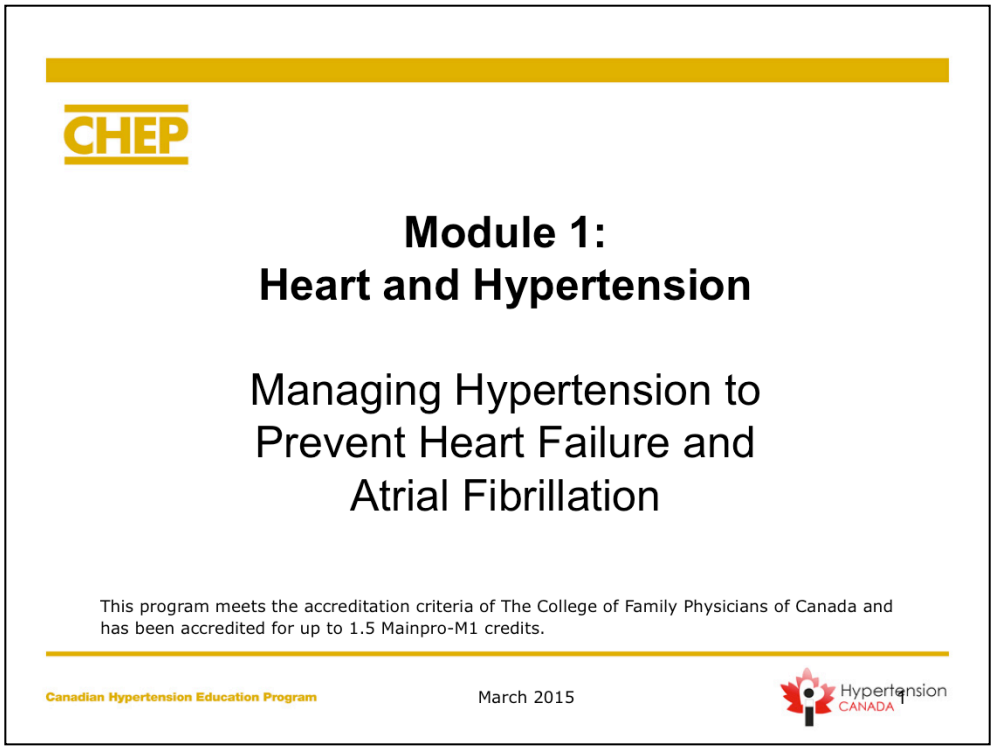
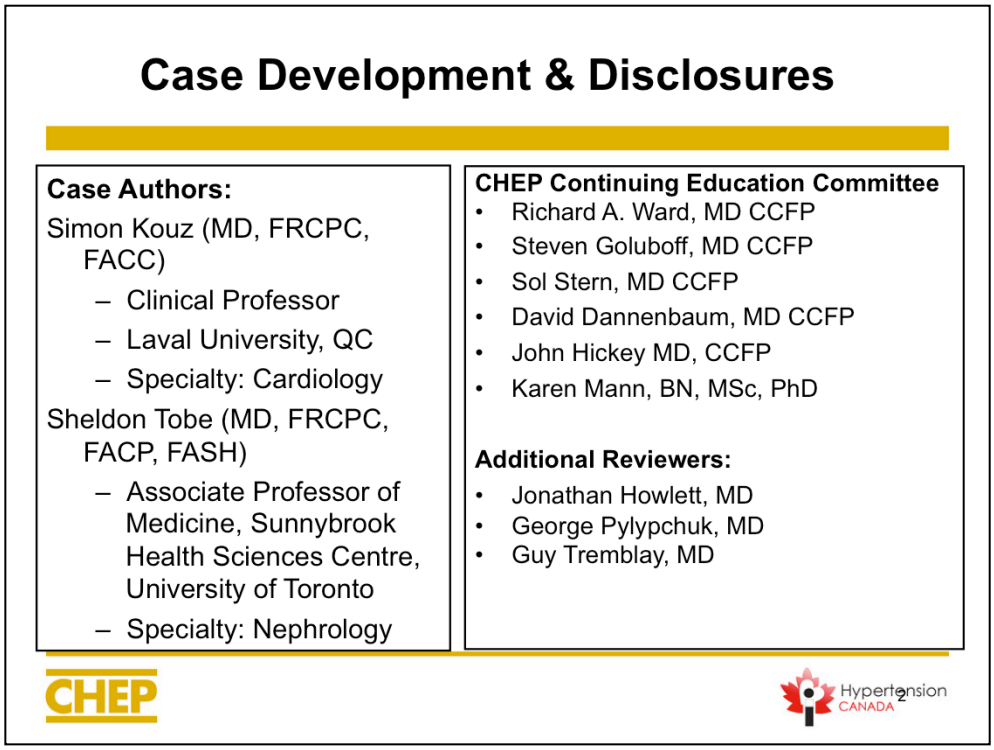
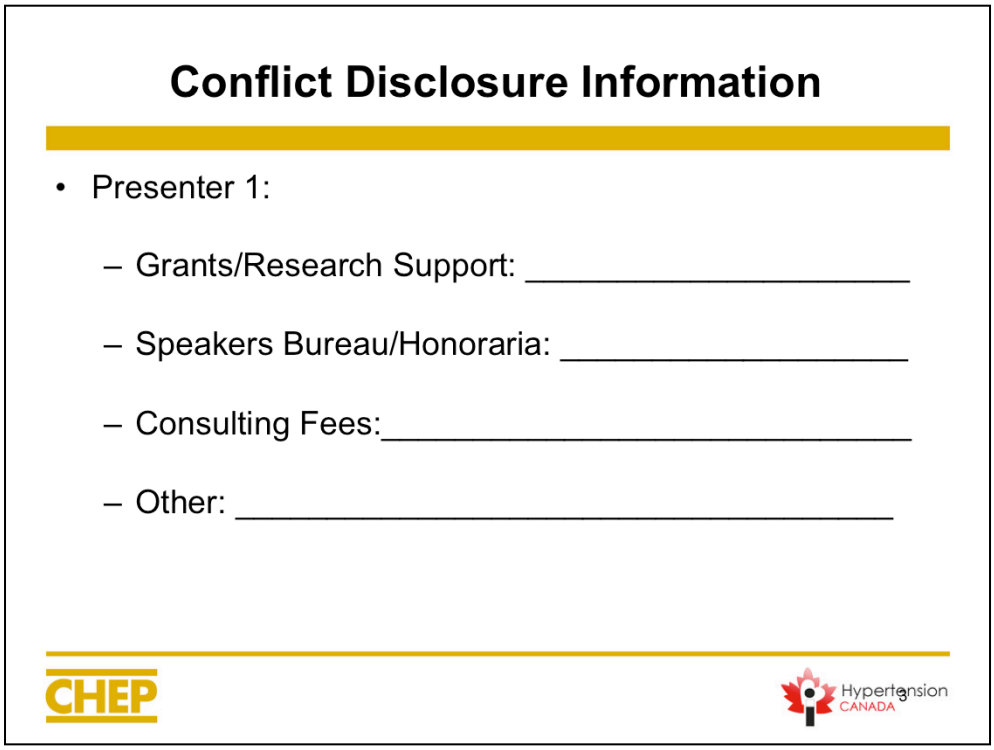


This program meets the accreditation criteria of The College of Family Physicians of Canada and has been accredited for up to 1.5 Mainpro-M1 credits



Instructions

Read out the case authors and their disclosure information.



Instructions

Fill out prior to the meeting and disclose to the group any real or apparent conflict(s) of interest that may have a direct bearing on the subject matter of this CME program (based on the guidelines below).

Allow other participants to introduce themselves and give a brief outline of their practice and interests.

Guidelines for Disclosure:

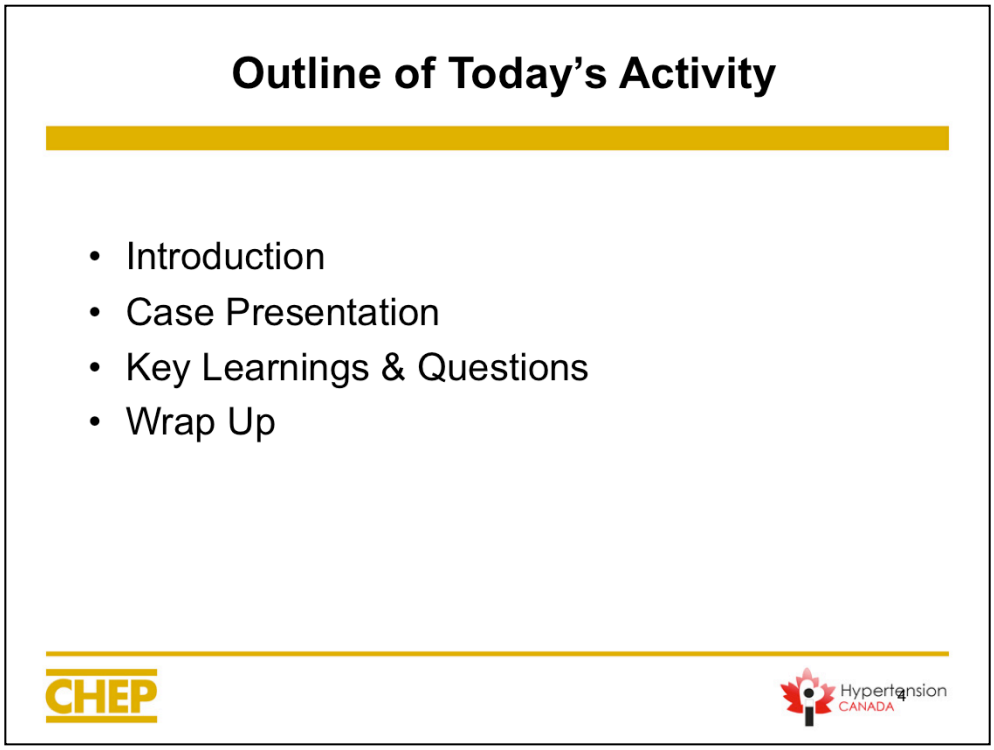
To ensure balance, independence, objectivity and scientific rigor, please disclose to program participants any real or apparent conflict(s) of interest that may have a direct bearing on the subject matter of this CME program. This pertains to relationships with pharmaceutical companies, biomedical device manufacturers, or other corporations whose products or services are related to the subject matter of this program. The intent of this disclosure is not to prevent a facilitator with a potential conflict of interest from making a presentation. It is merely intended that any potential conflict would be identified openly so that the participants may form their own judgments about the program with the full disclosure of the facts. It remains for the audience to determine whether the facilitator's outside interests may reflect a possible bias in either the exposition or the conclusions presented.

Example

•**Grants/Research Support:** PharmaCorp ABC

•**Speakers Bureau/Honoraria:** XYZ Biopharmaceuticals Ltd.

