

Hypertension

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Introduction of L Aragon MD

- Prevalence of hypertension
- Chronic disease associated with diabetes
- High patient volume in the North East Family Medicine Clinic.

Overview: Hypertension

- In the United States, nearly one in four adults have hypertension. Hypertension doubles in patients with Diabetes and is known to contribute to diabetic micro-vascular and macro-vascular complications. By the year 2030, the U.S. population of persons who are older than 65 years is expected to double to more than 60 million; only 27 of percent who are 60 years and older with hypertension have an adequate control of blood pressure. Prevention is the most effective way to avoid hypertension and its complications. Weight reduction and low salt diet contribute to the prevention. Antihypertensive pharmacotherapy needs to be directed to achieve the goal of normotension. The JNC VII provides clinical guidelines for blood pressure control. The use of generic medication makes it more affordable to the cost and increased adherence. Many patients should not end up in dialysis, having cardiac catheterizations, strokes, Heart Failure, and myocardial infarctions if patients have a better control of their blood pressure. The effort is to combine patient's and physician education to improve the blood pressure control and decrease complications. We will discuss recommendations that improve the management and prevention of hypertension.

How the we define Hypertension?

- **It is the average of two of more properly measured, seated blood pressure reading on each of two or more office visits.**

How do we Classify High Blood Pressure?

- JNC VII has developed new categories
 - **Pre-hypertension:** Systolic blood pressure of 130-139 and diastolic of 80-89
 - Stage I and Stage II
 - The Stage III is **not** used any more.
- The elderly represent a special group of patients where systolic hypertension is prevalent and needs to be treated as diastolic hypertension due to the same development of complications.

How common is Hypertension and what are the Benefits of Lowering The Blood Pressure?

- Hypertension affects 50 million patients in the United States.
- And the benefits of controlling the blood pressure are:
 - Reduction in stroke incidence by 35-40%
 - Reduction of Myocardial infarction by 20-25%
 - Decreased incidence of Heart Failure by more than 50%

How do we Evaluate a Patient with Hypertension?

- The Clinical History helps to define if HTN is new or long-standing. Are there any other organs involved? What is the patient's lifestyle? Risk factor evaluation such as: Cigarette Smoking, Obesity, Physical inactivity, dyslipidemia, diabetes mellitus, micro-albuminuria or estimated GFR < 60ml/min, age older than 55 for men or 65 for women
- Family History of premature cardiovascular disease (men under 55 and women under age 65)

How the we Evaluate a Patient with Hypertension?

- Is there any identifiable cause of hypertension such as: Sleep Apnea, drug-induced or related causes, chronic kidney disease, primary aldosteronism, renovascular disease, chronic steroid therapy, Cushing syndrome, coarctation of the aorta, pheochromocytoma, thyroid or parathyroid disease.

How the we Evaluate a Patient with Hypertension?

- The physical exam should include: examination of the optic fundi, calculation of the body mass index, auscultation for carotid, abdominal and femoral bruits, palpation of the thyroid gland, heart and lung exam, palpate abdomen for enlarged kidneys, masses, or abnormal aortic pulsation, palpation of the lower extremities for edema and pulses, and the neurologic assessment.

What Labs should initially be order?

- EKG (LVH, LAD, STT elevation or depression, old MI)
- Urinalysis (Cast, hematuria, protein)
- Blood glucose
- Hematocrit
- Serum Potassium
- Creatinine
- Lipid profile
- Calcium

What treatment protocol should we follow?

- **Life Style Modification:** Weight reduction, the Dietary Approaches to stop hypertension (DASH) eating plan which is rich in potassium and calcium. Dietary sodium reduction, physical activity and moderation of alcohol consumption.
- **Pharmacology treatment:** Lowering the blood pressure reduces the complications of the hypertension. ACE inhibitors, ARBs, CCBs, BBs, alpha blockers, and Thiazide type diuretic are part of our drug armamentarium. Thiazide use has been the basis of antihypertensive therapy in most outcome trials, the (ALLHAT) Antihypertensive and Lipid Lowering Treatment to Prevent Heart Attack Trial.
- **Diabetic Hypertension:** goal <130/80. ACEIs and ARB affect the progression of diabetic nephropathy. Thiazide diuretic, BBs, ACEIs, CCBs are beneficial in reducing CVD and stroke incidence in patient with diabetes.

What are some of the complications and how are they treated?

- **Ischemic Heart Disease:** In Hypertension with stable angina pectoris, the first drug of choice a BB; alternatively, long acting CCBs can be used.
- In patients with **acute coronary syndromes:** (unstable angina or myocardial infarction) hypertension should be treated with BBs and ACE inhibitors. In patients with **post myocardial infarction**, ACEIs, BBs, and aldosterone antagonists are used.

Hypertension Complication

- **Heart Failure** (systolic or diastolic ventricular dysfunction). In asymptomatic patients ACEIc, BBs are recommended.
- In the symptomatic patients, or end stage heart disease, ACEIs, BBs, ARBs and aldosterone blockers along with loop diuretics.

Hypertension Complication

- **Chronic Kidney Disease.** Defined as reduced excretory function with and estimated GFR below 60 ml/min per 1.73m, creatinine of >1.5mg/dl in men or >1.3 in women, or the presence of albuminuria (>300mg/day or 200mg albumin/g creatinine). ACE inhibitors and ARBs produce a favorable effect on diabetic and non-diabetic renal disease.
- **Cerebrovascular Disease.** The risk and benefits of acute lowering BP during and acute stroke are still unclear.

Closing Statement

- Thank you Dr. Aragon for this comprehensive review in the management of hypertension. Including aggressive evaluation, patient education and use of generic pharmacotherapy.
- This will help physicians in training and community doctors address this disease to control and reduce its complications.

References

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