meant by the term "prehypertension"?

In its seventh report, the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure introduced the classification "prehypertension" as a systolic of 120 to 139 and/or a diastolic of 80 to 89. No treatment or prescription is recommended, and this classification will not be incorporated into the guidelines of the School of Dentistry.

### What are the risks?

The relationship between BP and the risk of cardiovascular and cerebrovascular disease events is continuous, consistent, and independent of other risk factors. The higher the BP, the greater is the chance of heart attack, heart failure, stroke, and kidney disease. In fact, the risk of cardiovascular disease beginning at 115/75 mm Hg doubles with each increment of 20/10 mm Hg.

### How is it controlled?

Medical management decisions are made on an individual basis and are based on a thorough history and examination.

### What are the oral complications of HBP?

Most medications used to treat HBP (antihypertensives) have side effects that are of oral significance. Many of them cause dry mouth, which can predispose patients to caries and periodontal disease. Calcium channel blockers can cause gingival hyperplasia. There are side effects of systemic significance as well, and side effects have an enormous impact on compliance. Patients taking diuretics may experience frequent urination. Since appointments at the dental school are usually longer than in private practice, a school patient on diuretics may skip a dose on the day of an appointment to avoid frequent interruptions. Unfortunately, this may result in an elevation of BP that mandates rescheduling the appointment. Since so many patients have at least some degree of anxiety about the dental environment, and as most dental procedures require the injection of local anesthetic, a patient's BP in the clinic is likely to be somewhat higher than it would otherwise be whether the patient is hypertensive or normotensive to begin with.

To avoid unnecessary rescheduling, patients on diuretics may need to be reassured that they may take as many rest room breaks as necessary, and all patients on antihypertensive medication should be reminded to be sure to take their medications on the day of the appointment.

### **What is "White Coat Hypertension"?**

Some hypertensive patients, who are well controlled on medication, as well as some normotensive patients, experience significant elevation of BP in a medical or dental clinical setting. This is more likely to be due to anxiety than an exacerbation of HTN. A physician's consult may be indicated with the understanding that addressing the anxiety may be more appropriate than an antihypertensive regimen or any modification of an existing regimen.

### **Is it OK to use epinephrine in local anesthetic on hypertensive patients?**

Table 2 provides the USCSD BP guidelines. If a patient's BP is within the limits that would allow routine dental care (160/95 or better) then our most commonly administered anesthetic, lidocaine with 1:100,000 epinephrine, can be used. However, some procedures require multiple cartridges. When more than 2 cartridges are needed for anesthesia, more vasoconstrictor may be contraindicated. When administering more than 2 cartridges, consider switching to 3% mepivacaine (Carbocaine) plain, which has no added vasoconstrictor, for the 3rd and subsequent cartridges. In general, when administered properly (aspiration technique) and in appropriate amounts, epinephrine is safe to use. The length of appointment must also be considered, and here at the dental school our appointments are understandably long. If, in the middle of a long appointment, additional local anesthetic is required (after an initial dose at the beginning of the appointment), lidocaine with epinephrine is still safe. **Epinephrine must NOT be used in gingival retraction cord. On anyone!** The dental school, appropriately, provides retraction cord without epinephrine, so this admonition is for private practice.

### **If my patient's BP is elevated, should I send the patient home?**

No! No! **NO!** At least not immediately. Our guidelines (Table 2) indicate that if BP is elevated, it is to be repeated up to 3 times at 5 to 10 minute intervals. In many circumstances, an initially elevated value comes down in 20 minutes. As the guidelines clearly indicate, any dental procedure offered in the school may be performed with BP up to 160/95, and emergency dental therapies may be performed with readings up to 180/105.

To dismiss a patient with a BP reading of 155/95 unnecessarily denies the patient of dental care and the student of the opportunity to provide it. Justifiable anger on the patient's part could raise the BP further. When patients have dangerously high readings (S>180, D>105, or both) they must be referred for immediate medical attention – not sent home. Some patients will decline the medical referral and go home anyway. However, we must make the appropriate referral and document it.

