

www. CSASmartGroup.com Presents

Management of Hypertension Made Easy!

Clinical Case Scenarios to Manage Hypertension Easily!



Table of Contents

1. Hypertension Cases Made Easy For You With Examples

2. Get free training articles



Hypertension Cases Made Easy For You With Examples

Share with your friends!

Clinical Case Scenarios to Manage Hypertension Easily! (Part 2)

Note: Check this post first, if not already!

Hypertension: NICE Guidelines Made Easy!
(Part 1) ----->Click Here to Read More <-----

Example Case Scenarios to Rock Your Consultations

Definitions used in these clinical case scenarios following NICE guidelines, UK

Definitions

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 150/95 mmHg or higher.

Severe hypertension:

Clinic systolic blood pressure is 180 mmHg or higher or clinic diastolic blood pressure is 110 mmHg or higher.

White-coat effect:

A discrepancy of more than 20/10 mmHg between clinic and average daytime ABPM or average HBPM blood pressure measurements at the time of diagnosis.

Clinical case scenario: Jenny

Presentation: Jenny is 38 years old. She is attending for a routine appointment about her contraception, for which she uses a diaphragm.

Medical history From her records you notice that Jenny's blood pressure has increased since her last check twelve months ago.

She does not smoke, drinks 10-12 units of alcohol a week and has no notable medical history.

On examination: Jenny's first clinic blood pressure measurement is 158/94 mmHg. Her heart rate is 72 beats per minute and regular

Please note: when using automated devices to measure blood pressure, palpate the radial or brachial pulse before measuring blood pressure. If pulse irregularity is present, measure blood pressure manually using direct auscultation over the brachial artery.

You are considering a diagnosis of hypertension and therefore, take another reading in Jenny's other arm. There is no notable difference between readings.

Next steps for diagnosis

Question 1

What would you do next?

You would take Jenny's blood pressure a third time during the consultation. The third reading is 149/93 mmHg.

Question 2

You suspect hypertension – what would you do next?

Answer 2

You organise for Jenny to receive ambulatory blood pressure monitoring (ABPM) through your GP practice. If you are responsible for setting up the monitoring device, you ensure that at least two measurements per hour are taken during Jenny's usual waking hours (for example, between 8 am and 10 pm). You would use the average value of at least 14 measurements taken during Jenny's usual waking hours to confirm a diagnosis of hypertension. At the same time, you would also carry out investigations for target organ damage (such as left ventricular hypertrophy, chronic kidney disease and hypertensive retinopathy).

You would:

- test for the presence of protein in the urine by sending a urine sample for estimation of the albumin:creatinine ratio and test for haematuria using a reagent strip
- take a blood sample to measure plasma glucose, electrolytes, creatinine, estimated glomerular filtration rate, serum total cholesterol and HDL cholesterol
- examine the fundi for the presence of hypertensive retinopathy
- arrange for a 12-lead electrocardiograph to be performed. You would also carry out a formal assessment of cardiovascular risk (Jenny's clinic blood pressure must be used in the calculation of cardiovascular risk) using a cardiovascular risk assessment tool, in line with Identification and assessment of CVD risk in 'Lipid modification' (NICE clinical guideline 67).

- Additionally, you would also ascertain information about lifestyle in areas such as diet, exercise, alcohol, smoking and caffeine consumption and dietary sodium intake and offer appropriate lifestyle advice Record the results of all investigations and assessment in Jenny's notes.

Question 3

You identify her dietary sodium intake is greater than recommended levels. NICE PH25 on prevention of cardiovascular disease recommends that as part of preventing cardiovascular disease at a population level there should be a reduction in salt intake. By 2015, an adult's maximum intake of salt per day should not exceed 6g and by 2025, this should be reduced to 3g. Additionally, Jenny's exercise patterns are not in line with national guidance. What advice would you offer?

Answer 3

You would advise that healthy diet and regular exercise can reduce blood pressure. You would also encourage her to keep her dietary sodium intake low as this can reduce blood pressure. You should also inform her about local initiatives

Question 4

The result of Jenny's ABPM shows daytime average blood pressure of 145/92 mmHg.