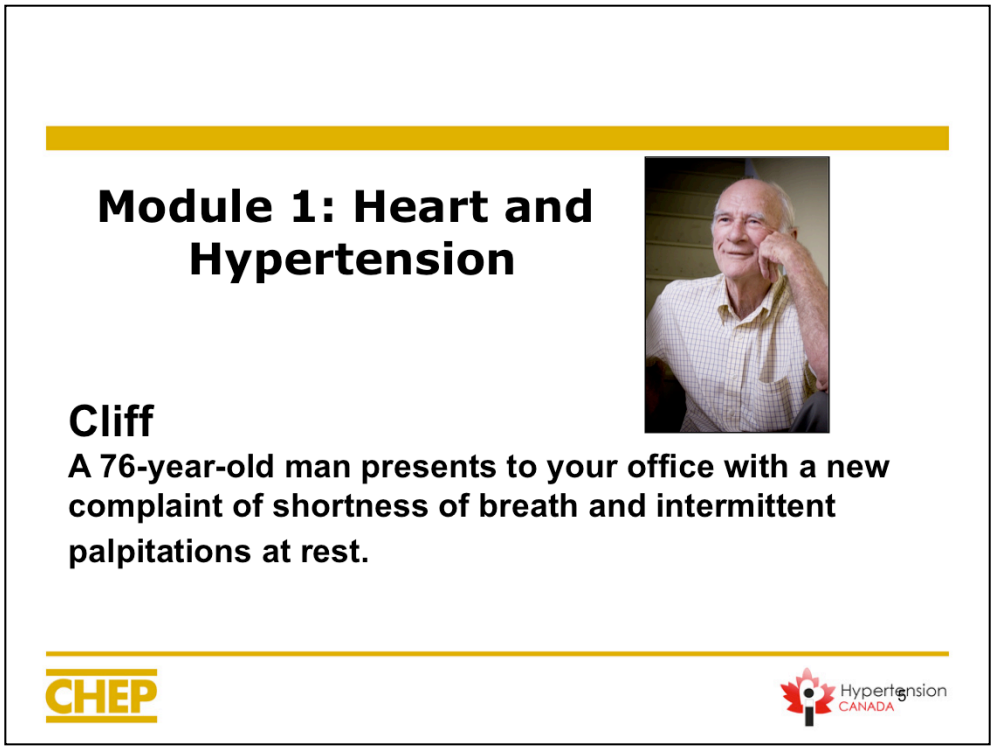
•**Consulting Fees:** MedX Group Inc.



Instructions

Review the agenda for today's activity.

For all slides, present the slide content and use the accompanying Notes to describe them.

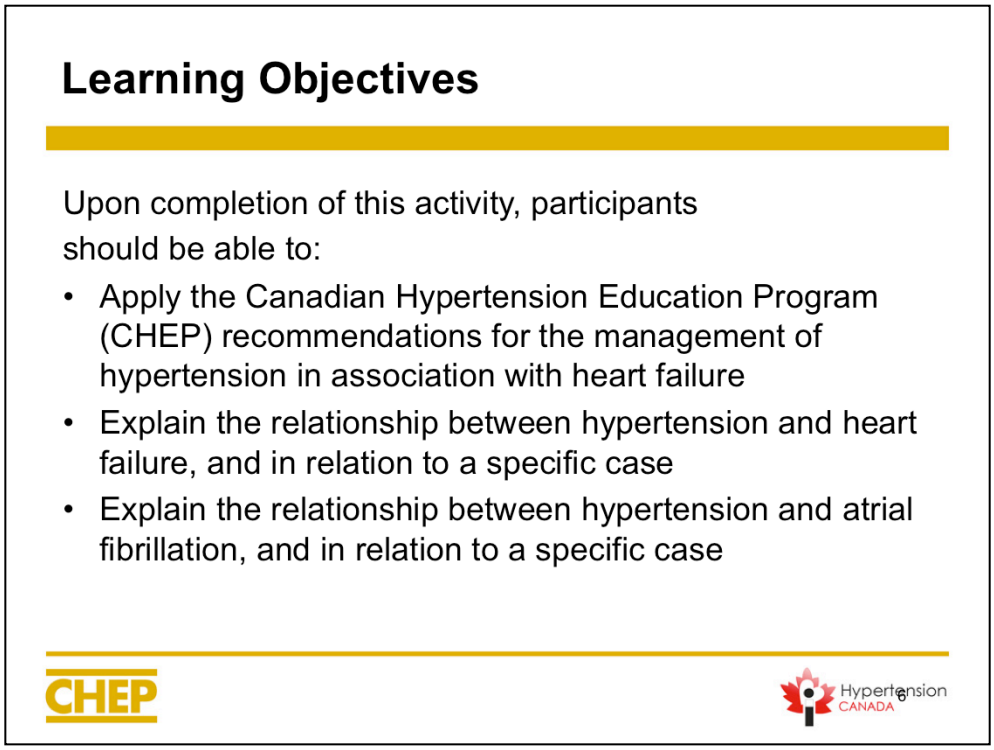


Instructions

Indicate to the group that this patient will be the focus of today's case discussion.

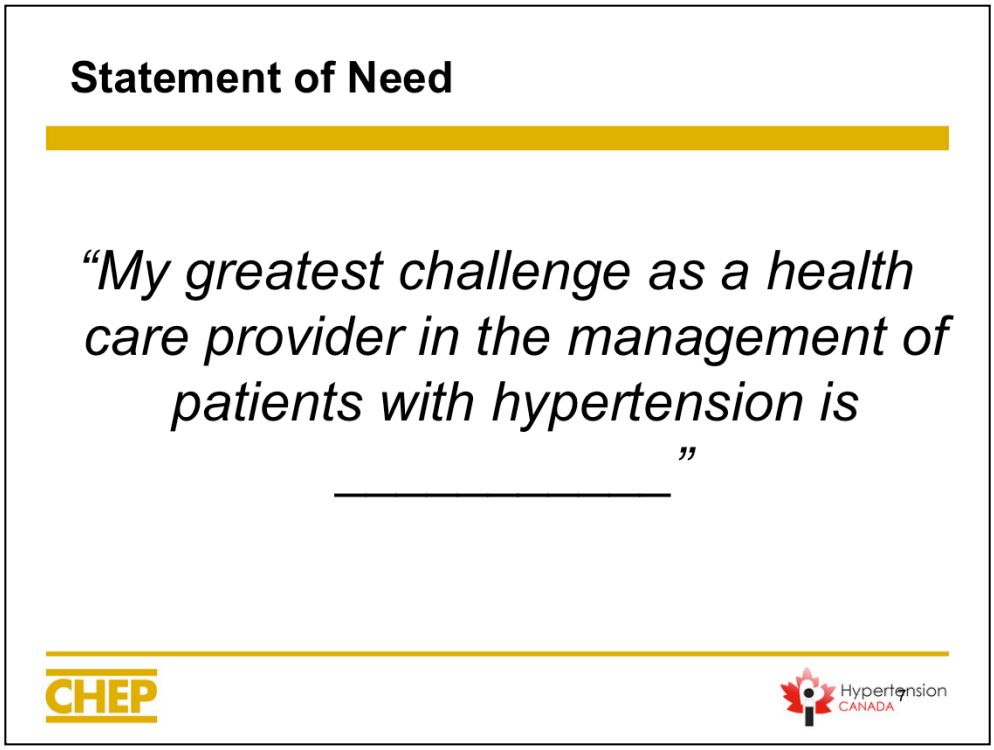
Notes

Hypertension, alone or in combination with coronary heart disease, precedes the development of heart failure in the majority of both men and women.



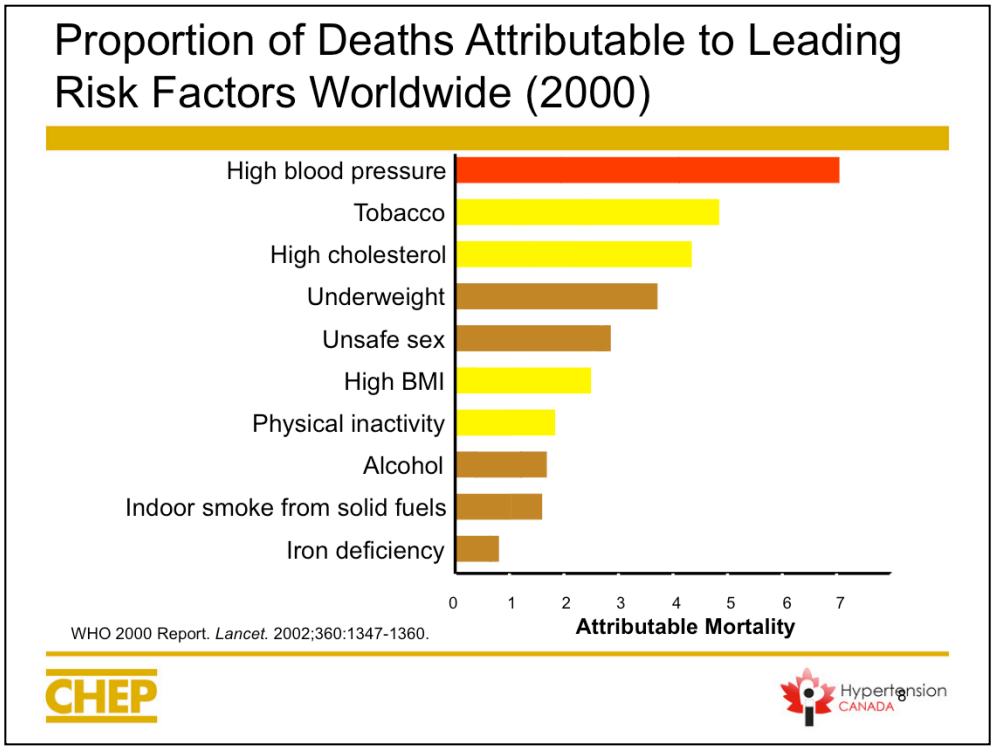
Instructions

Review the learning objectives for today's activity.



