

Annexure A: Hypertension Treatment protocol, Ladakh

Hypertension Treatment Protocol

Measure Blood Pressure of all adults above 18yrs of age

*High BP: SBP \geq 140 mm Hg DBP \geq 90 mmHg

Check for treatment compliance at each visit before titration of dose or addition of drugs

STEP 1 If BP is high*

Prescribe Amlodipine 5mg once daily

STEP 2 After 2-4 weeks, measure BP again. If still high

Investigate for Serum Creatinine before starting Telmisartan

Prescribe FDC (Amlodipine 5mg + Telmisartan 40mg) once daily

STEP 3 After 2-4 weeks, measure BP again. If still high

Add telmisartan 40 mg to FDC (Amlodipine 5mg + Telmisartan 40mg) once daily

STEP 4 After 2-4 weeks, measure BP again. If still high

Add Chlorthalidone 6.25mg to medications at step 3 (Amlodipine 5mg + Telmisartan 80mg) once daily**

STEP 5 After 2-4 weeks, measure BP again. If still high

Check patient is taking medicine correctly and regularly.

If yes, refer to specialist for consultation

Coexisting Condition	Treatment Modification
Diabetes without complications	Start Atorvastatin 20mg Anti DM Treatment as per protocol Aim for a BP target of < 140/90 mmHg
Heart Attack (Myocardial Infarction) in last one year	Add Betablocker (Tab Atenolol 50 mg) with initial treatment Atorvastatin 40mg during first year of MI to be decreased to 20mg in next year
Heart Attack or Stroke Ever	Begin low dose aspirin (75mg) and Atorvastatin (20mg)
Chronic Kidney Disease	Refer to specialist
Heart Failure	Refer to specialist
Pregnancy	Start Amlodipine Obstetric consultation DO NOT give ACE Inhibitors, ARB, Diuretics, Statins

Notes for treatment

*If SBP \geq 180 mmHg and DBP \geq 110 mmHg – Refer to specialist after initiating treatment

If SBP 160-179 mmHg and DBP 100-109 mmHg- Start treatment on the same day. Treatment to be initiated at protocol STEP 2

If SBP 140-159 mm Hg and DBP 90-99 mm Hg- Check BP on a different day, if still elevated start treatment

**Do not start chlorthalidone for adults age above 70 yrs. Refer to physician

Basic Investigations for all HT patient at least once in a year

Patients with BP under control may be given medications for upto 3 months

Advice for Lifestyle Modification must include

- Avoid Alcohol and Tobacco including secondhand Smoke
- Obese- weight reduction
- Eat healthy diet- a) Eat atleast 5 servings of vegetables and fruits b) use healthy oils such as Sesame, Sunflower, Olive safflower etc., c) avoid added sugars in cakes, cookies, sweets, fizzy drinks, etc. d) eat fish or food rich in omega3 fatty acids, e) limit red meat, f) eat nuts, peas, whole grains, food rich in potassium like spinach, fruits, yoghurt, etc.,
- Eat less salt (less than one teaspoon or 5gm/day)
- Exercise at least 150 minutes per week

Meghalaya Hypertension Treatment Protocol

- Measure Blood Pressure of all adults above 30yrs of age.
- Blood pressure $\leq 120/80$ mm Hg, advise BP monitoring at least once in a year.
- Systolic Blood pressure >120 to <140 mm Hg and/or diastolic blood pressure >80 to <90 mm Hg, advise lifestyle modification.
- *High BP: SBP ≥ 140 mm Hg and/or DBP ≥ 90 mmHg
- **Check for treatment compliance at each visit before titration of dose or addition of drugs and advice life style modification for all patients.

Steps:

		Coexisting Condition	Treatment Modification
1	If BP is high* Prescribe Amlodipine 5mg once daily		
2	After one month, measure BP again. If still high Prescribe FDC (Amlodipine 5mg + Telmisartan 40mg) once daily	Pregnant women	Obstetric consultation DO NOT give ACE Inhibitors, ARB, Diuretics, Statins. Calcium channel blockers (Amlodipine) may be used.
3	After one month, measure BP again. If still high Prescribe Amlodipine 5mg + FDC (Telmisartan 40mg+ Hydrochlorothiazide 12.5mg) once daily	Diabetes without complications	Start Atorvastatin 20mg Treatment of diabetes and monitoring of blood glucose as per protocol
4	After one month, measure BP again. If still high Prescribe Amlodipine 10mg + FDC (Telmisartan 40mg+ Hydrochlorothiazide 12.5mg) once daily	Chronic Kidney Disease	Refer to specialist
5	After one month, measure BP again, Check patient is taking medicine correctly and regularly. If yes, refer to specialist for consultation	Heart Failure	Refer to specialist

Notes for treatment

- * If SBP ≥ 180 mmHg and DBP ≥ 110 mmHg – Refer to specialist after initiating treatment.
- If SBP 160-179 mmHg and DBP 100- 109 mmHg- Start treatment on the same day. Treatment may be initiated at protocol STEP 2.
- If SBP 140-159 mm Hg and DBP 90- 99mm Hg- Check BP on a different day, if still elevated start treatment
- Patients with BP under control may be given medications for upto 3 months.
- Suggested Investigation for Serum Creatinine and Potassium before starting Telmisartan

Advice for Lifestyle Modification –



Avoid Alcohol and Tobacco including second hand Smoke



Eat less salt (less than one teaspoon or 5gm/day)



Obese- weight reduction



Eat healthy diet –



Exercise regularly for at least 30 minutes per day or 150 minutes per week

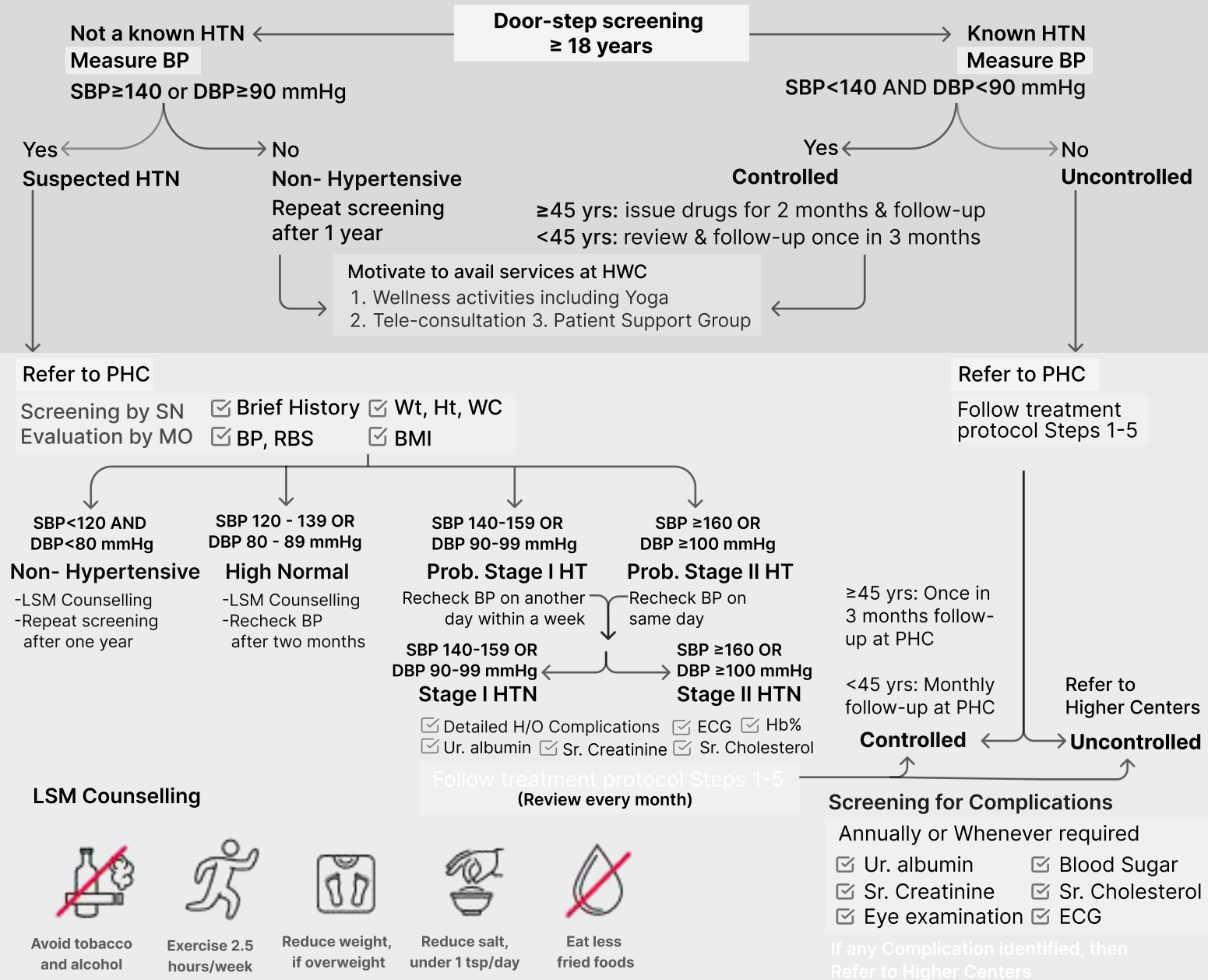


- Eat at least 5 servings of vegetables and fruits
- Use healthy oils such as Sesame, Sunflower, safflower etc.,
- Avoid added sugars in cakes, cookies, sweets, fizzy drinks, etc.
- Eat fish or food rich in omega3 fatty acids,
- Limit red meat,
- Limit consumption of foods containing high amounts of saturated fats,
- Reduce fat intake by changing the way food is cooked- remove the fatty part of meat, use vegetable oil for cooking, steam or bake instead of frying.