What would your diagnosis and your next steps be?

Answer 4

This result shows that Jenny has stage 1 hypertension. If you had not already done so (answer 1.2), you would do the tests needed. You would use the results of the cardiovascular risk assessment to discuss prognosis and healthcare options with Jenny. Continue to ascertain information about her lifestyle in order to provide tailored lifestyle advice in accordance with the guideline on areas such as diet (including sodium and caffeine intake) and exercise and alcohol consumption.

Question 5

The results of the investigations for target organ damage and formal assessment of cardiovascular risk are:

- no evidence of target organ damage
- 10-year cardiovascular risk less than 20%.

Nothing abnormal was detected in the other investigations you organised.

What is your next step and what treatment and follow-up would you offer?

Answer 5

Further assessment: You would consider seeking specialist evaluation of secondary causes of hypertension and a more detailed assessment of potential target organ damage. This is because 10-year cardiovascular risk assessments can underestimate the lifetime risk of cardiovascular events in these people. Additionally, people under 40 years with stage 1 hypertension are less likely to have overt evidence of target organ damage or vascular disease.

Assessment result and treatment

Jenny does not have target organ damage, established cardiovascular disease, renal disease, diabetes or a 10-year cardiovascular risk equivalent to 20% or greater, therefore, you would not offer antihypertensive drug treatment.

You would continue to provide further tailored lifestyle advice (recommendation 1.4.1 – 1.4.9) periodically in accordance with the NICE clinical guideline. The NICE clinical guideline recommends that you would provide Jenny with an annual review of care to monitor blood pressure, provide her with support and discuss her lifestyle and symptoms.

Question 6

If Jenny had been eligible to receive antihypertensive drug treatment, what should you consider when prescribing antihypertensive drugs for a woman of child-bearing potential?

Answer 6

There is an increased risk of congenital abnormalities if women take angiotensin-converting enzyme (ACE) inhibitors or angiotensin II receptor blockers (ARBs) during pregnancy, and it is important that women of childbearing age know this. If the woman is planning a pregnancy she should discuss this with you. If a woman taking ACE inhibitors or ARBs becomes pregnant, these antihypertensive drugs should be stopped and alternatives offered.

Clinical case scenario: Philip

Presentation:

Philip is a 56-year-old male who presents to you with feelings of dizziness every time he stands up.

Medical history:

Philip has migraines and takes propranolol modified-release 160 mg daily, which has reduced the frequency. He attends the GP surgery's weight loss clinic. He has lost four stones in 12 months as part of a controlled weight loss programme .

On examination: Philip's ECG is normal and his blood pressure is 126/82 mmHg.

Question 1

What would you do next to investigate the cause of Philip's dizziness?

Answer

As he was seated for the first readings, you would ask Philip to stand up for one minute and then measure his blood pressure again.

Question 2

Philip's standing blood pressure is 90/50 mmHg. What would you do next?

Answer

You would review Philip's medication. His recent weight loss may mean that the dose of beta-blocker needs to be reduced.

You would note the postural hypertension in Philip's records so that colleagues measuring his blood pressure in the future are aware that they should measure his standing blood pressure, as well. If changes to the migraine prophylaxis do not relieve Philip's dizziness you would consider referral to a specialist.

Relevant recommendations

- If the systolic blood pressure falls by 20 mmHg or more when the person is standing:
- review medication
- measure subsequent blood pressures with the person standing
- consider referral to specialist care if symptoms of postural hypotension persist.

Clinical case scenario: Danny

Presentation:

Danny is a 39-year-old black male of Caribbean family origin. He presents to you with a sore ankle after 'going over' on it.

Medical history:

Danny has no significant past medical history. Previous presentations have been related to coughs and colds. He smokes 25 cigarettes a day, alcohol consumption around 20 units/week and has done for 18 years. He works shifts and says that he considers his diet to be unhealthy as a result.

On examination:

You conclude that Danny's ankle is sprained. As part of your routine examination, you measure his blood pressure.

The first measurement in his left arm is 150/92 mmHg, the second measurement in his right arm is 149/91 mmHg and the third measurement in his left arm is 151/92 mmHg.