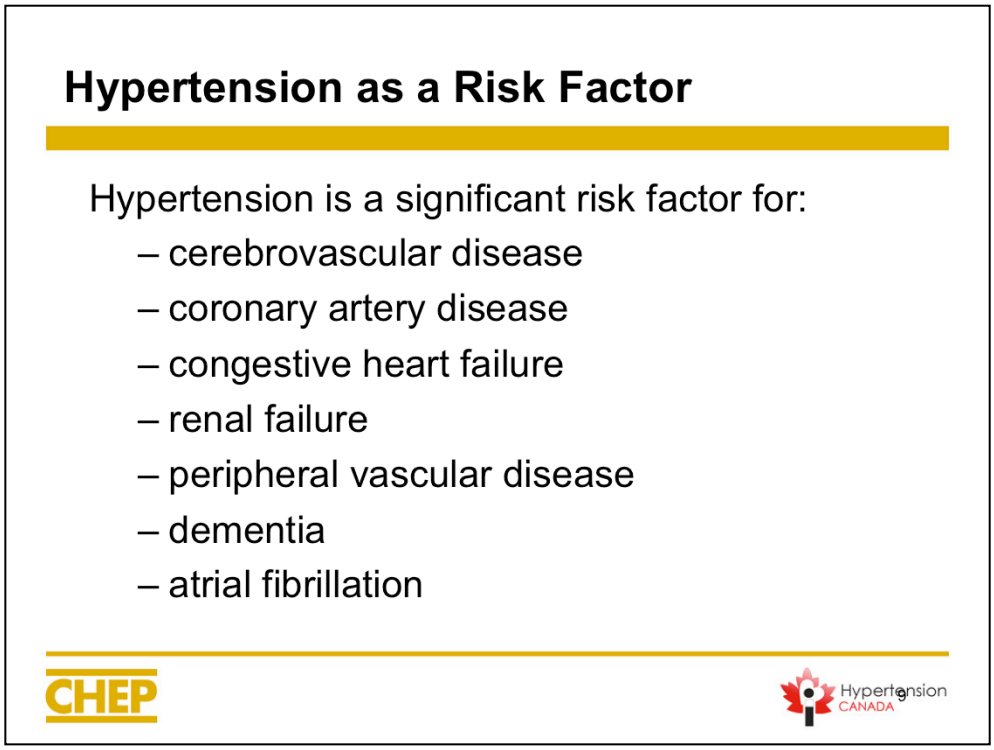
Instructions

Quickly go around the room and ask each participant to complete this statement. If there are members of the interprofessional team participating, tailor the statement accordingly.



Notes

- Analysis conducted by the World Health Organization
- Estimate of the proportion of deaths in the world caused by major health risks
- Overall elevated blood pressure (systolic > 115 mmHg) is estimated to be the leading risk for death.
- Elevated blood pressure is a greater health risk in developed than under developed nations and in Europe than in North America



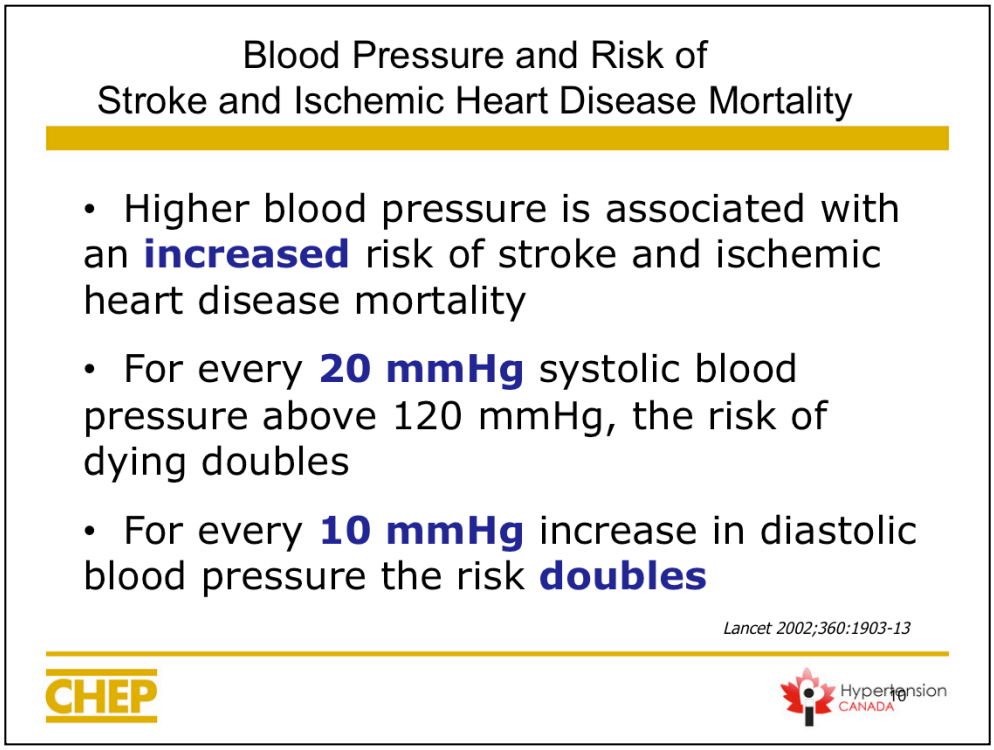
Notes

- Worldwide, attributable to high blood pressure:
  - 7.6 million premature deaths
  - 92 million disability-adjusted life years
  - 54% of stroke
  - 47% of coronary artery disease
- High blood pressure affects one in five Canadian adults and the majority of these will require pharmacological therapy to control their blood pressure.
- Hypertension is a major cause of heart failure. It is likely the most common cause of atrial fibrillation and atrial fibrillation may be the first presentation of an otherwise untreated hypertensive patient. Atrial fibrillation is of course a risk factor for stroke.

References

1.Joffres MR, Hamet P, Rabkin SW, Gelskey D, Hogan K, Fodor G. Prevalence, control and awareness of high blood pressure among Canadian adults. Canadian Heart Health Surveys Research Group. CMAJ 1992 Jun 1;146(11):1997-2005.

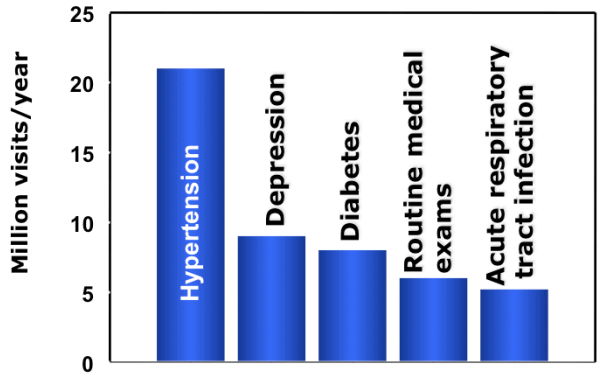
2.Khan N, Wardman D, Campbell N. Differences in need for antihypertensive drugs among those aware and unaware of their hypertensive status: a cross sectional survey. BMC Cardiovascular Disorders 2005;5(1):4.



Notes

- Analysis of over 1,000,000 people from clinical trials
- Higher blood pressure is associated with an increased risk of stroke and ischemic heart disease mortality
- For every 20 mmHg systolic blood pressure above 120 mmHg, the risk of dying doubles
- For every 10 mmHg increase in diastolic blood pressure the risk doubles
- The risk of dying increases with each older age cohort

Leading Diagnoses Resulting in Visits to Physician Offices in Canada



Source: IMS HEALTH Canada 2002

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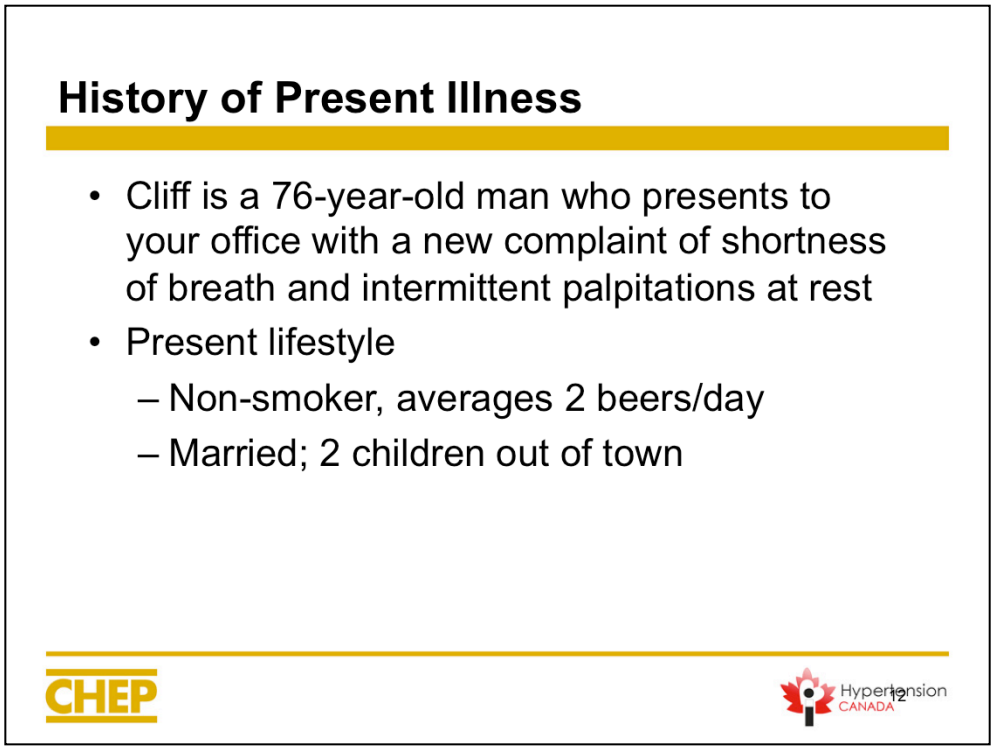
Hypertension CANADA

Notes

- Patient visits to office-based physicians for essential hypertension numbered 18.9 million in 2002, a 10% increase from the previous year.
- Most visits were to GP/FMs (90%)
- More than 81% of visits involved a drug recommendation
- Community retail pharmacies dispensed an estimated 52.7 million prescriptions for antihypertensive agents in 2002, compared with 34 million in 1998

Reference

1.Source IMS Canada with permission. http://www1.imshealth.com/vgn/images/portal/cit_40000873/7/57/79014602Trends06_En_07CORR.pdf



Instructions

Review the case study slide with the group. Several questions are integrated in the case presentation – when these appear on screen, allow the group to discuss their possible answers and the rationale behind them before moving on to review feedback from the case authors.