National Programme for Prevention and Control of Non-Communicable Diseases, NHM, Meghalaya



Comprehensive Stepwise Approach for Hypertension Management at Primary care level



BP Measurement Checklist

Measure blood pressure of all adults ≥ 18 years



Ensure the person has not exercised, had tea/coffee, or used tobacco in the last 30 minutes.
Person should rest comfortably and quietly for 5 minutes before the reading.

Hypertension treatment protocol

Without complications | Non-pregnant ≥ 18 years

High BP: SBP ≥ 140 OR DBP ≥ 90 mm Hg

Step 1 Prescribe Amlodipine 5mg
Review after 30 days, If still High BP

Step 2 Increase to Amlodipine 10mg
Review after 30 days, If still High BP

Step 3 Add Telmisartan 40mg
Review after 30 days, If still High BP

Step 4 Increase to Telmisartan 80mg
Review after 30 days, If still High BP

Step 5 Add Chlorthalidone 6.25mg
Review after 30 days, If still High BP

Check if the patient has been taking medications regularly and correctly. If yes, refer to higher centres.

Follow-up of complication management under MTM Doorstep services

- ✓ Physiotherapy
- ✓ Palliative care
- ✓ CAPD bag distribution

Note

- If SBP ≥ 180 or DBP ≥ 110 mmHg, refer patient to Higher centers
- Calibration of digital BP apparatus once in 3 months
- Dispense drugs for 30 days at PHCs

Hypertension Protocol



Government of Andaman
and Nicobar Islands

Measure blood pressure of **all adults** over 30 years

High BP: **SBP \geq 140** or **DBP \geq 90** mmHg

Check for compliance at each visit before titration of dose or addition of drugs

Step

1

If BP is high:*

Prescribe Amlodipine 5mg

Step

2

After 30 days measure BP again. If still high:

Increase to Amlodipine 10mg

Step

3

After 30 days measure BP again. If still high:

Add Telmisartan 40mg

Step

4

After 30 days measure BP again. If still high:

Increase to Telmisartan 80mg

Step

5

After 30 days measure BP again. If still high:

Add Chlorthalidone 12.5mg**

Step

6

After 30 days measure BP again. If still high:

Increase to Chlorthalidone 25mg**

...

After 30 days measure BP again. If still high:

Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

Pregnant women and women who may become pregnant

- ▲ DO NOT give Telmisartan or Chlorthalidone.
- Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
- Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of < 140/90 mmHg.

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

People with high CVD risk

- Consider aspirin and statin.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible.

* If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after starting treatment.
If SBP 160-179 or DBP 100-109, start treatment on the same day.

If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment.

Recommended investigations at initiation of therapy: Haemoglobin, blood sugar, urine analysis for proteinuria, serum creatinine.

** Hydrochlorothiazide can be used if Chlorthalidone is not available (25 mg starting dose, 50 mg intensification dose).

Lifestyle advice for all patients



Avoid tobacco
and alcohol



Exercise
2.5 hours/week



Reduce weight,
if overweight



Reduce salt,
under 1 tsp/day



Eat less
fried foods

- Eat 5 servings of fruits and vegetables per day.
- Avoid papads, chips, chutneys, dips, pickles etc.
- Use healthy oils like sunflower, mustard, or groundnut.
- Limit consumption of foods containing high amounts of saturated fats.
- Reduce weight if overweight.
- Reduce fat intake by changing how you cook:
 - Remove the fatty part of meat
 - Use vegetable oil
 - Boil, steam, or bake instead of fry
 - Limit reuse of oil for frying
- Avoid processed foods containing trans fats.
- Avoid added sugar.

Hypertension Protocol



Measure blood pressure of **all adults** over 30 years

High BP: **SBP \geq 140** or **DBP \geq 90** mmHg

Check for compliance at each visit before titration of dose or addition of drugs

Step

1

If BP is high:*

Prescribe Amlodipine 5mg

Step

2

After 30 days measure BP again. If still high:

Increase to Amlodipine 10mg

Step

3

After 30 days measure BP again. If still high:

Add Telmisartan 40mg

Step

4

After 30 days measure BP again. If still high:

Increase to Telmisartan 80mg

Step

5

After 30 days measure BP again. If still high:

Add Hydrochlorothiazide 12.5mg

Step

6

After 30 days measure BP again. If still high:

Increase to Hydrochlorothiazide 25mg

...

After 30 days measure BP again. If still high:

Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

Pregnant women and women who may become pregnant

- ▲ DO NOT give Telmisartan or Chlorthalidone.
- Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
- Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of < 140/90 mmHg.

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible.

* If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after starting treatment.

If SBP 160-179 or DBP 100-109, start treatment on the same day.

If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment.

Recommended investigations at initiation of therapy: Haemoglobin, blood sugar, urine analysis for proteinuria, serum creatinine.

Lifestyle advice for all patients



Avoid tobacco and alcohol



Exercise 2.5 hours/week



Reduce weight, if overweight



Reduce salt, under 1 tsp/day



Eat less fried foods

- Eat 5 servings of fruits and vegetables per day.
- Avoid papads, chips, chutneys, dips, pickles etc
- Use healthy oils like sunflower, safflower, groundnut, etc
- Limit consumption of foods containing high amounts of saturated fats (cheese, ice-cream, fatty meat).
- Reduce fat intake by changing how you cook:
 - Remove the fatty part of meat
 - Use vegetable oil
 - Boil, steam, or bake instead of fry
 - Limit reuse of oil for frying
- Avoid processed foods containing trans fats.
- Avoid excess sugar, carbonated/packaged drinks.

Hypertension Protocol



Measure blood pressure of **all adults** over 30 years of age

High BP: **SBP \geq 140** or **DBP \geq 90** mmHg

Check for compliance at each visit before titration of dose or addition of drugs

- Step 1

If BP is high:*

Prescribe Amlodipine 5mg
- Step 2

After 30 days measure BP again. If still high:

Increase to Amlodipine 10mg
- Step 3

After 30 days measure BP again. If still high:

Add Telmisartan 40mg
- Step 4

After 30 days measure BP again. If still high:

Increase to Telmisartan 80mg
- ...

After 30 days measure BP again. If still high:

Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

Pregnant women and women who may become pregnant

- ▲ DO NOT give Telmisartan or Hydrochlorothiazide.
 - Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
 - Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of < 140/90 mmHg.

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible

- * If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after starting treatment.
 - If SBP 160-179 or DBP 100-109, start treatment on the same day.
 - If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment.
- Recommended investigations at initiation of therapy: Haemoglobin, blood sugar, urine analysis for proteinuria, serum creatinine.

Lifestyle advice for all patients



Avoid tobacco and alcohol



Exercise 2.5 hours/week



Reduce weight, if overweight



Reduce salt, under 1 tsp/day



Eat less fried foods

- Eat 5 servings of fruits and vegetables per day.
- Avoid papads, chips, chutneys, dips, pickles etc.
- Use healthy oils like sunflower, safflower, groundnut, etc
- Limit consumption of foods containing high amounts of saturated fats (cheese, ice-cream, fatty meat).
- Reduce fat intake by changing how you cook:
 - Remove the fatty part of meat
 - Use vegetable oil
 - Boil, steam or bake instead of fry
 - Limit reuse of oil for frying
- Avoid processed foods containing trans fats.
- Avoid excess sugar, carbonated/packageged drinks.

Assam

Hypertension Protocol

- Measure blood pressure of **all adults** over 30 years of age
- Blood pressure $\leq 120/80$ mm Hg, advise BP monitoring at least once in a year
- Systolic Blood pressure >120 to <140 mm Hg and/or diastolic blood pressure >80 to <90 mm Hg, advise lifestyle modification with follow up every 3 months.

High BP: **SBP ≥ 140** and/or **DBP ≥ 90** mmHg

Check for compliance at each visit before titration of dose or addition of drugs

- Step 1** If BP is high:*
Prescribe Amlodipine 5 mg once daily
- Step 2** After 30 days measure BP again. If still high:
Change to Amlodipine 10 mg once daily
- Step 3** After 30 days measure BP again. If still high:
Add Telmisartan 40 mg ** to Amlodipine 10 mg once daily
- Step 4** After 30 days measure BP again. If still high:
Replace Telmisartan 40 mg with Telmisartan 80 mg and continue it with Amlodipine 10 mg once daily
- Step 5** After 30 days measure BP again. If still high:
Add Hydrochlorthizide 12.5 mg to Telmisartan 80 mg and Amlodipine 10 mg once daily
- ... After 30 days measure BP again. If still high:
Check if patient has been taking medicines regularly and correctly. If yes, refer to a higher centre

Pregnant women and women who may become pregnant

- ▲ DO NOT give Telmisartan or Hydrochlorothiazide or Chlorthalidone
- Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/ thiazide-like diuretics should not be given to pregnant women or to women of child bearing age not on effective contraception.
- Calcium channel blockers (CCB) can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of $< 140/90$ mmHg
- Monitoring of blood glucose and renal function tests every six weeks

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

People with high CVD risk (like Diabetes & Hypertension together)

- Consider aspirin and statin.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible.