Question 1

What would you do next?

Answer

You would record Danny's clinic blood pressure as 149/91 mmHg. In order to diagnose hypertension, you organise ambulatory blood pressure monitoring (ABPM) to confirm a diagnosis of hypertension. When organising this you ensure that at least two measurements per hour are taken during Danny's usual waking hours.

You would use the average value of at least 14 measurements taken during Danny's usual waking hours to confirm a diagnosis of hypertension. At the same time, you would also carry out investigations for target organ damage (such as left ventricular hypertrophy, chronic kidney disease and hypertensive retinopathy).

You would:

- test for the presence of protein in the urine by sending a urine sample for estimation of the albumin:creatinine ratio and test for haematuria using a reagent strip
- take a blood sample to measure plasma glucose, electrolytes, creatinine, estimated glomerular filtration rate, serum total cholesterol and HDL cholesterol
- examine the fundi for the presence of hypertensive retinopathy
- arrange for a 12-lead electrocardiograph to be performed.
- take a blood sample to measure plasma glucose, electrolytes, creatinine, estimated glomerular filtration rate, serum total cholesterol and HDL cholesterol
- examine the fundi for the presence of hypertensive retinopathy
- arrange for a 12-lead electrocardiograph to be performed.
- examine the fundi for the presence of hypertensive retinopathy
- arrange for a 12-lead electrocardiograph to be performed.
- arrange for a 12-lead electrocardiograph to be performed.

You would also carry out and a formal assessment of cardiovascular risk (Danny's clinic blood pressure must be used in the calculation of cardiovascular risk) using a cardiovascular risk assessment tool, in line with the recommendations on Identification and assessment of CVD risk in 'Lipid modification' (NICE clinical guideline 67).

Additionally, you would ascertain information about lifestyle in areas such as diet, exercise, alcohol, smoking and caffeine consumption and dietary sodium intake and offer appropriate lifestyle advice.

Given the history provided you ensure that you include lifestyle advice about smoking, alcohol consumption and diet and exercise.

Record the results of the investigations and assessments in Danny's notes.

Question 2

ABPM indicates that Danny's daytime average blood pressure is 147/89 mmHg. There is no evidence of target organ damage, cardiovascular disease, renal disease or diabetes.

You identify a 10-year cardiovascular risk equivalent to under 20%.

With this information, what is your diagnosis and what would you do next?

Answer

You would diagnose stage 1 hypertension. If you had not already done so, you would also do the investigations mentioned above.

You would use the results of the initial cardiovascular risk assessment to discuss prognosis and healthcare options with Danny.

You would also offer Danny lifestyle advice in accordance with the guideline on areas such as diet (including sodium and caffeine intake), exercise, alcohol consumption and smoking.

Question 3

The results of the tests you arranged (presence of protein in the urine, estimation of the albumin:creatinine ratio, haematuria, plasma glucose, electrolytes, creatinine, estimated glomerular filtration rate, cholesterol, hypertensive retinopathy, 12-lead electrocardiograph) have been returned.

All are normal with the exception of cholesterol which was total cholesterol = 5.6mmol/L, HDL cholesterol 1.1mmol/L.

What would you consider next in order to help you decide on the best management strategy for Danny?

Answer

You would consider seeking specialist evaluation of secondary causes of hypertension and a more detailed assessment of potential target organ damage. This is because 10-year cardiovascular risk assessments can underestimate the lifetime risk of cardiovascular events in these people.

Additionally, people under 40 years with stage 1 hypertension are less likely to have overt evidence of target organ damage or vascular disease.

You decide to refer Danny for the specialist assessment.

This is because 10-year cardiovascular risk assessments can underestimate the lifetime risk of cardiovascular events in these people.

Question 4

The results of the specialist assessment are returned. There are no secondary causes of hypertension; however, he was noted to have left ventricular hypertrophy and early evidence of impaired diastolic relaxation on his echocardiogram. The report suggests that these changes are most likely related to hypertension. Thus, Danny has evidence of target organ damage. What would you do next?

