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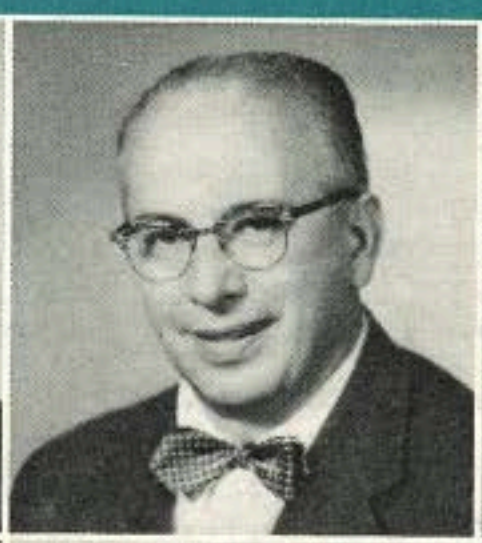
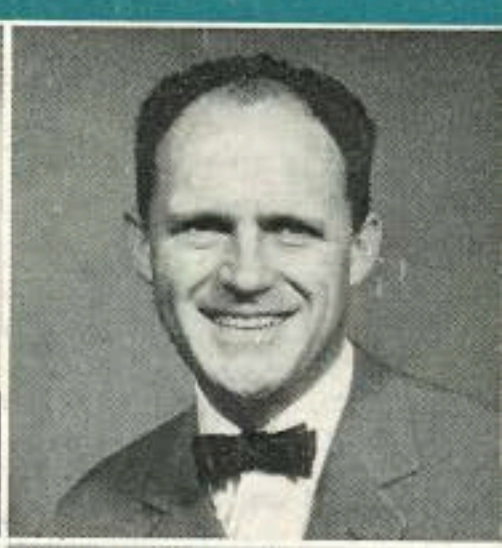





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INTERNAL MEDICINE

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WHICH HYPERTENSIVE PATIENTS NEED TREATMENT?

Technically, a blood pressure above 160/90 mm. Hg is considered abnormal. Yet the question is often asked, "Which patients should be actively treated?" According to my experience, there are 3 groups that must receive antihypertensive therapy because of poor prognosis if left untreated: 1) men with diastolic hypertension, 2) patients with benign hypertension with familial history of malignant hypertension, and 3) all patients with malignant hypertension. I think the best way to describe these patients and their appropriate therapy is to relate three case histories, each one representing one of these three groups. Before doing that, however, I would like to put down some obvious but sometimes overlooked facts.

First, the essential parts of an examination to determine the severity of hypertension: familial and personal medical history, fundoscopic examination, chest X-ray, urinalysis, and blood urea nitrogen. For a reliable base line, repeated blood pressures should be recorded by the same person, at the same time of day, using the same equipment, on the same arm; and the examination should be done in an atmosphere of serenity and routine to avoid any emotional effect on blood pressure stemming from the procedure itself.

1. Men With Diastolic Hypertension

A 54-year-old laborer was admitted to the hospital complaining of severe occipital headache. For several years, he had noticed increasing dyspnea, and during the last 6 months had noticed daily swelling of the ankles. He did

not have precordial pain. At examination, his blood pressure was 175/110 sitting and 186/114 recumbent. His heart was enlarged to the left as far as the anterior axillary line. He showed a 2+ ankle edema and weighed 186 lbs. Laboratory tests showed a trace of albuminuria, specific gravity 1.018 (24-hour urine), normal CBC, and BUN 15 mg.%. The EKG showed a pattern of left ventricular hypertrophy confirmed by X-ray.

We began treatment with hydrochlorothiazide (50 mg. daily) and hydralazine (50 mg. t.i.d.). After 4 days, the blood pressure readings were down 20 points systolic and 14 diastolic. The patient now weighed 182 lbs. He no longer complained of headache, but did complain of feeling more tired. So we reduced the hydrochlorothiazide to 25 mg./day and supplemented his diet with 8 oz. of apricot juice daily. Within 48 hours, his fatigue subsided, but his blood pressure was unchanged. To reduce it further, we increased the hydralazine to 50 mg. q.i.d. One week later, his blood pressure was satisfactory at 146/92 sitting and 154/96 recumbent, and he was discharged on this regimen. Two weeks later, he was still comfortable. He weighed 180 lbs. and retained his previous reduction in blood pressure. He had only slight, pitting edema of the ankles, and the dyspnea, even at work, was markedly improved. He was considered stabilized at this point and was discharged for one month on the same regimen without limitation of salt intake. At the next examination he was, and still remains, well controlled and without gross complaints.

Comment

This is a classic case in terms of symptoms and physical and laboratory findings. It shows, too, that this kind of hypertension is readily controlled with a diuretic-antihypertensive combination. The occurrence of fatigue as a side effect and the varying response to different dosage levels of the drugs points up the need to adjust dosage carefully and individually in each patient.

2. Benign Hypertension With A Family History Of Hypertension

A 37-year-old salesman was admitted to the hospital for cardiovascular evaluation. He had recently been denied life insurance because of familial hypertension: his father died of a stroke at 35 and his brother of coronary occlusion at 46. Sitting blood pressures recorded by the insurance medical examiner ranged between 168 to 185 systolic and 110 to 118 diastolic. His medical history was negative, except for the usual childhood diseases.

For the first 4 days, he was under continuous observation without antihypertensive medication. During this time, the recumbent blood pressure readings ranged between 118 to 132 (systolic) and 76 to 84 (diastolic). Pulse rate ran between 82 and 94. He weighed 156 lbs., and all laboratory tests including EKG, chest X-ray, and the histamine provocative test for pheochromocytoma were in the normal range.