- * If SBP ≥ 180 or DBP ≥ 110 , refer patient to a specialist after initiating treatment.
If SBP 160-179 or DBP 100-109, start treatment on the same day.
If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment.
- ** Please check Renal Function Test before initiating ARBs and after every 6 weeks of treatment at nearest FRU or District Hospital

Lifestyle advice for all patients


Moderate exercises like jogging/walking 3 kms/day


Reduce salt intake under 1 tsp/day \approx 5gm/day


Eat less fried foods

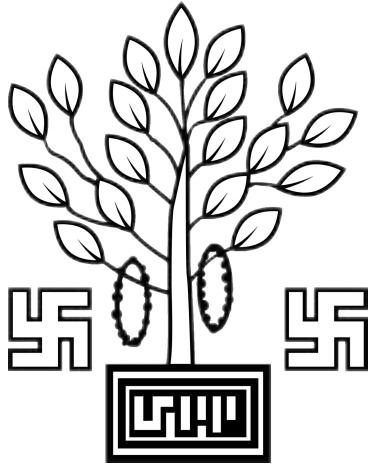

Maintain weight \leq (Height in cm-100) in kgs


Avoid tobacco and alcohol

- Eat 5 servings of fruits and vegetables per day.
- Limit consumption of papads, chips, chutneys, dips and pickles.
- Avoid packaged food products

- Reduce intake of fat by changing how you cook:
 - Remove fatty part of meat
 - Boil, steam or bake instead of frying
 - Limit use of oil while frying
 - Eat less oily food
- Avoid added sugar.

Hypertension Protocol



Measure blood pressure of **all adults** over 30 years

High BP: **SBP \geq 140** or **DBP \geq 90** mmHg

Check for compliance at each visit before titration of dose or addition of drugs

- Step 1

If BP is high: ^{*}
Prescribe Amlodipine 5mg
- Step 2

After 30 days [#] measure BP again. If still high:
Continue Amlodipine 5mg and add Telmisartan 40mg
- Step 3

After 30 days [#] measure BP again. If still high:
Continue Amlodipine 5mg and increase Telmisartan to 80mg
- Step 4

After 30 days [#] measure BP again. If still high:
Increase Amlodipine to 10mg ^{} and continue Telmisartan 80mg**
- Step 5

After 30 days [#] measure BP again. If still high:
Continue Amlodipine 10mg, Telmisartan 80mg and add Hydrochlorothiazide 25mg ^{*} (in the morning)**
- Step 6

After 30 days [#] measure BP again. If still high:
Continue Amlodipine 10mg, Telmisartan 80mg and increase Hydrochlorothiazide to 50mg (in the morning)
- ...

After 30 days [#] measure BP again. If still high:
Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

Pregnant women and women who may be pregnant (missed periods)

- ▲ DO NOT give Telmisartan or Chlorthalidone.
- Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
- Amlodipine can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of < 140/90 mmHg.

Heart attack in last 3 years

- Prescribe Metoprolol/Atenolol (25/50mg) and Amlodipine with initial treatment and refer to specialist.

Heart attack or stroke, ever

- Prescribe Aspirin (75mg) and Statin (10/20mg) and refer to specialist.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible.

Investigation

- Before initiating and several weeks after starting Telmisartan consider checking Serum Creatinine and Potassium.

* If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after starting treatment (Amlodipine 5mg OD).

If SBP 160-179 or DBP 100-109, start treatment on the same day.

If SBP 140-159 or DBP 90-99, check for 2nd reading after 3 working days and if still elevated, start treatment.

At every step before increasing the dose patient compliance needs to be verified. Dose of anti hypertension medication can be titrated at 15 days frequency if required.

** Amlodipine may cause ankle oedema in some patients. Reassure patient. Leg elevation or compression stockings may help in mild cases. Addition of Telmisartan can reduce oedema. If oedema persists: reduce Amlodipine dose/discontinue it.

*** Chlorthalidone 12.5mg can be used if Hydrochlorothiazide 25mg is not available.

Lifestyle advice for all patients



Avoid tobacco and alcohol



Exercise 30 min/day



Reduce weight, if overweight



Reduce salt, under 1 tsp/day



Eat less fried foods

- Eat 5 servings of fruits and vegetables per day.
- Avoid papads, chips, chutneys, dips, pickles etc
- Use healthy oils like sunflower, mustard, groundnut, etc
- Limit consumption of foods containing high amounts of saturated fats (cheese, ice-cream, fatty meat).
- Reduce fat intake by changing how you cook:
 - Remove the fatty part of meat
 - Use vegetable oil
 - Boil, steam, or bake instead of fry
 - Limit reuse of oil for frying
- Avoid processed foods containing trans fats.
- Avoid added sugar.

Hypertension Protocol



Measure blood pressure of **all adults** over 30 years

High BP: **SBP \geq 140** or **DBP \geq 90** mmHg

Check for compliance at each visit before titration of dose or addition of drugs

Step

1

If BP is high:*

Prescribe Amlodipine 5mg

Step

2

After 30 days measure BP again. If still high:

Add Enalapril 5mg

Step

3

After 30 days measure BP again. If still high:

Increase Enalapril to 10mg

Step

4

After 30 days measure BP again. If still high:

Increase Amlodipine to 10mg

Step

5

After 30 days measure BP again. If still high:

**Add Chlorthalidone 6.25mg/
HCTZ** 12.5mg**

Step

6

After 30 days measure BP again. If still high:

**Increase to Chlorthalidone 12.5mg/
HCTZ** 25mg**

...

After 30 days measure BP again. If still high:

Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

Pregnant women and women who may become pregnant

- ▲ DO NOT give Telmisartan or Chlorthalidone.
 - Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
 - Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of < 140/90 mmHg.

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

People with high CVD risk

- Consider aspirin and statin.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible.

- * If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after starting treatment.
If SBP 160-179 or DBP 100-109, start treatment on the same day.
If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment.
Recommended investigations at initiation of therapy: Haemoglobin, blood sugar, urine analysis for proteinuria, serum creatinine.

** HCTZ - Hydrochlorothiazide

Lifestyle advice for all patients



Avoid tobacco and alcohol



Exercise 2.5 hours/week



Reduce weight, if overweight



Reduce salt, under 1 tsp/day



Eat less fried foods

- Eat 5 servings of fruits and vegetables per day.
- Avoid papads, chips, chutneys, dips, pickles etc.
- Use healthy oils like sunflower, mustard, or groundnut.
- Limit consumption of foods containing high amounts of saturated fats.
- Reduce weight if overweight.
- Reduce fat intake by changing how you cook:
 - Remove the fatty part of meat
 - Use vegetable oil
 - Boil, steam, or bake instead of fry
 - Limit reuse of oil for frying
- Avoid processed foods containing trans fats.
- Avoid added sugar.

Hypertension Protocol



Measure blood pressure of **all adults** over 18 years

High BP: **SBP \geq 140** or **DBP \geq 90** mmHg

Check for compliance at each visit before titration of dose or addition of drugs

Step
1

If BP is high^{*}

Prescribe Amlodipine 5 mg and lifestyle management

Step
2

After 30 days[#] measure BP again. If still high:

Add Telmisartan 40mg

Step
3

After 30 days measure BP again. If still high:

Increase Telmisartan to 80mg

Step
4

After 30 days measure BP again. If still high:

Increase Amlodipine to 10mg

Step
5

After 30 days measure BP again. If still high:

Add Chlorthalidone 6.25mg

Step
6

After 30 days measure BP again. If still high:

Increase Chlorthalidone to 12.5mg

...

After 30 days measure BP again. If still high:

Refer patient to a specialist.

Women who are or could become pregnant

- ▲ DO NOT give Telmisartan or Chlorthalidone.
- ACE inhibitors, angiotensin receptor blockers (ARBs), thiazide/thiazide like diuretics and statins should not be given to pregnant women or to women of childbearing age not on highly effective contraception.
- Calcium channel blocker (CCB) or labetalol can be used in consultation with specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for BP target of <140/90.

Heart attack in last 3 years

- Add beta blocker to Amlodipine at initial treatment.

Heart attack or stroke ever

- Begin low-dose aspirin (75 mg) and statin.

Chronic kidney disease

- ACE inhibitor or ARB preferred if close clinical and biochemical monitoring possible after specialist opinion.

Diabetic Nephropathy patients

- Start treatment if SBP \geq 130 and/or DBP \geq 80. Aim for BP target of <130/80.

* If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after starting treatment. If SBP 160-179 or DBP 100-109, recheck BP >30 mins. Start treatment on same day. If SBP 140-159 or DBP 90-99, recheck on next day and if still elevated, start treatment.

If SBP \geq 160 and/or DBP \geq 100, ask to revisit in 15 days.

Recommended investigations at initiation of therapy: Haemoglobin, CBC, blood urea, creatinine, HbA1C, lipid profile, ECG, urine routine.

Optional investigations: Liver function tests (if patient obese BMI \geq 25), PCV (if Hb \geq 16gm/dl or if advised by medical officer), electrolytes (before starting 2nd dose of Telmisartan &/or patient age \geq 60), ultrasound (to r/o liver and kidney involvement), fundus examination.

Refer to specialist if young patient (<25 years); pregnancy; family history of renal disease; BP not controlled even after step 6; Hypertensive emergency SBP \geq 200 &/or DBP \geq 110; any complications detected.