Answer

You would offer Danny treatment with a calcium-channel blocker, for example, amlodipine. You would also offer him appropriate information about the drug and unwanted side effects. You would see the results of the more detailed cardiovascular risk assessment, which included the cholesterol levels to discuss prognosis and healthcare options with Danny (detailed in answer 2).

As appropriate, you would repeat the lifestyle advice that was given in answers 1 and 2 in accordance with the guideline on areas such as diet (including sodium and caffeine intake), exercise, alcohol consumption and smoking.

As Danny's cholesterol level is marginally elevated, you would also enquire about the fat content of his diet and recommend that he reduces his fat intake.

You would note that his cholesterol needs rechecking. You would ask Danny to return to your practice in 4 weeks for a review of his blood pressure. Please note Danny's case is similar to Case 1 (Jenny).

Danny has been offered antihypertensive drug treatment whereas Mary was not. This is because Mary did not have target organ damage, established cardiovascular disease, renal disease, diabetes or a 10-year cardiovascular risk equivalent to 20% or greater whereas Danny has target organ damage.

Question 5

You have previously concluded that Danny's sprained ankle has healed and all swelling had cleared. Danny returns to the clinic and you notice both ankles are very swollen, which are new to him. This is likely to indicate that he is not tolerating his calcium-channel blocker. His clinic blood pressure is 135/86 mmHg.

Would you consider that his blood pressure has been controlled? What would you do next?

Answer

Danny's blood pressure has been controlled as his clinic blood pressure is now below 140/90 mmHg which is what you were aiming for. However, he was not tolerating the calcium channel blocker. You would change the calcium-channel blocker to a thiazide-like diuretic such as indapamide 2.5 mg once daily. You would arrange for him to return to the clinic to check his blood pressure again in 4 weeks.

You would arrange for him to return to the clinic to check his blood pressure again in 4 weeks.

Clinical case scenario: Doris

Presentation: Doris is an 81-year-old female non-smoker. She was diagnosed with stage 2 hypertension, by a practice colleague 1 month ago. It is thought the cause is probably arterial stiffening. Her clinic blood pressure was 174/100 mmHg and her ABPM average was 170/95 mmHg. She was not identified as having 'whitecoat' hypertension. She has now returned to the practice after your colleague requested she return for a follow-up appointment. Medical history Doris has no significant medical history.

Question 1

What would you have expected your colleague to have initiated with Doris?

Answer

You would have expected your colleague to have:

- Arranged and reviewed the results of all appropriate tests for target organ damage and cardiovascular risk assessment¹ in line with the NICE guideline.
- Provided tailored advice about lifestyle interventions
- Started treatment with a calcium-channel blocker.
- Offered Doris information and guidance about her diagnosis and treatment options.
- Asked Doris to return to your practice clinic in 1 month to check her blood pressure (this is the purpose of her current visit to you).

Question 2

From Doris' notes, you can see that your colleague had initiated the management plan in line with the NICE clinical guideline and as identified in answer 3.1. Doris is taking the calcium channel blocker.

You have checked adherence with step 1 treatment and do not believe there is anything you can do, for instance, modify dosing regimen, provide a record for her to monitor her medicine taking, to help enhance adherence further. Doris's total cholesterol is 4.8mmol/L and her HDL is 1.6mmol/L. Glucose is normal.

There is no left ventricular hypertrophy or atrial fibrillation on ECG. Her 10-year cardiovascular risk is greater than 20%.(using QRISK2) You measure her clinic blood pressure and it is 165/95 mmHg. What would you do next?

Answer

Doris's blood pressure is not controlled. Check her adherence to the regimen and provide interventions to specific needs. You would offer step 2 hypertensive treatment with the addition of an ACE or a low-cost ARB inhibitor. You would follow local protocols for checking bloods prior to commencing and following the initiation of the ACE inhibitor or low-cost ARB for a diagnosis of hypertension.

Question 3

Doris returns to the clinic one month later. Her clinic blood pressure is 154/90 mmHg and her blood results are acceptable. What would you do next?