History of Present Illness

- A week ago
  - he noted dyspnea with exertion while climbing the stairs at the theatre
- 3 nights ago
  - he woke up from sleep with dyspnea and had to sit on the edge of his bed, with palpitations
- He noticed that he is winded after his usual walks with the dog
- No chest pain, no cough, no edema

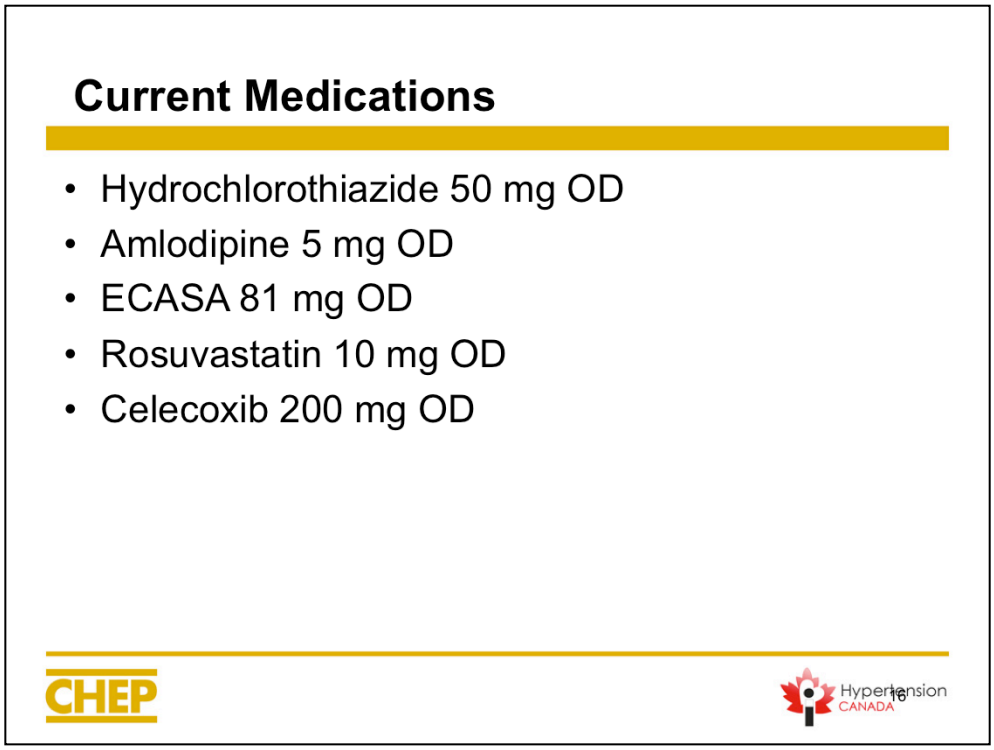
Past History

- Hypertension
  - diagnosed and treated for 10 years
- Acute myocardial infarction
  - 6 years ago (thrombolysed) preserved LV function immediately after discharge
- Osteoarthritis
  - was an athlete in the past, retired physical education teacher

LV = left ventricular

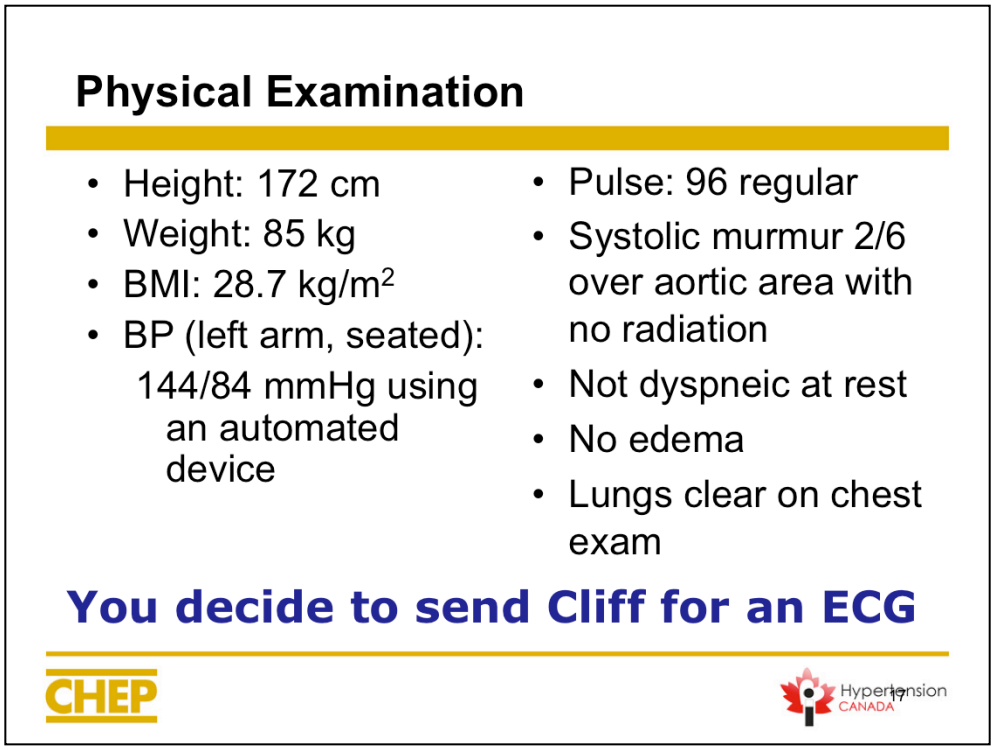
Family History

- Mother
  - history of hypertension, stroke at age 75
- Father
  - Alzheimer's dementia at age 81
- Sisters
  - 2 sisters, both diagnosed with diabetes
- Brother
  - died at age 60 of colon cancer



Notes

These are the meds that the patient is taking on presentation. They reflect an actual patient seen in clinic and are not intended to reflect current best practices.



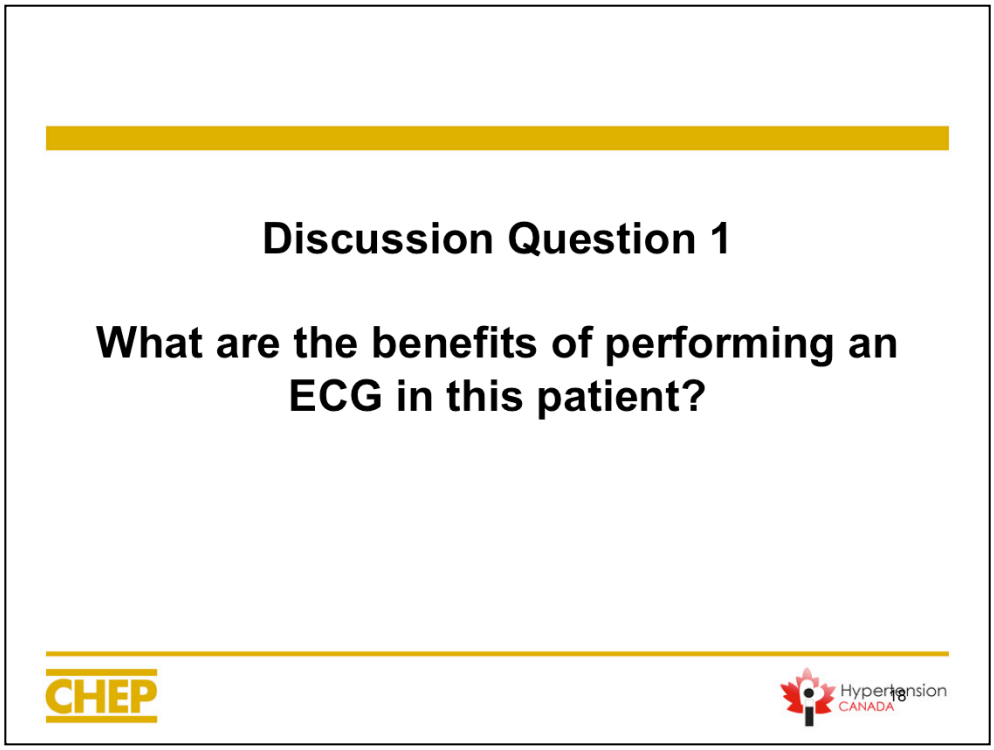
Instructions

Based on the patient's history and examination, discuss with the group what the possible next steps are.

Notes

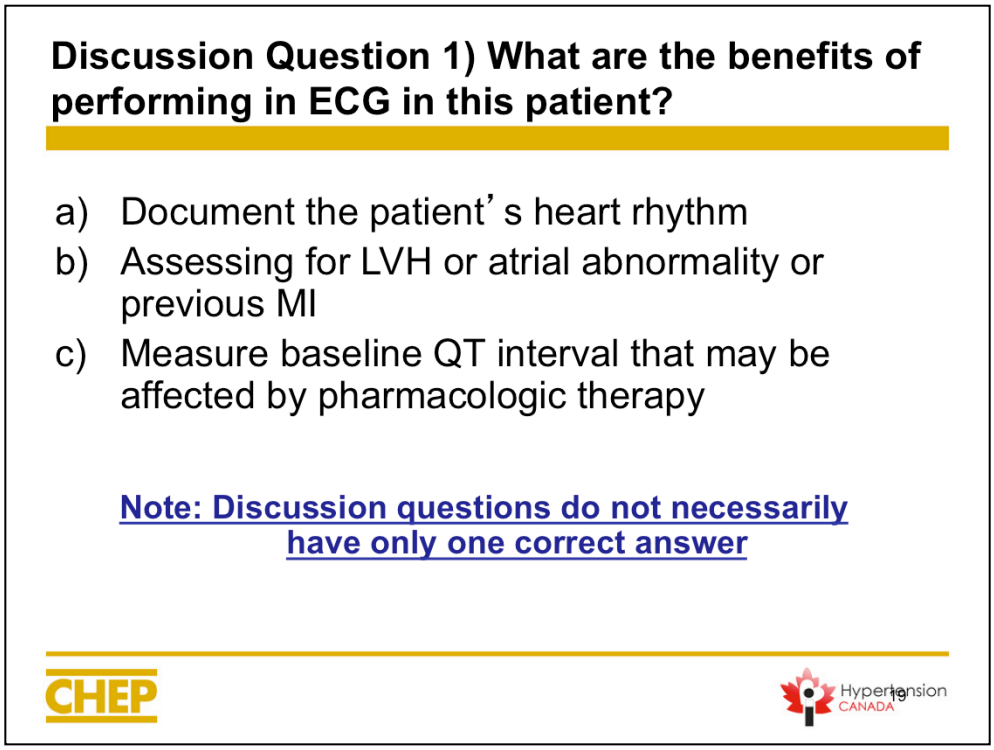
- The office automated device when used correctly, measures BP very accurately
- After the device is initiated, the healthcare provider leaves the room, while it completes additional readings
- The initial reading is discarded and the subsequent readings are then averaged
- An office automated BP of 135/85 mmHg is equivalent to the daytime automated ambulatory BP of 135/85 mmHg or home BP monitoring
- The reading recorded in the office with the automate device of 144/84 mmHg can be considered a 'research quality' measurement

His murmus has been noted before and it is unchanged. It could suggest aortic sclerosis. These findings are all from the current visit.



Instructions

Read the question to the group. A selection of multiple choice answers will follow on the next slide.



Instructions

Review the options and pause here to discuss with the group.