Lifestyle advice for all patients



Eat less than 1 tsp of salt per day: avoid papads, chips, chutneys, dips, pickles, etc.



If overweight, lose weight.



Exercise regularly: 2.5 hours per week



Avoid alcohol and tobacco

- Limit intake of fried foods.
- Avoid foods with high amounts of saturated fats (e.g. cheese, ice cream, fatty meat).
- Avoid processed foods containing trans fats.
- Avoid added sugar.
- Adequate sleep for 6 to 8 hrs.

- Eat 5 servings of fruits and vegetables per day.
- Use healthy oils, e.g. sunflower, mustard or groundnut.
- Reduce fat intake by changing how you cook: remove the fatty part of meat; use vegetable oil; boil, steam or bake rather than fry; limit reuse of oil for frying.

Hypertension Protocol



Measure blood pressure of **all adults** over 30 years

High BP: **SBP \geq 140** or **DBP \geq 90** mmHg

Check for compliance at each visit before titration of dose or addition of drugs

Step
1

If BP is high:*

Prescribe Amlodipine 5mg

Step
2

After 30 days measure BP again. If still high:

Increase to Amlodipine 10mg

Step
3

After 30 days measure BP again. If still high:

Add Telmisartan 40mg

Step
4

After 30 days measure BP again. If still high:

Increase to Telmisartan 80mg

Step
5

After 30 days measure BP again. If still high:

Add Chlorthalidone 12.5mg**

Step
6

After 30 days measure BP again. If still high:

Increase to Chlorthalidone 25mg**

...

After 30 days measure BP again. If still high:

Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

Pregnant women and women who may become pregnant

- ▲ DO NOT give Telmisartan or Chlorthalidone.
- Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
- Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of < 140/90 mmHg.

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

People with high CVD risk

- Consider aspirin and statin.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible.

* If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after starting treatment.

If SBP 160-179 or DBP 100-109, start treatment on the same day.

If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment.

Recommended investigations at initiation of therapy: Haemoglobin, blood sugar, urine analysis for proteinuria, serum creatinine.

** Hydrochlorothiazide can be used if Chlorthalidone is not available (25 mg starting dose, 50 mg intensification dose).

Lifestyle advice for all patients



Avoid tobacco and alcohol



Exercise
2.5 hours/week



Reduce weight,
if overweight



Reduce salt,
under 1 tsp/day



Eat less
fried foods

- Eat 5 servings of fruits and vegetables per day.
- Avoid papads, chips, chutneys, dips, pickles etc.
- Use healthy oils like sunflower, mustard, or groundnut.
- Limit consumption of foods containing high amounts of saturated fats.
- Reduce fat intake by changing how you cook:
 - Remove the fatty part of meat
 - Use vegetable oil
 - Boil, steam, or bake instead of fry
 - Limit reuse of oil for frying
- Avoid processed foods containing trans fats.
- Avoid added sugar.

Hypertension Protocol



Measure blood pressure of **all adults** over 30 years

High BP: **SBP \geq 140** or **DBP \geq 90** mmHg

Check for compliance at each visit before titration of dose or addition of drugs

Step

1

If BP is high:*

Prescribe Amlodipine 5mg

Step

2

After 30 days measure BP again. If still high:

Increase to Amlodipine 10mg

Step

3

After 30 days measure BP again. If still high:

Add Telmisartan 40mg

Step

4

After 30 days measure BP again. If still high:

Increase to Telmisartan 80mg**

Step

5

After 30 days measure BP again. If still high:

Add Chlorthalidone 12.5mg***

...

After 30 days measure BP again. If still high:

Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

Pregnant women and women who may become pregnant

▲ DO NOT give Telmisartan or Chlorthalidone.

- Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
- Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of < 140/90 mmHg.

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

People with high CVD risk

- Consider aspirin and statin.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible.

* If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after starting treatment

If SBP 160-179 or DBP 100-109, start treatment on the same day

If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment

** Get estimations done for Blood Sugar, Urea, Creatinine, and Urine Protein before increasing Telmisartan dose. If any value is abnormal refer to a specialist. If the patient cannot consult a specialist, withdraw Telmisartan and add Chlorthalidone.

*** Hydrochlorothiazide 25 mg can be used if Chlorthalidone 12.5 mg is not available

Lifestyle advice for all patients



Avoid tobacco and alcohol



Exercise 2.5 hr/week



Reduce salt, under 1 tsp/day



Eat less fried foods

- Eat 5 servings of fruits and vegetables per day.
- Avoid papads, chips, chutneys, dips, and pickles.
- Use healthy oils: sunflower, mustard, or groundnut.
- Limit consumption of foods containing high amounts of saturated fats.

- Reduce weight if overweight.
- Reduce fat intake by changing how you cook:
 - Remove the fatty part of meat
 - Use vegetable oil
 - Boil, steam, or bake instead of fry
 - Limit reuse of oil for frying
- Avoid processed foods containing trans fats.
- Avoid added sugar.



Haryana

Hypertension Protocol

Measure blood pressure of **all adults** over 18 years of age

High BP: **SBP \geq 140** or **DBP \geq 90** mmHg

Check for compliance at each visit before titration of dose or addition of drugs

- Step 1

If BP is high:*

Prescribe Amlodipine 5mg
- Step 2

After 30[#] days measure BP again. If still high:

Increase to Amlodipine 10mg
- Step 3

After 30[#] days measure BP again. If still high:

Add Telmisartan 40mg
- Step 4

After 30[#] days measure BP again. If still high:

Increase to Telmisartan 80mg
- Step 5

After 30[#] days measure BP again. If still high:

Add Chlorthalidone 6.25mg**
- ...

After 30 days measure BP again. If still high:

Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

Pregnant women and women who may become pregnant

- ▲ DO NOT give Telmisartan or Chlorthalidone.
- Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
 - Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of < 140/90 mmHg.

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

People with high CVD risk (like Diabetes & Hypertension together)

- Consider aspirin and statin.

Chronic kidney disease

- ACEI or ARB preferred if eGFR >60 and if close clinical and biochemical monitoring is possible.

- * If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after initiating treatment.
If SBP 160-179 or DBP 100-109, start treatment on the same day.
If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment.
- # Dose of anti-hypertension medications can be titrated at 15 days frequency if required.
- ** Hydrochlorothiazide 12.5mg can be used if Chlorthalidone 6.25 mg is not available

Lifestyle advice for all patients



Exercise at least 30 mins/day 5 days/week



Reduce salt intake under 1 tsp/day \approx 5gm/day



Avoid fried and fast foods



Maintain normal body weight



Avoid tobacco and alcohol

- Eat 5 servings of fruits and vegetables per day.
- Avoid papads, chips, chutneys, dips, pickles etc.
- Use healthy oils like sunflower, mustard or groundnut.
- Limit consumption of foods containing high amounts of saturated fats.
- Reduce fat intake by changing how you cook:
 - Remove the fatty part of meat
 - Use vegetable oil
 - Boil, steam or bake instead of fry
 - Limit reuse of oil for frying
- Avoid processed foods containing trans fats.
- Avoid added sugar.

Hypertension Protocol

Measure blood pressure of **all adults over 30 years**



सत्यमेव जयते

Government of Jammu and Kashmir

High BP: **SBP \geq 140** or **DBP \geq 90** mmHg

Check for compliance at each visit before titration of dose or addition of drugs

Step 1

If BP is high:*

Prescribe Amlodipine 5mg

Step 2

After 30 days measure BP again. If still high:

Increase to Amlodipine 10mg

Step 3

After 30 days measure BP again. If still high:

Add Telmisartan 40mg

Step 4

After 30 days measure BP again. If still high:

Increase to Telmisartan 80mg

Step 5

After 30 days measure BP again. If still high:

Add Chlorthalidone 6.25mg**

...

After 30 days measure BP again. If still high:

Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

Pregnant women and women who may become pregnant

▲ DO NOT give Telmisartan or Chlorthalidone.

- Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
- Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of < 140/90 mmHg.

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

People with high CVD risk

- Consider aspirin and statin.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible.

* If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after starting treatment.

If SBP 160-179 or DBP 100-109, start treatment on the same day.

If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment.

Recommended investigations at initiation of therapy: Haemoglobin, blood sugar, urine analysis for proteinuria, serum creatinine.

** Hydrochlorothiazide 12.5mg can be used if Chlorthalidone 6.25mg not available.

Lifestyle advice for all patients



Avoid tobacco and alcohol



Exercise 2.5 hours/week



Reduce weight, if overweight



Reduce salt, under 1 tsp/day



Eat less fried foods

- Eat 5 servings of fruits and vegetables per day.
- Avoid papads, chips, chutneys, dips, pickles etc.
- Use healthy oils like sunflower, mustard, or groundnut.
- Limit consumption of foods containing high amounts of saturated fats.

- Reduce fat intake by changing how you cook:
 - Remove the fatty part of meat
 - Use vegetable oil
 - Boil, steam, or bake instead of fry
 - Limit reuse of oil for frying
- Avoid processed foods containing trans fats.
- Avoid added sugar.

Hypertension Protocol



Measure blood pressure of **all adults** over 30 years

High BP: **SBP \geq 140** or **DBP \geq 90** mmHg

Check for compliance at each visit before titration of dose or addition of drugs

Step

1

If BP is high:*

Prescribe Amlodipine 5mg

Step

2

After 30 days measure BP again. If still high:

Increase Amlodipine to 10mg

Step

3

After 30 days measure BP again. If still high:

Add Telmisartan 40mg

Step

4

After 30 days measure BP again. If still high:

Increase Telmisartan to 80mg

Step

5

After 30 days measure BP again. If still high:

Add Chlorthalidone 12.5mg**

Step

6

After 30 days measure BP again. If still high:

Increase Chlorthalidone to 25mg**

...