Answer

You would review Doris's antihypertensive medication and ensure that it is at the optimal or best tolerated dose. You would also consider her adherence to the drug regimen and ensure that any factors that may reduce her adherence are managed. At her next clinic appointment, Doris's blood pressure is 145/85 mmHg. This is an acceptable blood pressure for a person over 80. Doris can stay on current treatment.

Clinical case scenario: Derek

Presentation:

Derek is a 53-year-old male. On examination, his clinic blood pressure is 176/108 mmHg. Additionally, you have identified left ventricular hypertrophy on ECG.

You are unable to confirm the diagnosis of hypertension with ambulatory blood pressure monitoring (ABPM) because Derek has refused it because he is a bus driver and it would interfere with his driving.

Question 1

What alternative test could you use to diagnose hypertension?

Answer

You could offer Derek home blood pressure monitoring (HBPM).

Question 2

When instructing Derek in how to use HBPM, what instructions should you give him and what measurements would you base your diagnosis on?

Answer

You should ensure that each blood pressure recording is based on two consecutive measurements taken at least one minute apart with Derek seated.

You should ask Derek to record his blood pressure twice daily (ideally in the morning and evening) and this should continue for at least four days and ideally for seven days.

To diagnose hypertension based on HBPM, you discard the measurements taken on the first day and take an average of all of the remaining measurements.

Question 3

The average HBPM result was 155/97 mmHg. You, therefore, note Derek has a 'white-coat effect'. However, despite this, his HBPM measurements indicate a diagnosis of stage 2 hypertension and he had target organ damage.

You offer lifestyle interventions in line with recommendations 1.4.1 to 1.4.9 in the guideline and start Derek on step 1 treatment.

What drug regimen would you offer Derek and how would you monitor his response to treatment?

Answer

You would offer Derek treatment with an ACE inhibitor or a low-cost ARB and use HBPM to monitor his response to treatment.

You would follow local protocols for checking bloods prior to commencing and following the initiation of the ACE inhibitor or low-cost ARB for a diagnosis of hypertension.

Question 4

Derek has returned to you with the results of his monitoring HBPM following step 1 treatment. During the past week, his average blood pressure was 150/94 mmHg.

What is the target blood pressure for HBPM when monitoring response to treatment and what would you do about this result?

Answer

For people aged under 80 the target HBPM blood pressure is below 135/85 mmHg. Derek's blood pressure is not controlled so you would offer him step 2 treatment with a calcium-channel blocker in addition to his current ACE inhibitor or low-cost ARB.

Question 5

When he returns to you 1 month later, Derek's HBPM result is still above 135/85 mmHg. What would you do next?

Answer

You would check Derek's adherence to treatment in line with recommendations of the NICE guideline. You would review his medication to ensure that step 2 treatment is optimal.

Question 6

Derek's medication adherence is good and step- 2 treatment is optimal. What would you do next?

Answer

You would offer Derek a thiazide-like diuretic in addition to his ACE inhibitor and

calcium-channel blocker.

Question 7

Derek returns to your clinic and his blood pressure is still not controlled. What would you do next?

Answer

You would check that Derek has received optimal medication at step 3 and reassess his adherence to his antihypertensive medication. You would ensure that Derek has been involved in treatment decisions throughout his care and that you have adapted your consultation style in order to facilitate this involvement. You would review Derek's knowledge, understanding and concerns about his antihypertensive medication and explore whether or not Derek believes that he needs the medication.

If you identify practical problems, you would consider interventions such as suggesting Derek records his medicine-taking and monitors his condition, simplifying the dosing regimen, using alternative packaging for the medicine or using a multi-compartment medicines system. You would ensure that Derek has received appropriate guidance and materials about the benefits of the drugs and unwanted side effects. You would repeat all of these actions on a regular basis when reviewing or prescribing antihypertensive drug treatment for Derek

Question 8

You conclude that Derek is adherent to his medication regime and that he is on the optimal doses of the ACE inhibitor, calcium channel blocker and thiazidelike diuretic. What would you do next?

Answer

You seek a specialist opinion for Derek. You anticipate he will be started on step 4 treatment.