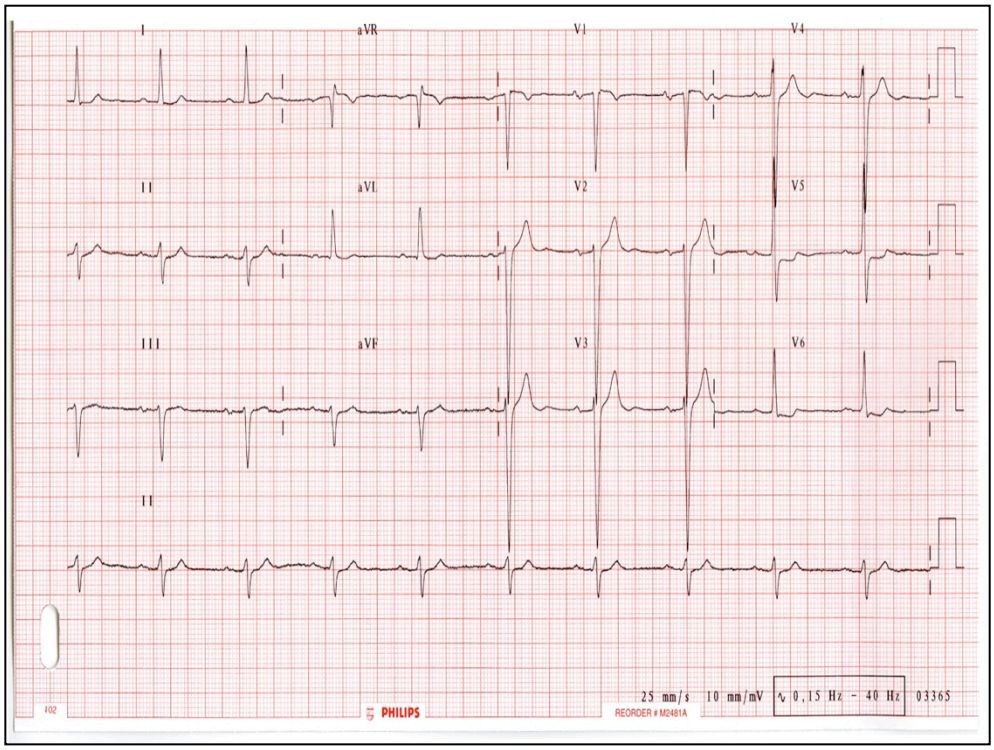
Discuss the potential merits of each answer.

There is not necessarily one right answer; the goal of the exercise is to have an open discussion.

When you have discussed each possible answer, proceed to see the feedback provided by the case authors.

a, b and c are all correct

- Documenting the patient's heart rhythm
- Assessing for LVH or atrial abnormality or previous MI
- Measuring baseline QT interval that may be affected by pharmacologic therapy



Instructions

Review the ECG with the group.

Findings

- The ECG indicates sinus rhythm, left ventricular hypertrophy and strain

Laboratory Investigations

Test	Results	Normal Values
Glucose	6.5 mmol/L	4.0-8.0 mmol/L
Urea	6.8 mmol/L	3.0-7.0 mmol/L
Creatinine	105 µmol/L eGFR 50ml/min	44-106 umol/L
K	3.4 mmol/L	3.5-5.0 mmol/L
Hb	112 g/L	115-165 g/L

•Note that labs are done prior to the next visit. Hb: hemoglobin, K: potassium

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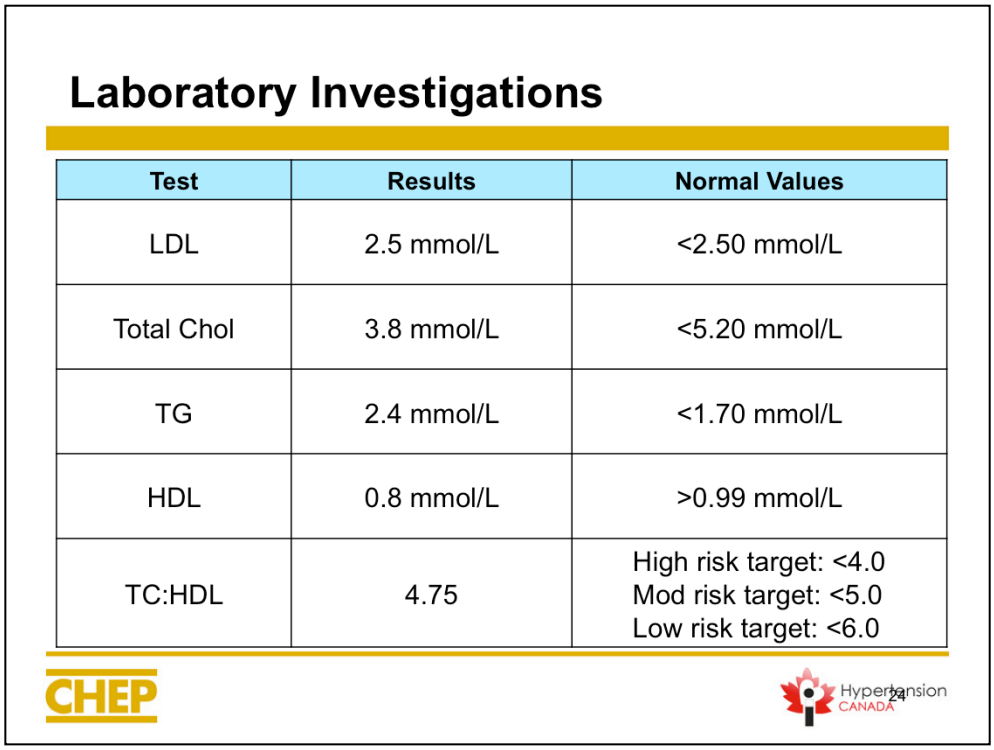
Hypertension CANADA

Instructions

Review the labs that were performed prior to the next office visit.

Discuss any implications of these findings. The results are unchanged from previous labs except that his K was 3.5 the last time and Hb was 115. The CBC has a normochromic, normocytic pattern.

Last colonoscopy one year ago for routine screening and was normal. Hb noted to be low but retics were also a little low consistent with stage 3 chronic kidney disease at that time.



Instructions

Review the labs that were performed prior to the next office visit.

Discuss any implications of these findings. The results are unchanged from previous labs except that his K was 3.5 the last time and Hb was 115. The CBC has a normochromic, normocytic pattern.

European Society of Hypertension Classification of Blood Pressure

Category	Systolic		Diastolic
Optimal	**<120**	**and / or**	**<80**
Normal	**<130**	**and / or**	**<85**
High-Normal	**130-139**	**and / or**	**85-89**
Grade 1 (mild hypertension)	**140-159**	**and / or**	**90-99**
Grade 2 (moderate hypertension)	**160-179**	**and / or**	**100-109**
Grade 3 (severe hypertension)	**≥ 180**	**and / or**	**≥ 110**
Isolated Systolic Hypertension (ISH)	**≥140**	**and**	**<90**

The category pertains to the highest risk blood pressure

*ISH=Isolated Systolic Hypertension. J Hypertension 2007;25:1105-87,

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Hypertension CANADA

25

Instructions

Discuss how you would classify this patient.

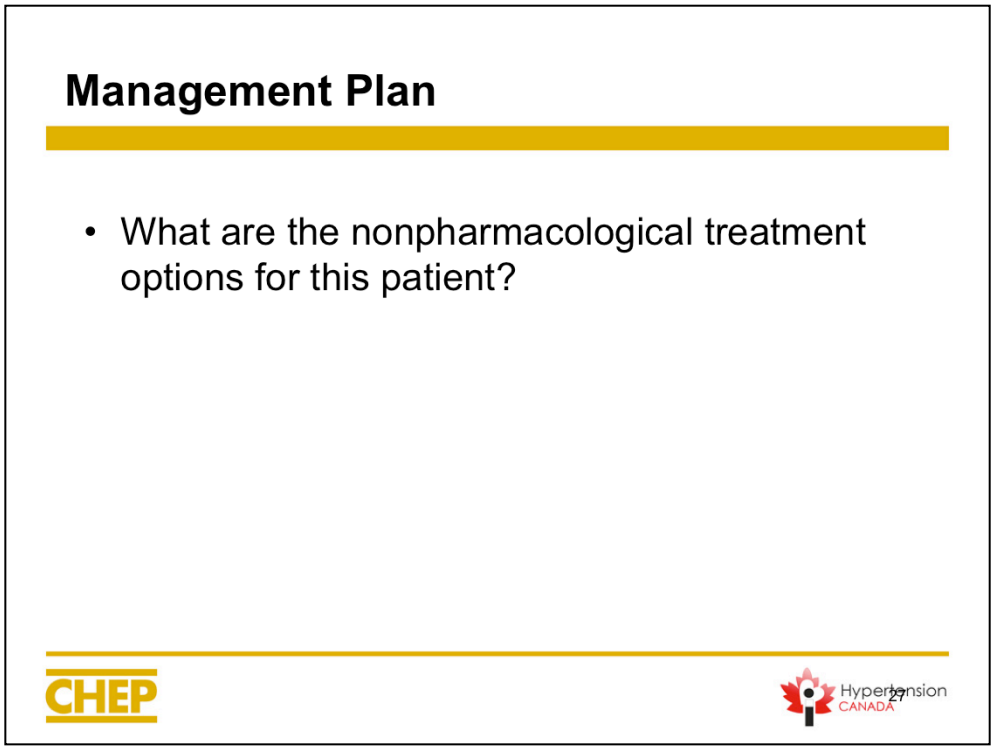
Recommended Treatment Targets

Treatment consists of health behaviour ±pharmacological management

Population	SBP	DBP
Diabetes	<130	<80
All others < 80 y.a. (including CKD)	<140	<90
Very elderly (≥ 80 years)	**<150***	**NA**

*This higher treatment target for the very elderly reflects current evidence and heightened concerns of precipitating adverse effects, particularly in frail patients. Decisions regarding initiating and intensifying pharmacotherapy in the very elderly should be based upon an individualized risk-benefit analysis.

CHEP 2014 Hypertension CANADA



Instructions

Discuss the options for nonpharmacologic management of this patient. Note that pharmacological options/changes will be discussed later in the case.