After 30 days measure BP again. If still high:

Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

Pregnant women and women who may become pregnant

- ▲ DO NOT give Telmisartan or Chlorthalidone.
 - Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
 - Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of < 140/90 mmHg.

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

People with high CVD risk

- Consider aspirin and statin.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible.

* If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after starting treatment

If SBP 160-179 or DBP 100-109, start treatment on the same day

If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment

Recommended investigations at initiation of therapy: Haemoglobin, blood sugar, urine analysis for proteinuria, serum creatinine

** Hydrochlorothiazide can be used if Chlorthalidone is not available (25mg starting dose, 50mg intensification dose)

Lifestyle advice for all patients



Avoid tobacco and alcohol



Exercise 2.5 hours/week



Reduce weight, if overweight



Reduce salt, under 1 tsp/day



Eat less fried foods

- Eat 5 servings of fruits and vegetables per day.
- Avoid papads, chips, chutneys, dips, pickles etc
- Use healthy oils like sunflower, safflower, groundnut, etc
- Limit consumption of foods containing high amounts of saturated fats (cheese, ice-cream, fatty meat).
- Reduce fat intake by changing how you cook:
 - Remove the fatty part of meat
 - Use vegetable oil
 - Boil, steam, or bake instead of fry
 - Limit reuse of oil for frying
- Avoid processed foods containing trans fats.
- Avoid excess sugar, carbonated/packaged drinks.

Hypertension Protocol



Measure blood pressure of **all adults** over 30 years

High BP: **SBP \geq 140** or **DBP \geq 90** mmHg

Check for compliance at each visit before titration of dose or addition of drugs

Step

1

If BP is high:*

Prescribe Amlodipine 5mg

Step

2

After 30 days measure BP again. If still high:

Increase to Amlodipine 10mg

Step

3

After 30 days measure BP again. If still high:

Add Telmisartan 40mg

Step

4

After 30 days measure BP again. If still high:

Increase to Telmisartan 80mg

Step

5

After 30 days measure BP again. If still high:

Add Chlorthalidone 12.5mg**

Step

6

After 30 days measure BP again. If still high:

Increase to Chlorthalidone 25mg**

...

After 30 days measure BP again. If still high:

Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

Pregnant women and women who may become pregnant

- ▲ DO NOT give Telmisartan or Chlorthalidone.
 - Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
 - Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of < 140/90 mmHg.

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

People with high CVD risk

- Consider aspirin and statin.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible.

* If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after starting treatment

If SBP 160-179 or DBP 100-109, start treatment on the same day

If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment

** Hydrochlorothiazide can be used if Chlorthalidone is not available (25mg starting dose, 50mg intensification dose). Recommended investigations at initiation of therapy: Haemoglobin, blood sugar, urine.

Lifestyle advice for all patients



Avoid tobacco and alcohol



Exercise 2.5 hours/week



Reduce weight, if overweight



Reduce salt, under 1 tsp/day



Eat less fried foods

- Eat 5 servings of fruits and vegetables per day.
- Avoid papads, chips, chutneys, dips, pickles etc.
- Use healthy oils like sunflower, mustard, or groundnut.
- Limit consumption of foods containing high amounts of saturated fats.
- Reduce weight if overweight.
- Reduce fat intake by changing how you cook:
 - Remove the fatty part of meat
 - Use vegetable oil
 - Boil, steam, or bake instead of fry
 - Limit reuse of oil for frying
- Avoid processed foods containing trans fats.
- Avoid added sugar.



Government of Kerala

Hypertension Protocol

Screen **all adults** over 18 years.

High BP: **SBP > 140** or **DBP > 90** mmHg

Step
1

If BP is high

Check S. Creatinine and Urine Protein

Start on lifestyle modifications for 3 months. Review every month.

If BP is high at monthly review, start on drug treatment

Step
2

Review in 3 months. If BP is high

Start Amlodipine 5mg (CCB)

Step
3

Review in 1 month. If BP is high

Add Telmisartan 40mg (ARB)

Along with Amlodipine 5mg

Step
4

Review in 1 month. If BP is high

Intensify Telmisartan to 80mg

Along with Amlodipine 5mg

Step
5

Review in 1 month. If BP is high

Intensify Amlodipine to 10mg

Along with Telmisartan 80mg

Step
6

Review in 1 month. If BP is high

Add Chlorthalidone 12.5mg (diuretic)

Along with Amlodipine 10mg and Telmisartan 80mg

...

Review in 1 month. If BP is high

Confirm **compliance** to treatment. If confirmed, **refer** to specialist.

Blood pressure measurements

At least 2 readings at an interval of 2 minutes. If readings differ by more than 5mm Hg, take a third reading. The lower of the readings should be taken as the representative SBP and DBP.

If SBP \geq 180 and/or DBP \geq 110

Refer immediately to higher centre after starting treatment.

If SBP \geq 160-179 and/or DBP \geq 100-109

- Do basic investigations: ECG, S. creatinine.
- Start on lifestyle modifications.
- Start drug treatment.

If SBP \geq 140-159 and/or DBP \geq 90-99

Start on lifestyle modifications.

Measuring blood pressure

- Use a mercury sphygmomanometer or electronic digital oscillometric device that is validated using a standard protocol and calibrated regularly.
- Patient should relax for 5 minutes before measurement.
- Patient should not have had caffeine in the past hour or smoked in the past 30 minutes.
- Patient should be seated comfortably with back supported, arm at heart level, and legs uncrossed.
- Appropriate cuff size: length of bladder 80% of arm circumference, width 40% of arm circumference.

Lifestyle modification

All patients require lifetime lifestyle modification.



Change diet

Salt restricted (<5g/day), low-fat diet.



Reduce weight

Target BMI 18.5 - 22.9 kg/m²



Regular exercise

Moderate intensity, 30 minutes, 5 days a week



Alcohol and Smoking

Avoid unhealthy intake of alcohol. Stop smoking.

Hypertension Protocol



Measure blood pressure of **all adults** over 18 years

High BP: **SBP \geq 140** or **DBP \geq 90** mmHg

- Step 1** If BP is high:*

Prescribe Amlodipine 5mg
- Step 2** After 30 days, measure BP again. If still high:

Increase to Amlodipine 10mg
- Step 3** After 30 days, measure BP again. If still high:

Add Telmisartan 40mg
- Step 4** After 30 days, measure BP again. If still high:

Increase to Telmisartan 80mg**
- Step 5** After 30 days, measure BP again. If still high:

Add Chlorthalidone 12.5mg***
- Step 6** After 30 days, measure BP again. If still high:

Increase to Chlorthalidone 25mg***
- ...

After 30 days, measure BP again. If still high:

Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

* If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after starting treatment.

If SBP 160-179 or DBP 100-109, start treatment on the same day.

If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment.

** Get estimations done for Blood Sugar, Urea, Creatinine, and Urine Protein before increasing Telmisartan dose. If any value is abnormal refer to a specialist. If the patient cannot consult a specialist, withdraw Telmisartan and add Chlorthalidone.

*** Hydrochlorothiazide can be used if Chlorthalidone is not available (25 mg starting dose, 50 mg intensification dose).

Pregnant women and women who may become pregnant

- ▲ DO NOT give Telmisartan or Chlorthalidone.
 - Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
 - Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of < 140/90 mmHg.

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

People with high CVD risk

- Consider aspirin and statin.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible.

Lifestyle advice for all patients



Avoid tobacco and alcohol



Exercise 2.5 hr/week



Reduce salt, under 1 tsp/day



Eat less fried foods

Eat 5 servings of fruits and vegetables per day.

Avoid papads, chips, chutneys, dips, and pickles.

Use healthy oils: E.g. sunflower, mustard, or groundnut.

Limit consumption of foods containing high amounts of saturated fats.

Reduce weight if overweight.

Reduce fat intake by changing how you cook:

- Remove the fatty part of meat
- Use vegetable oil
- Boil, steam, or bake instead of fry
- Limit reuse of oil for frying

Avoid processed foods containing trans fats.

Avoid added sugar.

Hypertension Protocol



Measure blood pressure of **all adults** over 18 years

High BP: **SBP \geq 140** or **DBP \geq 90** mmHg

Check for compliance at each visit before titration of dose or addition of drugs

- Step 1** If BP is high*
Prescribe Amlodipine 5 mg + adherence counseling
- Step 2** After 30 days measure BP again. If still high:
Add Telmisartan 40mg**
- Step 3** After 30 days measure BP again. If still high:
Increase Telmisartan to 80mg
- Step 4** After 30 days measure BP again. If still high:
Increase Amlodipine to 10mg
- Step 5** After 30 days measure BP again. If still high:
Add Chlorthalidone 6.25mg
- Step 6** After 30 days measure BP again. If still high:
Increase Chlorthalidone to 12.5mg
- ... After 30 days measure BP again. If still high:
Check that patient has been taking drugs regularly and correctly. If so, refer patient to a specialist.

Women who are or could become pregnant

- ▲ DO NOT give Telmisartan or Chlorthalidone.
- ACE inhibitors, angiotensin receptor blockers (ARBs), thiazide/thiazide like diuretics and statins should not be given to pregnant women or to women of childbearing age not on highly effective contraception.
- Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for BP target of <140/90.