Extra Case Scenarios

Case Scenario 1

- 49 yr old female with h/o occasional headaches • Caucasian • Smoker
- Family h/o premature CAD
- Routine BP (1st check ever) 180/110 • Routine blood tests are normal • Test(s)

to consider?

- ABPM day average 150/92
- Next steps ?

Case Scenario 2

- 62 yr lady. Asthma, OA++.
- New diagnosis of DM HBA1c 55, Urine ACR 4.5
- Non-smoker, BMI 31, ETOH 28 u/wk
- On Metformin, Losartan 100 mg od • 3xBP: 151/94, 162/100, 148/94
- Next steps??

Case Scenario 3

- 34 yr male. Afro- Caribbean decent
- Strong family h/o HT, CVD • BP 182/100, 176/110, 200/100
- Next steps?
- All tests for secondary HT negative
- Admitted cocaine use on regular basis

Case Scenario 4

- 68 yr lady with h/o HT, COPD. Angina. Prev TIA. eGFR 60
- On Biso 2.5, Amlodipine 5, Aspirin 75, Atorva 20 • BP X 3 : 168/97, 170/100, 160/92
- Commenced Amlodipine -10mg od, But had ankle swelling+++ , Dizziness+
- Lying 144/84, standing 132/80. HR 88 irregular.
- Next steps??
- ?AF • ?SPAF • ? Bisoprolol • ? Add Alpha blocker • ? Add diuretic
- ? Reduce/stop Amlodipine

Case Scenario 6

- 37years old lady
- Hypercholesterolemia , Hypertension, Anxiety
- Compliance with the maximum tolerated doses of antihypertensive drugs from

4 different classes:

- Metoprolol 50 mg twice daily, Ramipril 10 mg once daily, Amlodipine 10 mg once daily, Indapamide 2.5 mg once daily
- Clinic BP: 169/100 mm Hg
- Intolerant to Spironolactone & Clonidine
- Investigations for identifiable causes of hypertension was negative
- White-coat hypertension was ruled out with ABPM.
- Contributing lifestyle factors were mitigated to the extent possible over the 6 months prior
- with a low-salt diet,
- increased physical activity, moderation of alcohol intake
- Further options?

Case Scenario 7

- 84 yr male. HT, LVSD. Sedentary. Dementia. Previous Stroke. AF. Unsteady on feet. 2X falls with injury • AF 77 bpm, BP 90/50, Edema ++, Pallor+ • Biso 5 od, Candesartan 8 od, Frusemide 80 od, Spiro 12.5 od, Warfarin, Simvastatin 20 od
- Next steps??

Case Scenario 8

- 49 yr male with PKD, HT • Amlodipine 10 mg od, Ramipril 5 mg od • Dry Cough++ • Clinic BP 160/94 • eGFR 40
- Next steps??

Case Scenario 9

- 68 yr lady. HT X 10 yrs. PAF. Occasional palpitations
- Intolerant to Calcium blocker, ACE-I, Alpha blocker, Thiazide
- On Losartan 100 mg od, Indapamide 2.5 mg od • Normal routine bloods
- Multiple readings > 160-170 systolic, DBP 90-100

- Next steps??

Case Scenario 10

- 76 yr male. Recently discharged after hip surgery
- All medications stopped as blood loss++, AF
- Current HB 10.5. eGFR 35. K+ 5.0
- On Aspirin 75 od, Simvastatin 40 od. For review in 1-2/52
- BP 180/100, HR 89 AF, No symptoms
- Previously on Ramipril 10 od, HCTZ 2.5 od, Nebivolol 2.5 od
- Further steps??

Rock Your Consultations!

Get Instant Access to FREE 3 Part Training Videos!

Learn the biggest deadly mistake we make in our exams and get your personal Success Map to rock your consultation. [Click here to get instant access!](#)



SHARE THIS WITH YOUR FRIENDS!

Why not tell your friends about this great article? Who *couldn't* use a great resource to help them to rock their consultations?

Talk soon,

Hema
XOXO

Dr. Hema



Get free training articles

Now that you have learned the management of hypertension cases, why don't you visit our site for more content that you might find interesting?

[CLICK HERE](#)