Hypertension:

- Hypertension is defined as systolic BP of 140mm Hg or greater, and diastolic BP of 90mm Hg or greater.

Types:
- When BP is elevated without any organic cause it is called Essential hypertension or Primary.
- When due to identifiable cause is called Secondary hypertension.

- In Essential treatment is palliative and in secondary, the primary cause should be identified for the regression of hypertension.

Causes of Secondary hypertension

A i) Alcohol ii) Obesity iii) Pregnancy.
B iv) Renal disease → Glomerulonephritis, PKD, Renal
C vascular disease.
D v) Endocrine disease → Pheochromocytoma, Cushing's
E Syndrome, Acromegaly, hyperaldosteronism,
P Hypothyroidism, hyperparathyroidism,
R vi) Coarctation of Aorta. vii) Drugs.

Classification of BP

	Systolic	Diastolic
Optimal	<120	<80
Normal	120-129	80-84
High Normal	130-139	85-89
Grade I (Mild)	140-159	90-99
Grade II (Moderate)	160-179	100-109
Grade III (Severe)	≥180	≥110
Isolated Systolic BP	140-159	<90
Grade I		
Grade II	≥160	<90

White Coat hypertension & Masked hypertension

- ↑BP in the office and normal out of the clinic and reverse is marked.
- These people are having high risk for stroke and they are tied with ambulatory BP measurements.

Pathology:

Cardiac changes:

- left ventricular hypertrophy.

↓

Diastolic dysfunction, arrythmia, left ventricular failure.

- Failure is due to degeneration and lysis of myofibrils.

Arterial changes:

- Arteries and arterioles shows thickening.
- Renal artery shows hypertrophy and fibrosis.

↓

Glomeruli and tubular atrophy.

- Coronary artery show atherosclerosis.
- ~~Cerebral~~ Aortic dissection, aneurysm and peripheral artery diseases are common.

Clinical Features:

Essential hypertension:

- Asymptomatic over 50% of people found during routine medical examination.
- Many develop symptoms after knowing they are hypertensives.
- Symptoms include Fatigue, dizziness, palpitation, headache, anxiety.
- Headache may be throbbing, suboccipital region on waking.

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Secondary hypertension:
- Coarctation of aorta will have radio-femoral delay, Enlarged kidney in Polycystic kidney disease Abdominal bruits in renal kidney stenosis.
Left ventricular hypertrophy in CAD.
Cushing Syndrome symptoms. Fundoscopy reveals cotton wool exudates. Odema

Complications: By TBP
- Left Ventricular hypertrophy
- Congestive heart failure.
- Aortic dissection
- Renal insufficiency.
- Encephalitis.
- Malignant hypertension.
- Cerebral Hemorrhage.

Atherosclerotic Complication.
i) Cerebral thrombosis
ii) Coronary artery disease
iii) Peripheral Vascular disease iv) Impotility

Changes in CVS:
i) Left Ventricular hypertrophy.
ii) Congestive heart failure
iii) Ischemic heart disease.
iv) Atherosclerosis.
v) Arrhythmias.

Changes in CNS:
i) Stroke is the most important complication. It may be due to ischemic infarct or Hemorrhage.
ii) Hypertensive encephalopathy may develop due to spasm of cerebral artery. Clinically

it might present with transient loss of speech and vision; disorientation, unconsciousness, paresis, papilloedema.

Changes in Kidney:

- Due to reduced blood supply there is progressive loss of function leading to renal failure:

Changes in Retina:

- Cotton wool exudate are associated with retinal ischemia or infarction and fade in few weeks. Hard exudates and microaneurysm (Dot haemorrhage) are more characteristic of diabetic retinopathy.
- Usually associated with Central vein thrombosis.

Grade 1 :- Arteriolar thickening, tortuosity and increasing reflectiveness (Silver wiring).

Grade 2 : Grade 1 Plus constriction of vein at arteriolar crossing (Arteriovenous nipping)

Grade 3 : Grade 2 Plus retinal ischemia (Flame shaped or blot hemorrhage and cotton wool exudate.

Grade 4 : Grade 3 Plus papilloedema

Malignant hypertension:

- It is hypertensive emergency where there is high BP associated with papilloedema and organ ischemic organ dysfunction.
- Once the malignant phase sets in death occurs with 2 years due to cardiac, renal or cerebral failure

Management.

The goals of management of hypertension is to reduce morbidity and mortality by the least invasive means. It is to reduce and maintain BP by 140/90 mm and prevent stroke, renal, and cardiac failure.