Heart attack in last 3 years

- Add beta blocker to Amlodipine at initial treatment.

Heart attack or stroke ever

- Begin low-dose aspirin (75 mg) and statin.

Chronic kidney disease

- ACE inhibitor or ARB preferred if close clinical and biochemical monitoring possible after specialist opinion.

* If SBP 140-159 and/or DBP 90-99, start on lifestyle management for one month prior to initiation of medications.

If SBP \geq 180 and/or DBP \geq 110 start treatment and refer to specialist immediately.

Recommended investigations at initiation of therapy: CBC, blood sugar, serum creatinine, electrolytes (optional). If S creatinine >1.5 mg, refer to specialist.

** If Telmisartan not available: replace with Enalapril 5 mg (initiation dose) and 10 mg (intensification dose).

Lifestyle advice for all patients



Eat less than 1 tsp of salt per day: avoid papads, chips, chutneys, dips, pickles, etc.



If overweight, lose weight.



Exercise regularly: 2.5 hours per week



Avoid alcohol and tobacco

- Limit intake of fried foods.
- Avoid foods with high amounts of saturated fats (e.g. cheese, ice cream, fatty meat).
- Avoid processed foods containing trans fats.
- Avoid added sugar.

- Eat 5 servings of fruits and vegetables per day.
- Use healthy oils: polyunsaturated and monounsaturated oils.
- Reduce fat intake by changing how you cook: remove the fatty part of meat; use vegetable oil; boil, steam or bake rather than fry; limit reuse of oil for frying.

Manipur

Hypertension Treatment Protocol

Measure blood pressure of **all adults over 18 years** of age

High BP: SBP \geq 140 or DBP \geq 90 mmHg

(in case of SC-HWC refer the patient to MO at PHC/CHC or perform tele consultation for confirmation of diagnosis, initiation of treatment or dose escalation)

Check for compliance at each visit before titration of dose or addition of drugs

**Step
1**

If BP is high:*

Start Tab **Amlodipine 5mg OD**
+ Counsel for lifestyle modification and medicine compliance

**Step
2**

After 30 days measure BP again. If still high:

Change to **Fixed-dose combination Tab (Amlodipine 5mg + Telmisartan 40mg) OD**

**Step
3**

After 30 days measure BP again. If still high:

Intensify the Telmisartan to 80 mg by prescribing **One Fixed-dose combination Tab (Amlodipine 5mg + Telmisartan 80mg) OD**

**Step
4**

After 30 days measure BP again. If still high:

Intensify the Amlodipine to 10 mg by prescribing **Two Fixed-dose combination Tab i.e. 2 tab x (Amlodipine 5mg + Telmisartan 40mg) = (Amlodipine 10 mg + Telmisartan 80 mg) OD**

**Step
5**

After 30 days measure BP again. If still high:

Add Tab **Chlorthalidone 12.5 mg** with **Two Fixed-dose combination Tab i.e. 1 Tab Chlorthalidone PLUS 2 tab x (Amlodipine 5mg + Telmisartan 40mg) = (Amlodipine 10 mg + Telmisartan 80 mg) OD**

...

After 30 days measure BP again. If still high:

Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

*Hypertensive urgency

(If the BP is SBP $>$ 180 and or DBP $>$ 110 mmHg)

*Hypertensive emergency

(If the BP is SBP $>$ 180 and or DBP $>$ 110 mm Hg PLUS any evidence of acute organ damage mainly Brain, Heart, Kidney or EYE)

At HWC

Repeat measurement in 15-20 minutes in both arms to confirm the BP reading

Check for any sign/symptom of acute organ damage

Refer the patient to PHC/CHC for further evaluation

At PHC

Initiate therapy before referring to higher center

CVD RISK FACTOR ASSESSMENT

At HWC

H/o smoking, high salt intake, alcohol intake, family history, chest pain, frequent pain killers, breathlessness, swelling of feet, diminished vision

On examination

BMI $>$ 25, abdominal circumference, Oedema, engorged neck veins

Lab evaluation

Hb, RBS, Urine protein

At PHC/CHC level

Detail clinical evaluation of diabetes, stroke, MI etc

At PHC/CHC level

HB,RBS,ECG, Lipid profile, Sr Creatinine, Fundus of eye examination, CXR

Lifestyle measure

Encourage to do min 30 min physical activity daily for atleast 5 days /week.

At HWC

offer the patient to join various YOGA/WELLNESS activities at HWC.

Encourage to stop smoking, reduce alcohol intake, low dietary salt intake, increase fruits & vegetable consumption. Refer to tobacco cessation center if required.

- This protocol may not be eligible for special cases like pregnant women, h/o heart attack in last 3 years or stroke, Diabetes Mellitus, chronic kidney disease
- Such cases should be referred to the higher centers

Hypertension Protocol



Measure blood pressure of **all adults** over 30 years of age

High BP: **SBP \geq 140** or **DBP \geq 90** mmHg

Check for compliance at each visit before titration of dose or addition of drugs

Step 1

If BP is high:*

Prescribe Amlodipine 5mg

Step 2

After 30 days measure BP again. If still high:

Increase to Amlodipine 10mg

Step 3

After 30 days measure BP again. If still high:

Add Telmisartan 40mg

Step 4

After 30 days measure BP again. If still high:

Increase to Telmisartan 80mg

Step 5

After 30 days measure BP again. If still high:

Add Hydrochlorothiazide 12.5mg

...

Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

Pregnant women and women who may become pregnant

▲ DO NOT give Telmisartan or Hydrochlorothiazide.

- Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
- Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of < 140/90 mmHg.

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

People with high CVD risk (like Diabetes & Hypertension together)

- Consider aspirin and statin.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible.

* If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after initiating treatment.

If SBP 160-179 or DBP 100-109, start treatment on the same day.

If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment.

Lifestyle advice for all patients



Exercise at least 30 mins/day 5 days/week



Reduce salt intake under 1 tsp/day \approx 5gm/day



Avoid fried and fast foods



Maintain normal body weight



Avoid tobacco and alcohol

- Eat 5 servings of fruits and vegetables per day.
- Avoid papads, chips, chutneys, dips, pickles etc.
- Use healthy oils like sunflower, mustard or groundnut.
- Limit consumption of foods containing high amounts of saturated fats.

- Reduce fat intake by changing how you cook:
 - Remove the fatty part of meat
 - Use vegetable oil
 - Boil, steam or bake instead of fry
 - Limit reuse of oil for frying
- Avoid processed foods containing trans fats.
- Avoid added sugar.



Nagaland

Hypertension Protocol



Measure blood pressure of **all adults** over 18 years

High BP: **SBP \geq 140** or **DBP \geq 90** mmHg

Check for compliance at each visit before titration of dose or addition of drugs

Step

1

If BP is high:*

Prescribe Amlodipine 5mg

Step

2

After 30 days measure BP again. If still high:

Add Telmisartan 40mg

Step

3

After 30 days measure BP again. If still high:

Increase Telmisartan to 80mg

Step

4

After 30 days measure BP again. If still high:

Increase Amlodipine to 10mg

Step

5

After 30 days measure BP again. If still high:

Add Chlorthalidone 12.5mg**

Step

6

After 30 days measure BP again. If still high:

Increase Chlorthalidone to 25mg**

...

After 30 days measure BP again. If still high:

Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

Women who are or could become pregnant

- ▲ DO NOT give Telmisartan or Chlorthalidone.
 - Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
 - Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of < 140/90 mmHg.

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

People with high CVD risk

- Consider aspirin and statin.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible.

* If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after starting treatment.

If SBP 160-179 or DBP 100-109, start treatment on the same day.

If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment.

** Hydrochlorothiazide can be used if Chlorthalidone is not available (25 mg starting dose, 50 mg intensification dose).

Lifestyle advice for all patients



Avoid tobacco and alcohol



Exercise 2.5 hours/week



Reduce weight, if overweight



Reduce salt, under 1 tsp/day



Eat less fried foods

- Eat 5 servings of fruits and vegetables per day.

- Avoid papads, chips, chutneys, dips, and pickles.

- Use healthy oils: E.g. sunflower, mustard, or groundnut.

- Limit consumption of foods containing high amounts of saturated fats.

- Reduce fat intake by changing how you cook:

- Remove the fatty part of meat
- Use vegetable oil
- Boil, steam, or bake instead of fry
- Limit reuse of oil for frying

- Avoid processed foods containing trans fats.

- Avoid added sugar

Hypertension Protocol



Measure blood pressure of **all adults** over 30 years of age

High BP: **SBP \geq 140** or **DBP \geq 90** mmHg

Check for compliance at each visit before titration of dose or addition of drugs

- Step 1

If BP is high:*

Prescribe Amlodipine 5mg
- Step 2

After 30 days measure BP again. If still high:

Increase to Amlodipine 10mg
- Step 3

After 30 days measure BP again. If still high:

Add Telmisartan 40mg
- Step 4

After 30 days measure BP again. If still high:

Increase to Telmisartan 80mg
- Step 5

After 30 days measure BP again. If still high:

Add Hydrochlorothiazide 12.5mg
- ...

After 30 days measure BP again. If still high:

Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

Pregnant women and women who may become pregnant

- ▲ DO NOT give Telmisartan or Hydrochlorothiazide.
- Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
- Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of < 140/90 mmHg.

