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# Physiotherapy cardio-respiratory Clinic Course L 14 & 15 : Hypertension

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# Definition

- Hypertension is when the blood pressure rises to a level which leads to increase risk of damage to any of the body organs

# Stages

- **Stage 1 hypertension:** Clinic blood pressure is 140/90 mmHg or higher **and** subsequent ambulatory blood pressure monitoring (ABPM) daytime average or home blood pressure monitoring (HBPM) average blood pressure is 135/85 mmHg or higher.
- **Stage 2 hypertension:** Clinic blood pressure is 160/100 mmHg or higher **and** subsequent ABPM daytime average or HBPM average blood pressure is 155/95 mmHg or higher.
- **Severe hypertension** :Clinic systolic blood pressure is 180 mmHg or higher **or** clinic diastolic blood pressure is 110 mmHg or higher
- **Malignant hypertension:** severe hypertension(>200 mmHg systolic, diastolic >130 mmHg + bilateral retinal haemorrhage and exudate +/- papilloedema

# Malignant hypertension

May precipitate

- acute renal failure,
- heart failure
- Encephalopathy

Needs urgent treatment

Give i/v frusemide, i/v labetalol or nitroprusside infusion

# Diagnosis

- If clinic measurement is 140/90 or above:
- Offer ambulatory BP monitoring (ABPM) and take the average of 14 readings taken during the waking time
- Or home BP monitoring (HBPM) at least twice a day morning and evening (each done twice a minute apart) for 4 to 7 days, then take the average (discard the 1<sup>st</sup> day)

# Causes

- Primary : in the majority

Secondary: 5%

Renal diseases (the most common)

Cushing's syndrome (including steroid ttt)

Hyperaldosteronism (Conn's syndrome)

Pheochromocytoma

Acromegally

Hyperparathyroidism

Coarctation of the aorta

Pregnancy

Drugs

# Hypertension is a major risk factor for

ischaemic and haemorrhagic stroke,

myocardial infarction,

heart failure,

chronic kidney disease,

cognitive decline

premature death



# Investigation

- Urea, creatinine, eGFR, electrolytes(K,Na,Ca)
- Random blood glucose (RBG)
- Triglyceride, cholesterol
- Urine
- ECG
- Check for retinopathy
- Other investigation according to clinical presentation

# TTT

- In diabetic aim is to keep BP  $<130/80$
- In proteinuria aim is to keep BP  $<125/75$
- BP  $<140/90$  : healthy life style and reassess after 5 y
- If BP  $<160/100$  and risk of CHD is less than 20%, advise healthy life style and reassess every year
- If the BP is  $>160/100$  or the risk of CHD is  $>20\%$ , or target organ damage: healthy life style plus drug treatment

# ttt

- For people aged under 55 years:  
offer step 1 antihypertensive treatment with an angiotensin-converting enzyme (ACE) inhibitor or angiotensin-II receptor blocker (ARB) if an ACE inhibitor is prescribed and is not tolerated
- For people aged over 55 years and black people of African or Caribbean family origin of any age:  
Offer step 1 antihypertensive treatment with a calcium-channel blocker (CCB) to suitable, for example because of oedema or intolerance, or if there is evidence of heart failure or a high risk of heart failure, offer a thiazide-like diuretic.
-

# Continue ttt

- Beta-blockers are not a preferred initial therapy for hypertension. However, beta-blockers may be considered in younger people, particularly:
- those with an intolerance or contraindication to ACE inhibitors and angiotensin II receptor antagonists **or**
- women of child-bearing potential **or**
- people with evidence of increased sympathetic drive.

# Continue ttt

- If therapy is initiated with a beta-blocker and a second drug is required, add a calcium-channel blocker rather than a thiazide-like diuretic to reduce the person's risk of developing diabetes.

## Step 2 ttt

- If BP is not controlled with step 1
- Combine CCB with ACEI or ARB
- If CCB is not suitable give thiazide-like diuretic
- For black people of African or Caribbean family origin, consider an ARB<sup>[6]</sup> in preference to an ACE inhibitor, in combination with a CCB.

## Step 3

- If treatment with three drugs is required, the combination of ACE inhibitor or angiotensin II receptor blocker, calcium-channel blocker and thiazide-like diuretic should be used.

# Step 4

- Consider spironolactone 25 mg od if blood K level is less than 4.5 mmol/l
- If K level is  $>4.5$  mmol/l consider higher dose of thiazide-like diuretic, and monitor Na and K levels
- If higher dose of diuretic not effective or not tolerated consider alpha or beta blocker



# ALLHAT STUDY

- Adequate BP reduction is more important than the specific drug used

End