CHAPTER

55

Management of Hypertension in Co-morbid Conditions

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This article will deal with non-cardiac, non-nephro & non-endocrine conditions, which are associated with hypertension.

As we all know, hypertension has become the leading cause of death globally (as per WHO report) (Figure 1).

The possible combination antihypertensives are discussed in Table 1.

There are a large number co-morbidities that coexist along with hypertension. Let us discuss few of them.

TREATMENT OF HYPERTENSION IN ASTHMA & COPD (TABLE 2)

- The calcium channel blockers (especially those of the dihydropyridine group, such as nifedipine and nicardipine) are excellent agents for the treatment of hypertension in asthma.
- Diuretics can be effectively used in asthmatics, but may cause serious hypokalemia if used concurrently with inhaled ß2-receptor agonists which drive potassium into the cells and oral corticosteroids which enhance urinary potassium excretion.
- In addition, diuretic-induced metabolic alkalosis can suppress the ventilatory drive, potentially exacerbating the degree of hypoxemia.
- It is safest to administer only low thiazide doses (12.5 to 25 mg of hydrochlorothiazide) to nonedematous hypertensive patients with asthma or COPD
- In addition to effectively lowering the blood pressure, they also have the theoretical advantages of opposing muscle contraction in tracheobronchial smooth muscle, inhibiting mast cell degranulation, and possibly reinforcing the bronchodilator effect of beta agonists.
- The use of a low-dose thiazide alone or with a calcium channel blocker represents the preferred regimen for the initial management of the hypertensive asthmatic.
- The management of hypertension in a patient with asthma or chronic obstructive pulmonary disease (COPD) may be made difficult by the asthma-exacerbating effect of some antihypertensive drugs.
- Beta blockers can cause increased bronchial obstruction and airway reactivity, and resistance to the effects of inhaled or oral beta receptor agonists (such as albuterol or terbutaline) in patients with asthma but not COPD.
- Even topical ophthalmic administration of nonselective beta blockers for the treatment of glaucoma has led to asthmatic exacerbations.
- Although the clinical effects of more ß1-selective beta blockers on pulmonary function appear to be less severe, even ß1-selective agents should be used with caution in patients with severe obstruction or markedly reduced baseline pulmonary function.
- As the duration of Hypertension advances, patient will require combination therapies for control of BP.

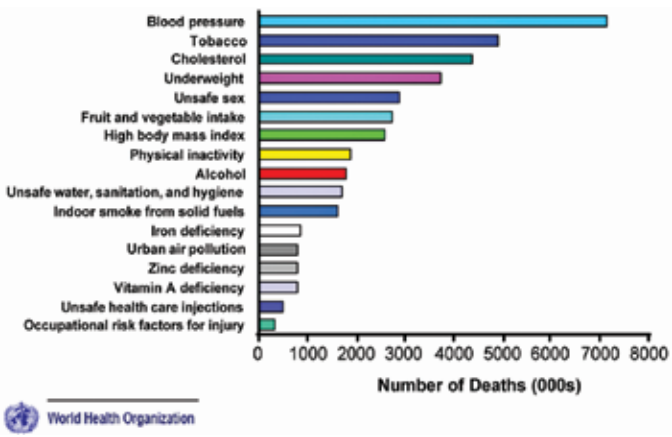

Fig. 1: Death due to leading risk factors

Table 1: Possible Combination Drugs for Hypertension

Combination type	Examples
ACE inhibitors and calcium channel blockers	Amlodipine-benazepril, enalapril-felodipine
ACE inhibitors and diuretics	Lisinopril-hydrochlorothiazide
Angiotensin II antagonists and diuretics	Losartan-hydrochlorothiazide
Beta blockers and diuretics	Bisoprolol-hydrochlorothiazide
Centrally acting drug and diuretic	Methyldopa-hydrochlorothiazide
Diuretic and diuretic	Triamterene-hydrochlorothiazide

Table 2: Summary of comments and recommendations regarding use of antihypertensive agents in patents with chronic obstructive pulmonary disease

Thiazide diuretics	**Low doses are probably effective and safe**
Loop diuretics	Should not be used as an antihypertensive except in patients with advanced renal disease who do not respond to thiazide diuretics.
Potassium-sparing diuretics	Not a first-line agent. Limited (Lata but no specific contraindications.
Aldosterone receptor blockers	Not a first-line agent. Limited data but no specific contraindications.
Beta blockers	Some conflicting data, but cumulative evidence supports safety. Historical underutilization probably not justified. Probably not a first-line agent if hypertension is die only indication. Propranolol and atenolol should not be used.
Beta blockers with intrinsic sympathomimetic activity	Limited data but probably similar to beta blockers.
Combined alpha and beta blockers	Should probably not be used if hypertension is the only indication.
Angiotensin-converting enzyme inhibitors	Should not be used as a first-line agent because of the associated cough.
AngiotensinII antagonists	Limited data but no safety concerns.
Calcium channel blockers: non-dihydropyridines	Can be used safely.
Calcium channel blockers: dihydropyridines	First-line agent.
Alpha-1 blockers	No safety concerns.
Central alpha-2 agonists and other centrally acting drugs	Limited data but there may be some safety concerns.
Direct vasodilators	Limited data but no safety concerns

HYPERTENSION IN LIVER DISEASES

- A decrease in the arterial blood pressure is seen when the patients develop cirrhosis.
- The prevalence of fatty liver in non-obese, non-diabetic hypertensive patients is at least twice that of the general population and may be related to increase in insulin resistance and body weight.
- Most of the drugs can be safely used in chronic liver disease.

TREATMENT OF HYPERTENSION IN BPH

Many of the alpha blockers used to treat BPH also decrease BP, and Terazosin, Doxazosin & Prazosin have been shown to have significant CV side effects, such as asthenia/fatigue, postural hypotension and dizziness when used to treat BPH patients. Furthermore, these drugs are not first line therapies for Hypertension, and majority of hypertensive BPH patients will be receiving other antihypertensive agents. Therefore, it is possible that that introduction of these drugs will affect BP control, at least temporarily, with possible adverse effects. In contrast, the selective alpha1A blocker tamsulosin does not appear to have significant CV side effects and produces minimal BP reductions.

Evidence from outcome trial suggest alpha 1 blockers should not be used as first-line antihypertensive therapy.

The Hypertension and BPH Intervention Trial (HABIT) is a large, community-based trial in patients with concomitant symptomatic BPH and hypertension. It showed that doxazosin not only provided effective treatment for both BPH symptoms and hypertension, but also was successful as add-on therapy for controlling BP in the majority of patients whose BP had been inadequately controlled with previous antihypertensive therapy. Age did not influence the efficacy and tolerability of Doxazosin, and no detrimental effect on sexual function was noted.

RECOMMENDED READING

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6. ESH Scientific Newsletter: Update on Hypertension Management, 2012; 13: No. 51
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