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible

- * If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after starting treatment.
- If SBP 160-179 or DBP 100-109, start treatment on the same day.
- If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment.
- Recommended investigations at initiation of therapy: Haemoglobin, blood sugar, urine analysis for proteinuria, serum creatinine.

Lifestyle advice for all patients



Avoid tobacco and alcohol



Exercise 2.5 hours/week



Reduce weight, if overweight



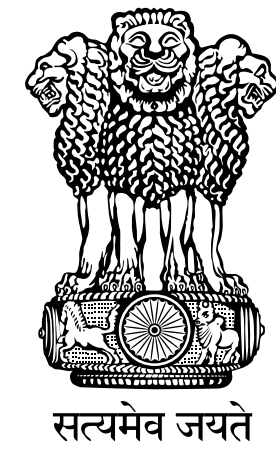
Reduce salt, under 1 tsp/day



Eat less fried foods

- Eat 5 servings of fruits and vegetables per day.
- Avoid papads, chips, chutneys, dips, pickles etc.
- Use healthy oils like sunflower, safflower, groundnut, etc
- Limit consumption of foods containing high amounts of saturated fats (cheese, ice-cream, fatty meat).
- Reduce fat intake by changing how you cook:
 - Remove the fatty part of meat
 - Use vegetable oil
 - Boil, steam or bake instead of fry
 - Limit reuse of oil for frying
- Avoid processed foods containing trans fats.
- Avoid excess sugar, carbonated/packageged drinks.

Hypertension Protocol



Government of Puducherry

Measure blood pressure of **all adults** over 30 years

High BP: **SBP \geq 140** or **DBP \geq 90** mmHg

Check for compliance at each visit before titration of dose or addition of drugs

Step

1

If BP is high:*

Prescribe Amlodipine 5mg

Step

2

After 30 days measure BP again. If still high:

Increase to Amlodipine 10mg

Step

3

After 30 days measure BP again. If still high:

Add Telmisartan 40mg

Step

4

After 30 days measure BP again. If still high:

Increase to Telmisartan 80mg

Step

5

After 30 days measure BP again. If still high:

Add Chlorthalidone 12.5mg**

Step

6

After 30 days measure BP again. If still high:

Increase to Chlorthalidone 25mg**

...

After 30 days measure BP again. If still high:

Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

Pregnant women and women who may become pregnant

- ▲ DO NOT give Telmisartan or Chlorthalidone.
- Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
- Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of < 140/90 mmHg.

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

People with high CVD risk

- Consider aspirin and statin.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible.

- * If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after starting treatment.
If SBP 160-179 or DBP 100-109, start treatment on the same day.
If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment.
Recommended investigations at initiation of therapy: Haemoglobin, blood sugar, urine analysis for proteinuria, serum creatinine.

- ** Hydrochlorothiazide can be used if Chlorthalidone is not available (25 mg starting dose, 50 mg intensification dose).

Lifestyle advice for all patients



Avoid tobacco and alcohol



Exercise 2.5 hours/week



Reduce weight, if overweight



Reduce salt, under 1 tsp/day



Eat less fried foods

- Eat 5 servings of fruits and vegetables per day.
- Avoid papads, chips, chutneys, dips, pickles etc.
- Use healthy oils like sunflower, mustard, or groundnut.
- Limit consumption of foods containing high amounts of saturated fats.
- Reduce fat intake by changing how you cook:
 - Remove the fatty part of meat
 - Use vegetable oil
 - Boil, steam, or bake instead of fry
 - Limit reuse of oil for frying
- Avoid processed foods containing trans fats.
- Avoid added sugar.

Hypertension Protocol

Measure blood pressure of **all adults** over 18 years



High BP: **SBP \geq 140** or **DBP \geq 90** mmHg

Step

1

If BP is high:*

Prescribe Amlodipine 5mg

Step

2

After 30 days[#] measure BP again. If still high:

Increase to Amlodipine 10mg

Step

3

After 30 days[#] measure BP again. If still high:

Add Telmisartan 40mg

Step

4

After 30 days[#] measure BP again. If still high:

Increase to Telmisartan 80mg

Step

5

After 30 days[#] measure BP again. If still high:

Add Chlorthalidone 12.5mg^{}**

Step

6

After 30 days[#] measure BP again. If still high:

Increase to Chlorthalidone 25mg^{}**

...

After 30 days measure BP again. If still high:

Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

Pregnant women and women who may become pregnant

- ▲ DO NOT give Telmisartan or Chlorthalidone.
 - Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
 - Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of < 140/90 mmHg.

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

People with high CVD risk

- Consider aspirin and statin.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible.

Lifestyle advice for all patients



Avoid tobacco and alcohol



Exercise 2.5 hr/week



Reduce salt, under 1 tsp/day



Eat less fried foods

Eat 5 servings of fruits and vegetables per day.

Avoid papads, chips, chutneys, dips, and pickles.

Use healthy oils: E.g. sunflower, mustard, or groundnut.

Limit consumption of foods containing high amounts of saturated fats.

Reduce weight if overweight.

Reduce fat intake by changing how you cook:

- Remove the fatty part of meat
- Use vegetable oil
- Boil, steam, or bake instead of fry
- Limit reuse of oil for frying

Avoid processed foods containing trans fats.

Avoid added sugar.

* If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after starting treatment.

If SBP 160-179 or DBP 100-109, start treatment on the same day.

If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment.

Dose of anti-hypertension medications can be titrated at 15 days frequency if required.

** Hydrochlorothiazide can be used if Chlorthalidone is not available (25 mg starting dose, 50 mg intensification dose).

Hypertension Protocol

Measure blood pressure of **all adults** over 18 years

High BP: **SBP \geq 140 or DBP \geq 90 mmHg**

Check for compliance at each visit before titration of dose or addition of drugs

Step

1

If BP is high:*

Prescribe Amlodipine 5mg

Step

2

After 30 days measure BP again. If still high:

Add Telmisartan 40mg

Step

3

After 30 days measure BP again. If still high:

Increase Telmisartan to 80mg

Step

4

After 30 days measure BP again. If still high:

Increase Amlodipine to 10mg

Step

5

After 30 days measure BP again. If still high:

Add Chlorthalidone 12.5mg**

Step

6

After 30 days measure BP again. If still high:

Increase Chlorthalidone to 25mg**

...

After 30 days measure BP again. If still high:

Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

Women who are or could become pregnant

- ▲ DO NOT give Telmisartan or Chlorthalidone.
 - Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
 - Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of < 140/90 mmHg.

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

People with high CVD risk

- Consider aspirin and statin.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible.

* If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after starting treatment

If SBP 160-179 or DBP 100-109, start treatment on the same day

If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment

** Hydrochlorothiazide can be used if Chlorthalidone is not available (25mg starting dose, 50mg intensification dose).

Lifestyle advice for all patients



Avoid tobacco and alcohol



Exercise 2.5 hr/week



Reduce salt, under 1 tsp/day



Eat less fried foods

- Eat 5 servings of fruits and vegetables per day.
- Avoid papads, chips, chutneys, dips, and pickles.
- Use healthy oils: sunflower, mustard, or groundnut.
- Limit consumption of foods containing high amounts of saturated fats.
- Reduce weight if overweight.
- Reduce fat intake by changing how you cook:
 - Remove the fatty part of meat
 - Use vegetable oil
 - Boil, steam, or bake instead of fry
 - Limit reuse of oil for frying
- Avoid processed foods containing trans fats.
- Avoid added sugar.

Hypertension Protocol



Measure blood pressure of **all adults** over 30 years

High BP: **SBP \geq 140** or **DBP \geq 90** mmHg

Check for compliance at each visit before titration of dose or addition of drugs

Step

1

If BP is high:*

Start on lifestyle modifications.
Review after 2 weeks.

Step

2

If BP is high at 2 weeks review:

Start Amlodipine 5mg/any
Calcium channel blocker (CCB)

Step

3

Review in 1 month. If BP is high:

Add Telmisartan 40mg (ARB)

Along with Amlodipine 5mg

Step

4

Review in 1 month. If BP is high:

Intensify Telmisartan to 80mg

Along with Amlodipine 5mg

Step

5

Review in 1 month. If BP is high:

Intensify Amlodipine to 10mg

Along with Telmisartan 80mg

Step

6

Review in 1 month. If BP is high:

Add Chlorthalidone 12.5mg

Along with Amlodipine 10mg and Telmisartan 80mg

...

Review in 1 month. If BP is high:

Confirm **compliance** to treatment. If confirmed, **refer** to specialist.

Pregnant women and women who may become pregnant

- ▲ DO NOT give Telmisartan or Chlorthalidone.
 - Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
 - Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of < 140/90 mmHg.

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

People with high CVD risk

- Consider aspirin and statin.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible.

* If SBP \geq 180 and/or DBP \geq 110

Refer immediately to higher centre after starting treatment.