Management Plan

- Nonpharmacological
  - Sodium restriction, consult dietitian
  - Weight loss
  - Exercise
  - Reduction of alcohol intake

Impact of health behaviours on blood pressure

Intervention	Systolic BP (mmHg)	Diastolic BP (mmHg)
Diet and weight control	-6.0	-4.8
Reduced salt/sodium intake	- 5.4	- 2.8
Reduced alcohol intake (heavy drinkers)	-3.4	-3.4
DASH diet	-11.4	-5.5
Physical activity	-3.1	-1.8
Relaxation therapies	-3.7	-3.5
Multiple interventions	-5.5	-4.5

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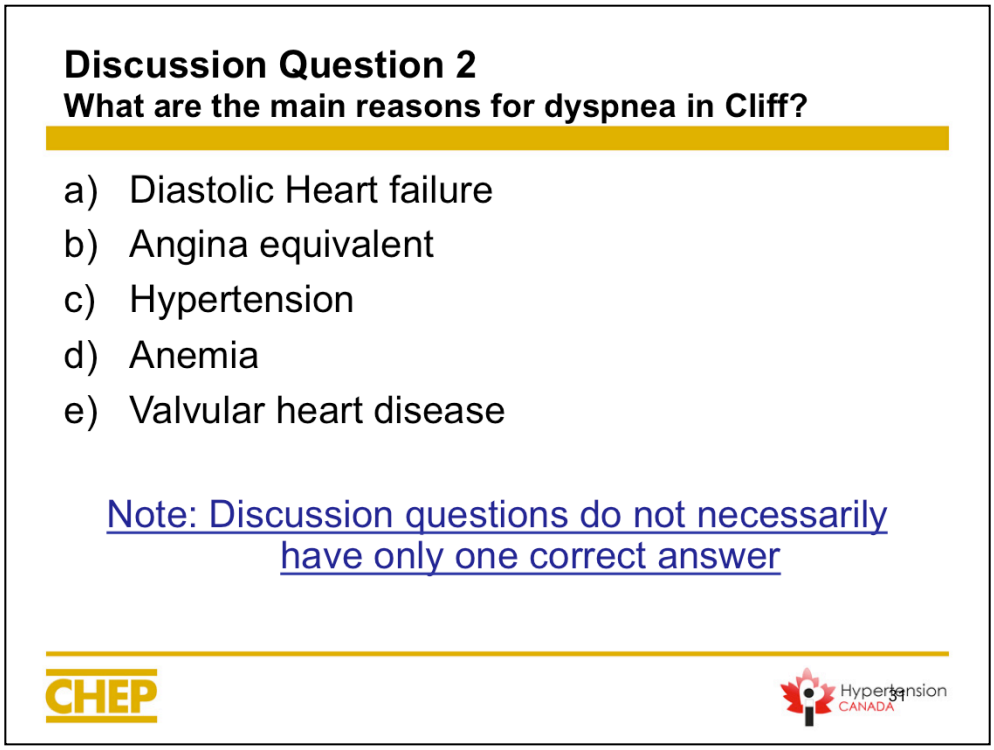
Clinical Guideline : Methods, evidence and recommendations National Institute for Health and Clinical Excellence (NICE) May 2011

Hypertension CANADA 2014

Instructions

Read the question to the group. A selection of multiple choice answers will follow on the next slide.



Instructions

Review the options and pause here to discuss with the group.

Discuss the potential merits of each answer.

There is not necessarily one right answer; the goal of the exercise is to have an open discussion.

When you have discussed each possible answer, proceed to see the feedback provided by the case authors.

a) Diastolic heart failure

- He has all the risk factors associated with this condition
- Possible atrial fibrillation, hypertension, ischemic heart disease
- ECG showing LVH

b) Angina equivalent

- Dyspnea can be a result of angina, especially in elderly persons

C) Hypertension

- Patients with uncontrolled hypertension will be asymptomatic until they develop target organ damage so this is unlikely

d) Anemia

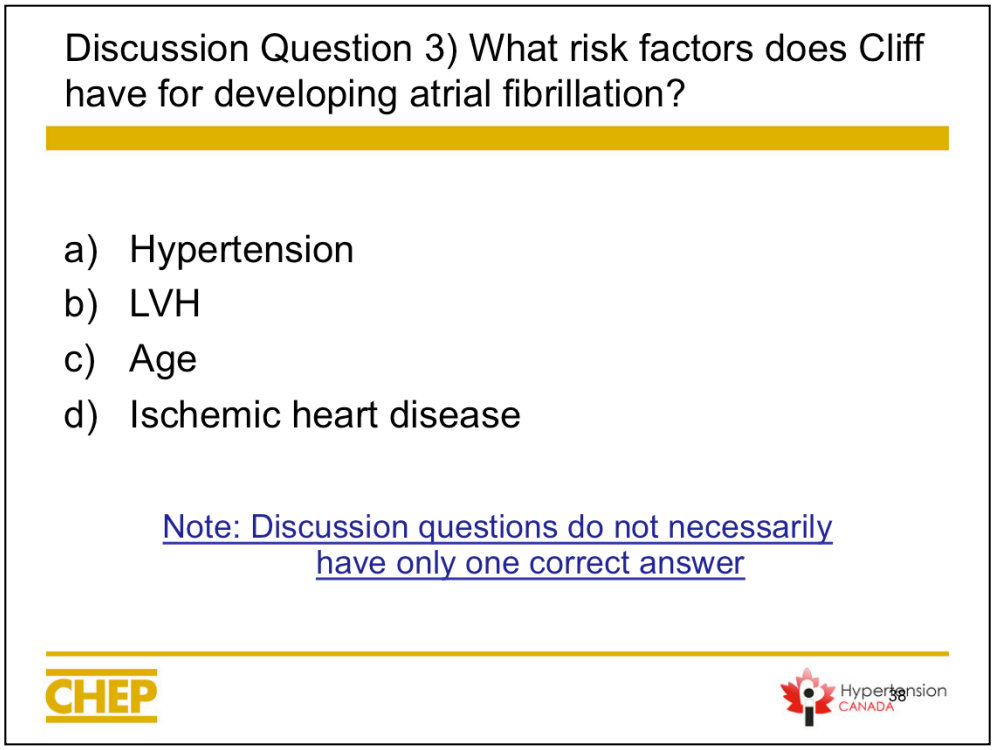
- Patients with progressive anemia can manifest with shortness of breath
- Patient may have developed silent GI bleed or renal insufficiency as a cause
- Hb of 112 is unlikely to cause these symptoms even if acute

e) Valvular Heart Disease

- Clinical evaluation of possible aortic and mitral valve disease is more frequently misleading at the extremes of age (young/old)
- He is only 76 and has a murmur
- Consider aortic stenosis

Instructions

Read the question to the group. A selection of multiple choice answers will follow on the next slide.



Instructions

Review the options and pause here to discuss with the group.

Discuss the potential merits of each answer.

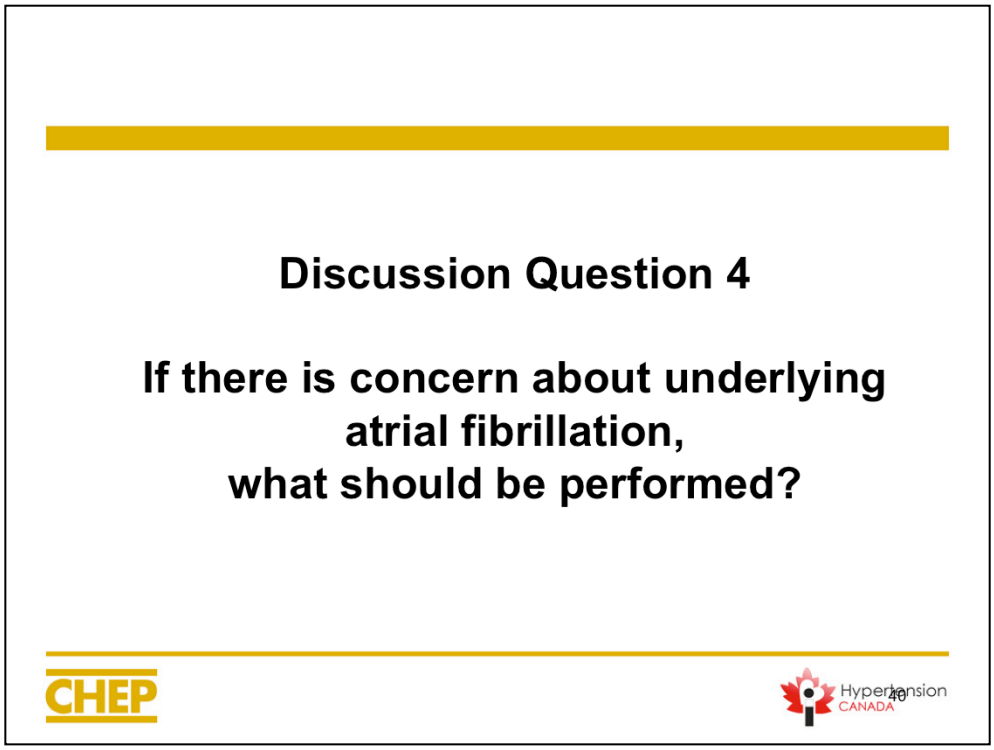
There is not necessarily one right answer; the goal of the exercise is to have an open discussion.

When you have discussed each possible answer, proceed to see the feedback provided by the case authors.

a, b, c and d are all correct

- This patient has high risk of developing atrial fibrillation (hypertension, LVH, age, ischemic heart disease and alcohol* use)

* alcohol: best evidence is for those drinking 5+ per day



Instructions

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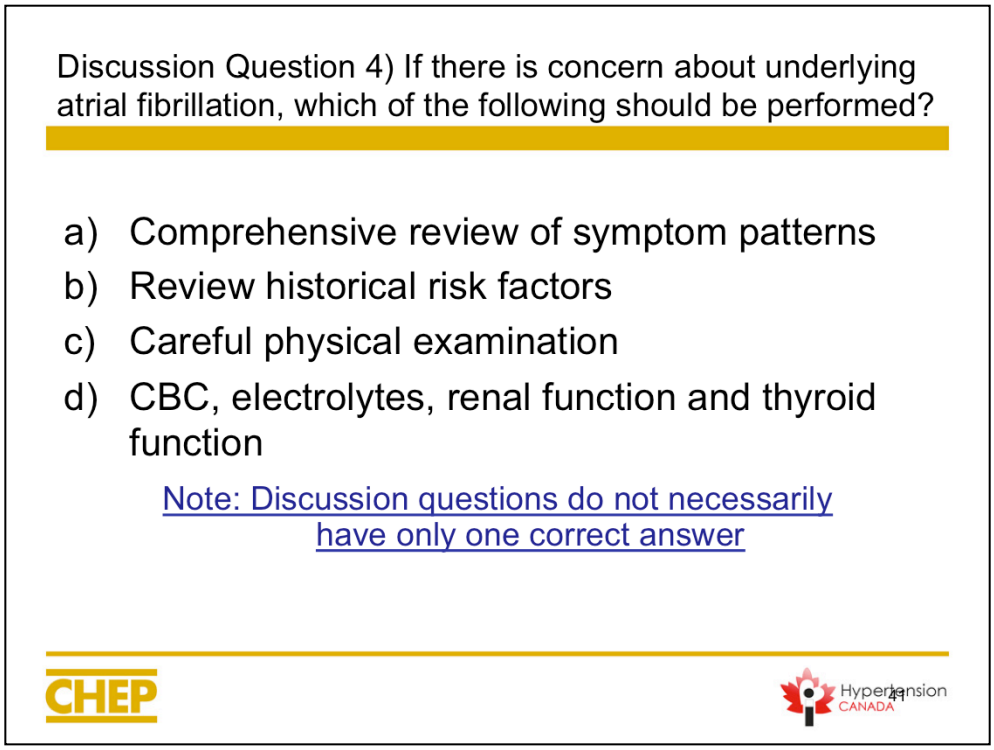


Instructions

Review the options and pause here to discuss with the group.