Our guidelines here at the dental school are more conservative than published guidelines for private practice. This is appropriate for a school clinic. Compare our guidelines in Table 2 to the Table 1 guidelines published by the Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure.

### **We take BP routinely; may we make a diagnosis of HTN?**

NO! Only a physician can make a diagnosis of HTN. It is **not** appropriate for us to say to a patient "You have high blood pressure" based on our reading. We can make the observation that a patient's blood pressure is elevated at a given time. We must use our guidelines and our judgment when we get elevated readings. For a known hypertensive patient who is usually controlled, an elevated reading could be due to stress, anxiety, or a missed dose of medication. We can often tell from the history and talking to the patient if the physician needs to be consulted at that point. For undiagnosed hypertensive patients, we are in a position to provide a valuable and necessary referral. By taking the BP at the initial visit and routinely, we can monitor BP and determine if and when a consult is indicated.

Table 1

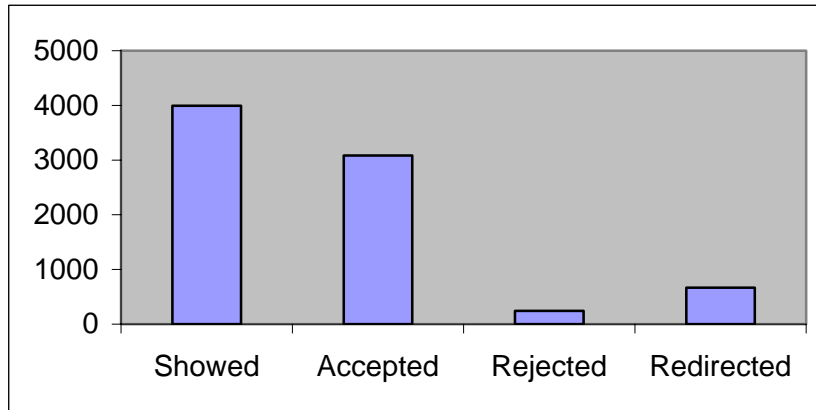
| Recommendations of the Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure for Adults Ages 18 and Older |                  |                                     |
|---|------------------|-------------------------------------|
| Blood Pressure (mm Hg)  |                  |                                     |
| Systolic  | Diastolic        | Recommendation                      |
| Less than 130   | Less than 85     | Remeasure in 2 years                |
| 130 to 139  | 85 to 89         | Remeasure in 1 year                 |
| 140 to 159  | 90 to 99         | Remeasure within 2 months           |
| 160 to 179  | 100 to 109       | Refer to a physician within 1 month |
| 180 to 209  | 110 to 119       | Refer to a physician within 1 week  |
| Greater than 210  | Greater than 120 | Immediate referral to a physician   |

Table 2-USCSD BP Guidelines

| Blood Pressure  | Management Considerations   |
|---|---|
| $\frac{S \leq 140}{D \leq 90}$                            | NONE  |
| $\frac{S = 141 \text{ to } 160}{D = 91 \text{ to } 95}$   | Repeat B.P. x 3 at 5 to 10 minute intervals.<br>Okay to treat. Advise Patient. Refer  |
| $\frac{S = 161 \text{ to } 180}{D = 96 \text{ to } 105}$  | Repeat B.P. x 3 at 5 to 10 minute intervals.<br>Emergency dental treatment only. Refer for consult.                         |
| $\frac{S = 181 \text{ to } 200}{D = 106 \text{ to } 115}$ | Repeat as above. Emergency dental treatment of <u>precriptions only</u> . Refer <u>immediately</u> to M.D. or hospital E.R. |
| $\frac{S \geq 201}{D \geq 116}$                           | Repeat. Refer <u>immediately</u> to Hospital E.R. or M.D. with help.  |

## Did you know?

Center for Diagnostic Sciences  
Patient Admitting Activities 09/29/03-09/29/04



New Patients Directed to Group Practices  
09/29/03-09/29/04