If SBP \geq 160-179 and/or DBP \geq 100-109

- Do basic investigations: ECG, S. creatinine, Urine protein, RBS
- Start on lifestyle modifications
- Start drug treatment the same day

If SBP \geq 140-159 and/or DBP \geq 90-99

Start on lifestyle modifications for 2 weeks prior to initiation of medication

Recommended investigations at initiation of therapy: Haemoglobin, blood sugar, urine analysis for proteinuria, serum creatinine

Lifestyle advice for all patients



Avoid tobacco and alcohol



Exercise 2.5 hours/week



Reduce weight, if overweight



Reduce salt, under 1 tsp/day



Eat less fried foods

- Eat 5 servings of fruits and vegetables per day.
- Avoid papads, chips, chutneys, dips, pickles etc
- Use healthy oils like sunflower, safflower, groundnut, etc
- Limit consumption of foods containing high amounts of saturated fats (cheese, ice-cream, fatty meat).
- Reduce fat intake by changing how you cook:
 - Remove the fatty part of meat
 - Use vegetable oil
 - Boil, steam, or bake instead of fry
 - Limit reuse of oil for frying
- Avoid processed foods containing trans fats.
- Avoid excess sugar, carbonated/package drinks.

Hypertension Protocol



Measure blood pressure of **all adults** over 18 years

High BP: **SBP \geq 140** or **DBP \geq 90** mmHg

Check for compliance at each visit before titration of dose or addition of drugs

Step
1

If BP is high:*

Prescribe Amlodipine 5mg

Step
2

After 30 days measure BP again. If still high:

Increase to Amlodipine 10mg

Step
3

After 30 days measure BP again. If still high:

Add Telmisartan 40mg

Step
4

After 30 days measure BP again. If still high:

Increase to Telmisartan 80mg

Step
5

After 30 days measure BP again. If still high:

Add Chlorthalidone 12.5mg**

Step
6

After 30 days measure BP again. If still high:

Increase to Chlorthalidone 25mg**

...

After 30 days measure BP again. If still high:

Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

Pregnant women and women who may become pregnant

- ▲ DO NOT give Telmisartan or Chlorthalidone.
 - Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
 - Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of $< 140/90$ mmHg.

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible.

Lifestyle advice for all patients



Avoid tobacco and alcohol



Exercise 2.5 hr/week



Reduce salt, under 1 tsp/day



Eat less fried foods

* If SBP ≥ 180 or DBP ≥ 110 , refer patient to a specialist after starting treatment.

If SBP 160-179 or DBP 100-109, start treatment on the same day.

If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment.

** Hydrochlorothiazide can be used if Chlorthalidone is not available (25 mg starting dose, 50 mg intensification dose). Recommended investigations at initiation of therapy: Haemoglobin, blood sugar, urine analysis for proteinuria, serum creatinine.

Eat 5 servings of fruits and vegetables per day.

Avoid papads, chips, chutneys, dips, pickles etc

Use healthy oils: E.g. sunflower, mustard, groundnut, etc

Limit consumption of foods containing high amounts of saturated fats.

Reduce weight if overweight.

Reduce fat intake by changing how you cook:

- Remove the fatty part of meat
- Use vegetable oil
- Boil, steam, or bake instead of fry
- Limit reuse of oil for frying

Avoid processed foods containing trans fats.

Avoid added sugar.

Hypertension Protocol

Measure blood pressure of **all adults over 30 years** of age

High BP: **SBP \geq 140 or DBP \geq 90 mmHg**

Check for compliance at each visit before titration of dose or addition of drugs

- Step 1** If BP is high: *
Prescribe Amlodipine 5 mg
- Step 2** After 30 days measure BP again. If still high:
Prescribe Amlodipine 5 mg & Telmisartan 40 mg OD (FDC)**
- Step 3** After 30 days measure BP again. If still high:
Increase to Amlodipine 10 mg & Telmisartan 80 mg OD (FDC)**
- Step 4** After 30 days measure BP again. If still high:
Add Chlorthalidone 6.25 mg OD***
- Step 5** After 30 days measure BP again. If still high:
Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

Pregnant women and women who may become pregnant

- ⚠** DO NOT give Telmisartan or Chlorthalidone.
- Statins, ACE inhibitors, angiotensin receptor blockers (ARBs) & thiazide / thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
- Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of < 140/90 mmHg.

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

People with high CVD risk (like Diabetes & Hypertension together)

- Consider aspirin and statin.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible.

* If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after initiating treatment.

If SBP 160-179 or DBP 100-109, start treatment on the same day.

If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment.

* Before starting Telmisartan, Serum Creatinine is preferred

** If FDC not available, can be given as separate tablets
Amlodipine 5 mg and Telmisartan 40 mg

*** Recommend teleconsultation with physician at this step

Lifestyle advice for all patients



Exercise at least 30 mins/day 5 days/week



Reduce salt intake under 1 tsp/day \approx 5gm/day



Avoid fried and fast foods



Maintain normal body weight



Avoid tobacco and alcohol

- Eat 5 servings of fruits and vegetables per day.
- Avoid papads, chips, chutneys, dips, pickles etc.
- Use healthy oils like sunflower, mustard or groundnut.
- Limit consumption of foods containing high amounts of saturated fats.

- Reduce fat intake by changing how you cook:
 - Remove the fatty part of meat
 - Use vegetable oil
 - Boil, steam or bake instead of fry
 - Limit reuse of oil for frying
- Avoid processed foods containing trans fats.
- Avoid added sugar.

Hypertension Protocol



Measure blood pressure of **all adults** over 30 years

High BP: **SBP \geq 140** or **DBP \geq 90** mmHg

Check for compliance at each visit before titration of dose or addition of drugs

Step

1

If BP is high:*

Prescribe Amlodipine 5mg

Step

2

After 30 days measure BP again. If still high:

Add Telmisartan 40mg

Step

3

After 30 days measure BP again. If still high:

Increase Amlodipine to 10mg

Step

4

After 30 days measure BP again. If still high:

Increase Telmisartan to 80mg[#]

Step

5

After 30 days measure BP again. If still high:

Add Chlorthalidone 12.5mg^{}**

Step

6

After 30 days measure BP again. If still high:

Increase Chlorthalidone to 25mg^{}**

...

After 30 days measure BP again. If still high:

Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

Pregnant women and women who may become pregnant

- ▲ DO NOT give Telmisartan or Chlorthalidone.
 - Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
 - Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of < 140/90 mmHg.

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

People with high CVD risk

- Consider aspirin and statin.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible.

* If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after starting treatment.

If SBP 160-179 or DBP 100-109, start treatment on the same day.

If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment.

Recommended investigations at initiation of therapy: Haemoglobin, blood sugar, urine analysis for proteinuria, serum creatinine.

** Hydrochlorothiazide can be used if Chlorthalidone is not available (25mg starting dose, 50mg intensification dose)

Ensure serum creatinine result before increasing Telmisartan to 80mg

Lifestyle advice for all patients



Avoid tobacco and alcohol



Exercise 2.5 hours/week



Reduce weight, if overweight



Reduce salt, under 1 tsp/day



Eat less fried foods

- Eat 5 servings of fruits and vegetables per day.
- Avoid papads, chips, chutneys, dips, pickles etc
- Use healthy oils like sunflower, safflower, groundnut, etc
- Limit consumption of foods containing high amounts of saturated fats (cheese, ice-cream, fatty meat).
- Reduce fat intake by changing how you cook:
 - Remove the fatty part of meat
 - Use vegetable oil
 - Boil, steam, or bake instead of fry
 - Limit reuse of oil for frying
- Avoid processed foods containing trans fats.
- Avoid excess sugar, carbonated/packaged drinks.

Hypertension Protocol



Measure blood pressure of **all adults** over 30 years

High BP: **SBP \geq 140** or **DBP \geq 90** mmHg

Check for compliance at each visit before titration of dose or addition of drugs

Step

1

If BP is high:*

Prescribe Amlodipine 5mg

Step

2

After 30 days measure BP again. If still high:

Increase to Amlodipine 10mg

Step

3

After 30 days measure BP again. If still high:

Add Telmisartan 40mg

Step

4

After 30 days measure BP again. If still high:

Increase to Telmisartan 80mg

Step

5

After 30 days measure BP again. If still high:

Add Chlorthalidone 6.25mg**

Step

6

After 30 days measure BP again. If still high:

Increase to Chlorthalidone 12.5mg**

...

After 30 days measure BP again. If still high:

Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

Pregnant women and women who may become pregnant

- ▲ DO NOT give Telmisartan or Chlorthalidone
- Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception
- Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to a specialist

Diabetic patients

- Treat diabetes according to protocol
- Aim for a BP target of < 140/90 mmHg

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin

People with high CVD risk

- Consider aspirin and statin

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible

Referral criteria for patients

- Cardiovascular disease, chronic kidney disease, and difficult-to-control diabetes
- Suspected secondary hypertension
- Adverse events with protocol medications
- Women who are pregnant

* If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after starting treatment

If SBP 160-179 or DBP 100-109, start treatment on the same day

If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment

Recommended investigations at initiation of therapy: Haemoglobin, blood sugar, urine analysis for proteinuria, serum creatinine

** Hydrochlorothiazide can be used if Chlorthalidone not available (12.5mg starting dose, 25mg intensification dose)

Lifestyle advice for all patients



Avoid tobacco and alcohol



Exercise 2.5 hours/week



Reduce weight, if overweight



Reduce salt, under 1 tsp/day



Eat less fried foods

- Eat 5 servings of fruits and vegetables per day.

- Avoid papads, chips, chutneys, dips, pickles etc.

- Use healthy oils like sunflower, mustard, or groundnut.

- Limit consumption of foods containing high amounts of saturated fats.

- Reduce weight if overweight.

- Reduce fat intake by changing how you cook:

- Remove the fatty part of meat
- Use vegetable oil
- Boil, steam, or bake instead of fry
- Limit reuse of oil for frying

- Avoid processed foods containing trans fats.

- Avoid added sugar.