Discuss the potential merits of each answer.

There is not necessarily one right answer; the goal of the exercise is to have an open discussion.

When you have discussed each possible answer, proceed to see the feedback provided by the case authors.

a) Comprehensive review of symptom patterns

- Determine if the pattern is one of paroxysmal or persistent atrial fibrillation
- Determine past history of atrial fibrillation

b) Review historical risk factors

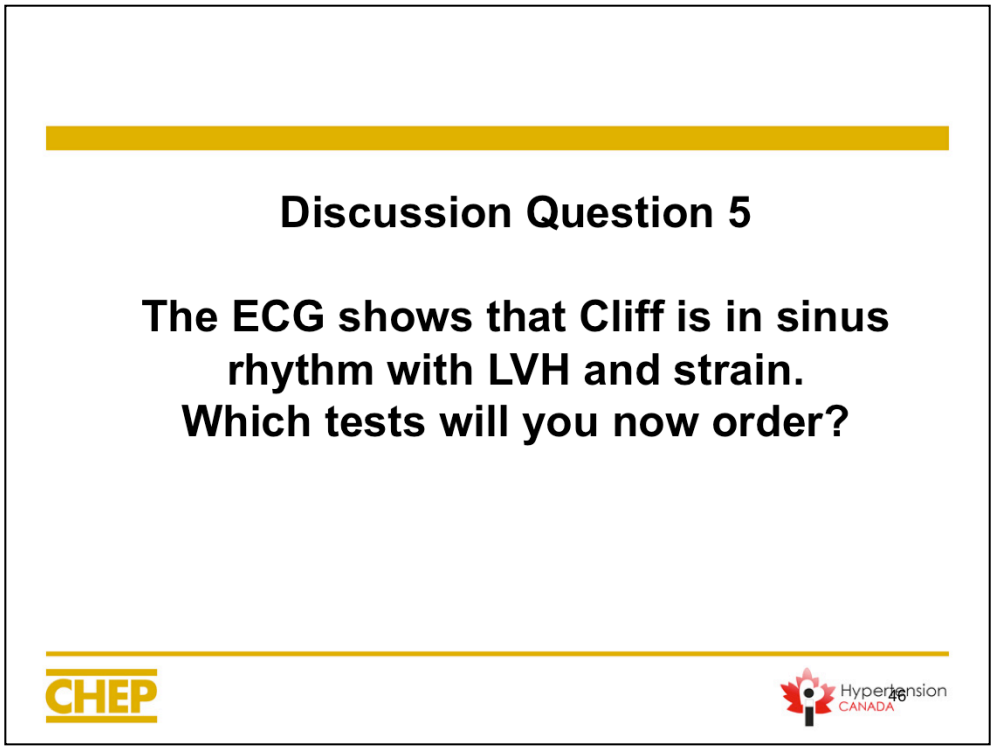
- Consider hypertension and medication use
- Alcohol abuse, thyroid disease, sleep apnea

c) Careful physical examination

- Look for evidence of LVH and risk factors for thromboembolic disease

d) CBC, electrolytes, renal function and thyroid function

- Recommended for the evaluation of patients with atrial fibrillation



Instructions

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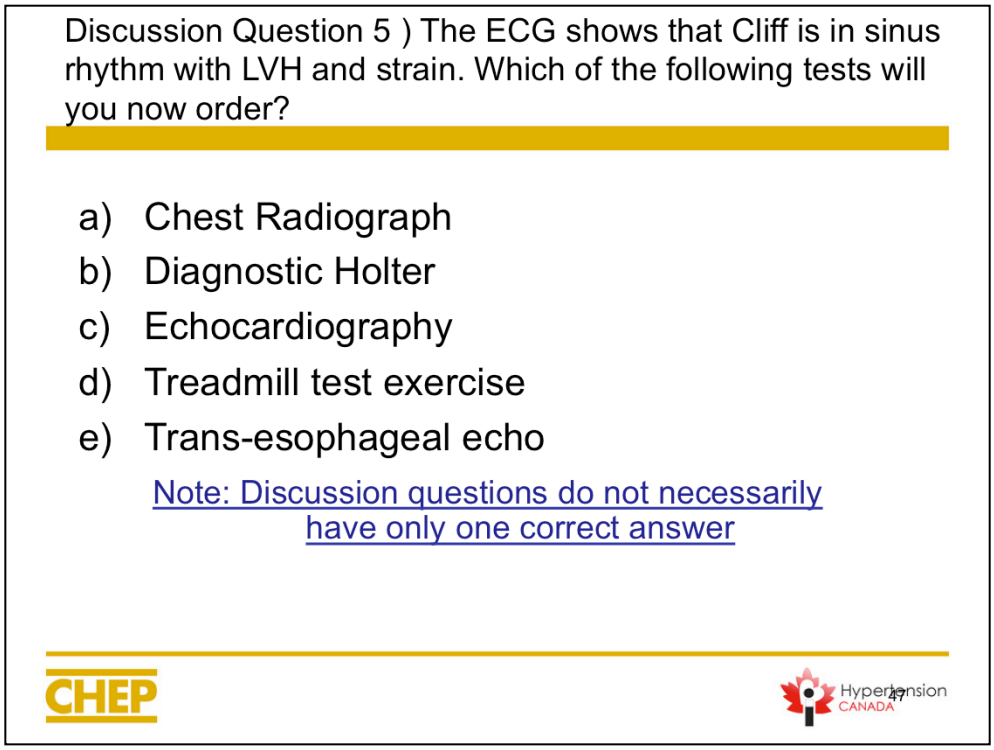

Instructions

Review the options and pause here to discuss with the group.

Discuss the potential merits of each answer.

There is not necessarily one right answer; the goal of the exercise is to have an open discussion.

When you have discussed each possible answer, proceed to see the feedback provided by the case authors.

a) Chest Radiograph

- A normal part of assessment for patients with shortness of breath
- Should be performed irrespective of ECHO

b) Diagnostic Holter

- Negative test does not rule out atrial fibrillation
- Holter is often insufficient to diagnose paroxysmal atrial fibrillation
- Cardiac loop monitor over 7 days or 2 weeks is better; documents arrhythmia, assesses rate control, assesses episodes of bradycardia

c) Echocardiography

- This is the best test to:
  - Measure size of the LA
  - Assess LV systolic function
  - Assess for ventricular function in including diastolic dysfunction
  - Assess for valvular disease
  - Assess for LVH
  - Also can estimate the PA pressure (right ventricular systolic Pressure)

d) Treadmill exercise test

- Indicated for those with exertional dyspnea, particularly without a cause
- Assesses functional capacity, BP and HR response to exercise
- Helps to guide care

e) Trans-esophageal echo

- Not a routine test
- This test helps to assess left atrial size and rule out an left atrial thrombus
- Invasive

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Hypertension CANADA

Notes

Should not be performed unless there is a specific question that must be answered and for which the surface study has failed to answer or is unlikely to answer, such as an left atrial thrombus. It is not needed to rule out mitral valve disease.

Case Progression

After the ECG and after getting booked for the stress test, the Holter and Echo, Cliff left your office before therapy could be prescribed for his hypertension as he was concerned about the parking meter. He returns 4 weeks later to review the results of his tests. He has had occasional symptoms during that time.

His exercise stress test was normal. The Holter showed premature atrial contractions, and some episodes of supraventricular ectopy. The Echo shows normal EF, mitral annular calcification, mild left atrial dilation, concentric LVH and moderate diastolic dysfunction.

BP 148/78, HR is 85, SAO2 96%, RR is 16

CHEP

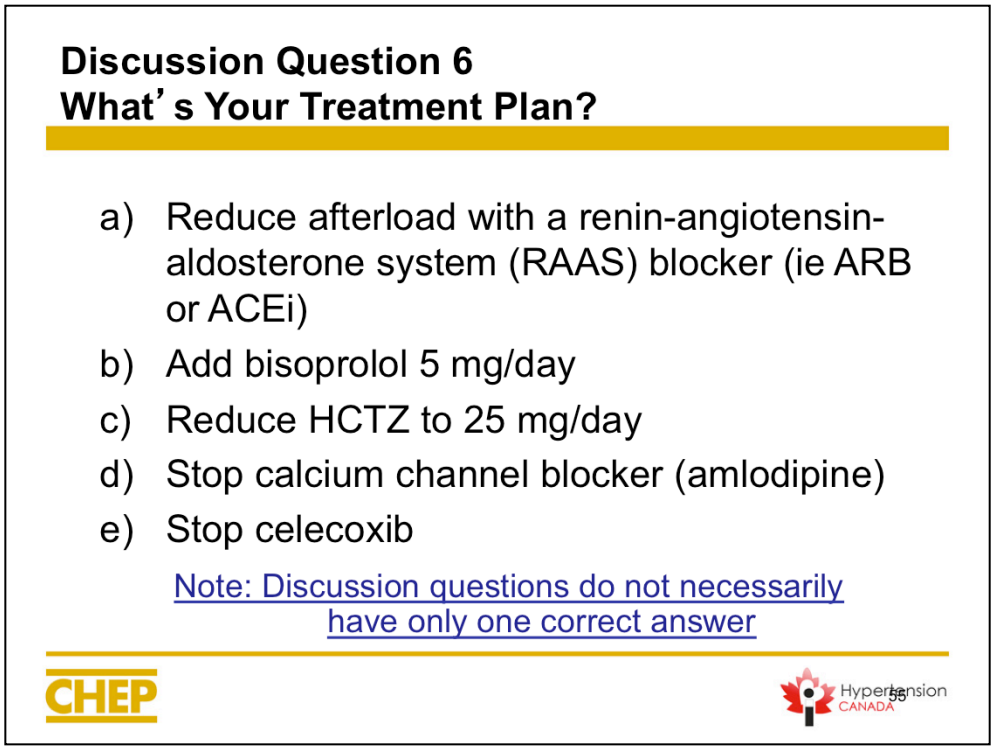
Hypertension CANADA

Instructions

Review the progress of the patient case and his current values and then proceed to the next slide.

Instructions

Read the question to the group. A selection of multiple choice answers will follow on the next slide.



Instructions

Review the options and pause here to discuss with the group.

Discuss the potential merits of each answer.

There is not necessarily one right answer; the goal of the exercise is to have an open discussion.

When you have discussed each possible answer, proceed to see the feedback provided by the case authors.