We decided to discharge the patient on reserpine (0.25 mg. t.i.d.) and told him to return for an examination after one week. He returned complaining of severe nasal stuffiness and slight nausea. Blood pressure had risen 20 points above the maximum previously

recorded. We then reduced the dosage to one tablet a day (0.25 mg.). The side effects still proved troublesome however, so we discontinued it—replacing it with 30 mg. phenobarbital b.i.d. Two weeks later, he had no complaints, and the blood pressure readings were in the normal range (126/82 sitting and 132/84 recumbent). However, on the next visit, another month later, blood pressure was again in the hypertensive range. On questioning, he admitted that he had neglected to take his medication for the past three weeks because he thought he was "cured." His poor prognosis was again emphasized, especially in view of the family history, and he left, promising to continue on the medication. To date, he remains well controlled with mild sedation, but still needs continuous reminders about the need for treatment.

Comment

Such hypertension, in its early stages, is elusive and apparently benign. It produces no physical discomfort and may not even register on the sphygmomanometer, except sporadically. So, while it is quickly responsive to treatment with the mildest of sedatives, it presents a serious problem in that patients remain unconvinced of its importance and frequently progress to severe hypertension simply because of neglect. Perhaps the most important part of managing such patients is relentless follow-up.

3. Malignant Hypertension

A 59-year-old chauffeur was admitted to the hospital complaining of dyspnea, nocturia, fatigue, increasing blurring of vision, and headache which was present in the morning and grew progressively worse during the day.

Blood pressures on admission were 240/124 recumbent and 232/128 standing; pulse was 120. He showed edema of both optic discs and retinal hemorrhage with sclerosis of the retinal arteries. The heart was enlarged to the left with EKG evidence of left axis deviation. Blood urea nitrogen was 27 mg.%, urine showed a trace of albumin, and the phenolphthalein excretion in two hours was normal.

We began treatment immediately with a ganglionic blocker, mecamylamine, 10 mg. b.i.d. After four days, blood pressure was slightly reduced but still over 200 systolic and 100 diastolic. His headaches were still present, so the dosage was increased to 12.5 mg. b.i.d. This produced further reduction to 205/102 recumbent and 160/84 standing (repeat BUN was 30 mg.%). However, he complained of marked constipation and some blurring of vision, and said he felt faint and lightheaded when standing. We decided at this point to give up ganglionic blockade and to attempt control of hypertension by chemical sympathectomy with guanethidine. At 2-day intervals, we reduced the dosage of mecamylamine by 5.0 mg. per day and gradually increased the dosage of guanethidine by 5 mg. After 10 days, the patient was taking 25 mg. doses of guanethidine alone, twice a day. He was fairly comfortable on this regimen except for a mild diarrhea. After three days of stable blood pressure, we increased dosage to two 25 mg. tablets as a single dose after breakfast. After another week, the blood pressure began to rise again, so two more 25 mg. tablets were added to the daily dose. At this dosage the blood pressure appeared to be stabilized at 186/98 recumbent and 158/82 standing. The diarrhea was controlled with the addition of

5 mg. homatropine. He was discharged from the hospital and followed in the clinic at biweekly intervals. His blood pressure remains reasonably stable, but dyspnea and headache still occur occasionally.

Comment

Hypertension of this severity responds only partially to any treatment and continues to progress. In spite of repeated adjustments of doses and drugs, the pressure will slowly rise. The best you can do is to get the blood pressure down as low as you can, and as soon as you can, with the least hazard and discomfort. It is important to remember, however, that elevated blood pressure is just one symptom of hypertensive disease, so be wary of the natural temptation to concentrate just on rapid reduction of blood pressure. If it is reduced too abruptly, the effects of diminished renal, cerebral, and coronary blood flow may be even more harmful than the initial blood pressure. This is especially important in severe cases like patient No. 3. Such patients frequently develop renal failure as a result of diminished renal blood flow, and must be watched carefully for a rise in BUN. An important factor in avoiding precipitous changes in blood pressure is to make sure that all dosage changes and all withdrawals or substitutions of drugs are made gradually. Also, because treatment of these patients always involves very potent drugs, it is helpful to remember that there may be an advantage in combining several drugs with different sites of action; they may potentiate each other and make possible smaller, and less toxic, doses of each drug.

Incidentally, an important precaution when prescribing a drug like guanethidine is to warn against the concomitant use of sympathomimetic drugs such as are commonly found in nose drops and asthma medication. Experimentally, the latter drugs' pressor effects are enhanced by guanethidine and related compounds; their concomitant use could cause the serious complications of an abrupt rise in blood pressure. One final point—about hypertensive crises, such as encephalopathy or acute cardiac insufficiency —I find that dramatic results can often be obtained with parenteral (I.V. or I.M.) reserpine (2.5 to 5.0 mg.) or hydralazine (20 to 40 mg.) every 4-6 hours.

In summary, then, the rule is: begin therapy with the mildest and safest drug which will produce the necessary lowering of blood pressure. Generally, I find it best to start treatment of the uncomplicated hypertensive with mild sedatives and tranquilizers such as reserpine and phenobarbital. In more severe cases, I add more potent (and more toxic) drugs in the following order: oral diuretics (thiazides); an arteriolar relaxant (hydralazine); chemical sympathectomy (guanethidine); and finally ganglionic blockers (chlorisondamine, pentolinium, mecamylamine) in selected cases.

CORRESPONDENCE

As a service to readers, CONSULTANT's authors will try to answer any question pertaining to their topics.

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