Notes

Patient should also be counselled to get an ECG if further SIGNIFICANT symptoms of AF, especially with SOB, occur in the future.

a) Reduce afterload with a RAAS blocker (i.e. ARB or ACEi)

- This helps treat symptoms of diastolic heart failure and achieve better control of blood pressure
- Helps to raise his potassium
- Reduces the chance of first episode of atrial fibrillation

Expected results:
BP 130/78, HR is 85, SAO2 96%, RR is 16

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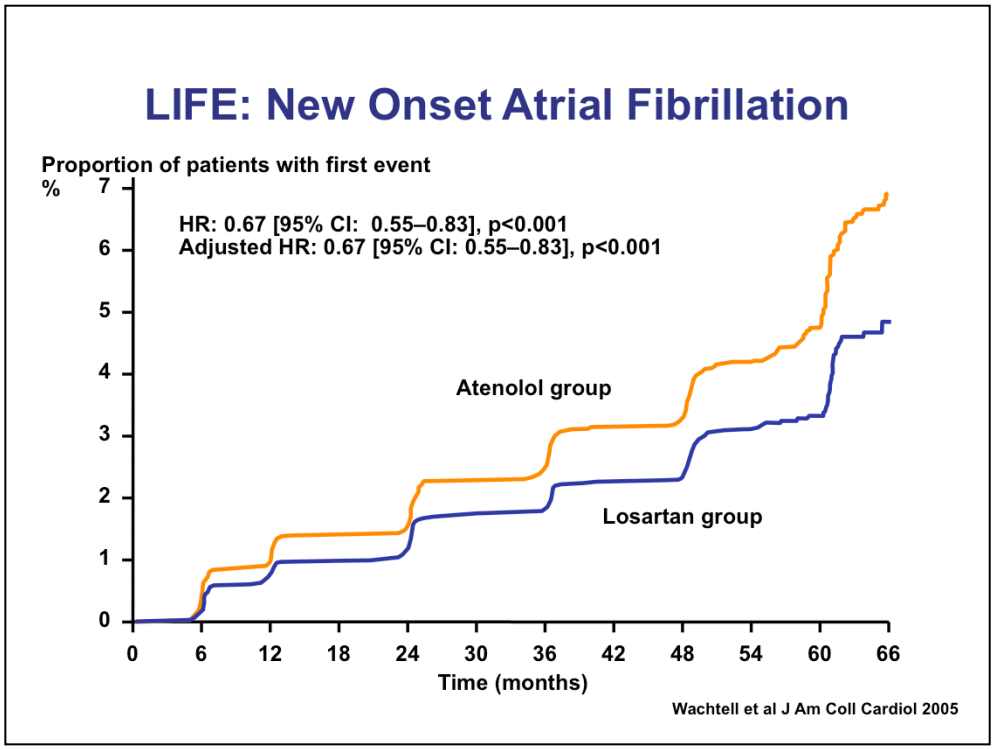
Hypertension CANADA

Notes

The "expected results" indicated at the bottom of the answer slides indicate the probable effect of this treatment choice.

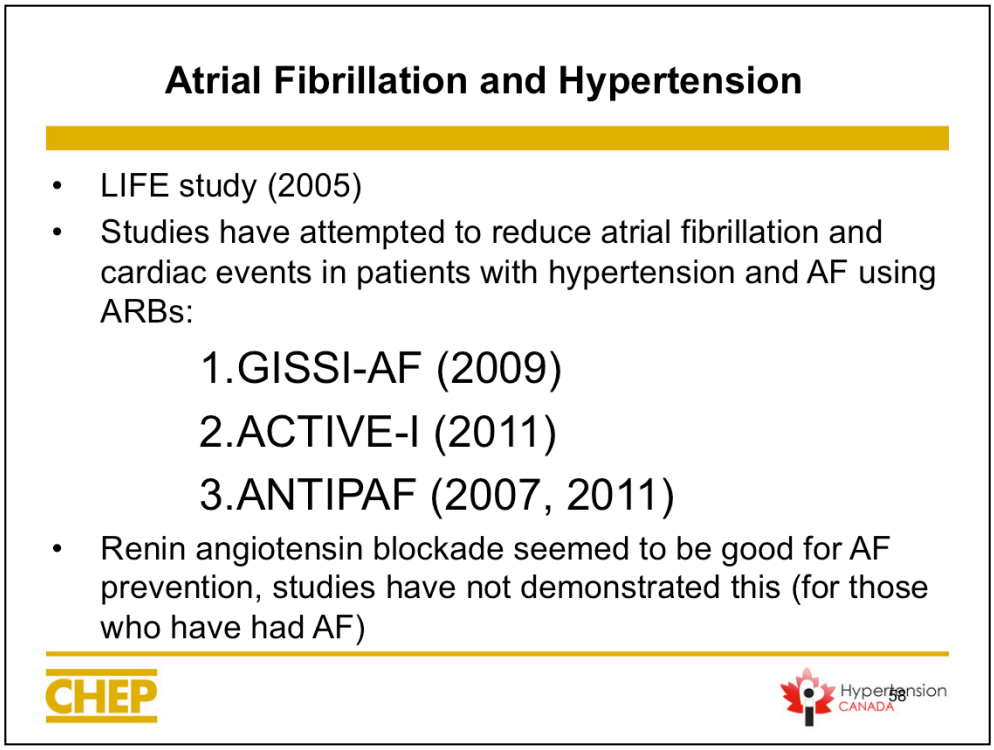


Notes

- The Losartan Intervention For Endpoint reduction (LIFE) in Hypertension study was a double-blind, prospective, parallel group study
- Showed that new-onset atrial fibrillation and associated stroke were significantly reduced by losartan- compared to atenolol-based antihypertensive treatment with similar blood pressure reduction
- New-onset atrial fibrillation occurred in 150 patients randomised to losartan versus 221 to atenolol despite similar blood pressure reduction.
- Patients with new-onset AF had two-, three- and fivefold increased rates, respectively, of cardiovascular events, stroke, and hospitalization for heart failure

Reference

1.Wachtell K, Lehto M, Gerdts E, Olsen MH, Hornestam B, Dahlof B et al. Angiotensin II Receptor Blockade Reduces New-Onset Atrial Fibrillation and Subsequent Stroke Compared to Atenolol: The Losartan Intervention for End Point Reduction in Hypertension (LIFE) Study. J Am Coll Cardiol 2005;45:712-9.



Notes:

However, since the LIFE study, there has been emerging studies on AF and hypertension. These have attempted to reduce **recurrent** atrial fibrillation and cardiac events in patients with hyeprtension and AF using ARBs.

(1) GISSI-AF study

- Compared patients with a history of atrial fibrillation and underlying CVD, diabetes or left atrial enlargement to receive the ARB valsartan or placebo and patients were followed over one year.
- Of the 1442 patients enrolled, atrial fibrillation recurred in 51% in both groups.

Reference:

1. Disertori M, Latini R, Barlera S, Franzosi MG, Staszewsky L, Maggioni AP, Lucci D, Di PG, Tognoni G: Valsartan for prevention of recurrent atrial fibrillation. N Engl J Med 2009;360:1606-1617.

(2) **ACTIVE-I study**

- Randomized 9016 patients with atrial fibrillation enrolled in trials of anticoagulation to receive irbesartan 300 mg or placebo.
- This study was neutral for its main composite outcome measure but did find a small reduction of first admission for heart failure but no reduction of recurrent atrial fibrillation in those in sinus at baseline.

Reference:

1. Yusuf S, Healey JS, Pogue J, Chrolavicius S, Flather M, Hart RG, Hohnloser SH, Joyner CD, Pfeffer MA, Connolly SJ: Irbesartan in patients with atrial fibrillation. N Engl J Med 2011;364:928-938.

(3) **ANTIPAF study**

- Using an ARB to prevent atrial fibrillation in patients with paroxysmal atrial fibrillation did not find an antiarrhythmic effect although the final paper is still pending.

Reference:

1. Goette A, Breithardt G, Fetsch T, Hanrath P, Klein HU, Lehmacher W, Steinbeck G, Meinertz T:

b) Add bisoprolol 5 mg/day

- Good choice to slow the heart rate and lower blood pressure
- Does not address hypokalemia

Expected results:
BP 136/73, HR is 64, SAO2 96%, RR is 16

CHEP

Hypertension CANADA

Notes

The "expected results" indicated at the bottom of the answer slides indicate the probable effect of this treatment choice.

c) Reduce HCTZ to 25 mg/day

- Lowering the dose of HTCZ will help to reverse his hypokalemia which, in the setting of heart disease, can predispose to cardiac arrhythmias
- Lowering HTCZ will not address hypertension management
- Lowering HTCZ and adding ACEi or ARB will help to lower his blood pressure and correct his hypokalemia

Expected results:
BP 152/88, HR is 90, SAO2 96%, RR is 18

CHEP

Hypertension CANADA

Notes

The "expected results" indicated at the bottom of the answer slides indicate the probable effect of this treatment choice.

d) Stop calcium channel blocker (amlodipine)

- CCBs are not to be used routinely in patients with low ejection fraction systolic heart failure.
- If other forms of BP or HR lowering therapy are not available or tolerated, then these can still be used if necessary
- However he has a normal ejection fraction

Expected results:
BP 158/85, HR is 78, SAO2 96%, RR is 16

CHEP

Hypertension CANADA

Notes

The "expected results" indicated at the bottom of the answer slides indicate the probable effect of this treatment choice.

e) Stop celecoxib

- NSAIDS and coxibs lead to sodium retention and heart failure and increase the risk for hyperkalemia and hyponatremia
- Will also reduce effectiveness of most antihypertensives

Expected results:
BP 142/72, HR is 84, SAO2 96%, RR is 18

CHEP

Hypertension CANADA

Notes

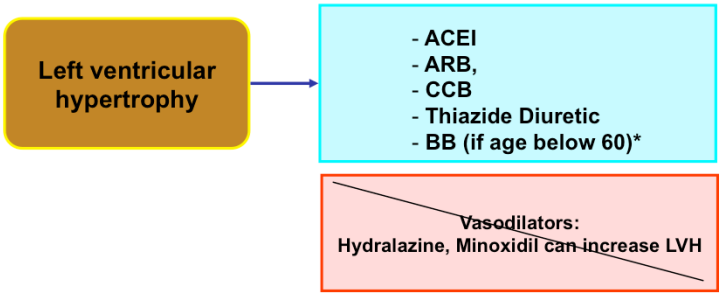
The "expected results" indicated at the bottom of the answer slides indicate the probable effect of this treatment choice.

Adjusted Medications

	Previous	Adjusted
Hydrochlorothiazide	**50 mg OD**	**25 mg OD**
Amlodipine	5 mg OD	5 mg OD
ECASA	81 mg OD	81 mg OD
Rosuvastatin	10 mg OD	10 mg OD
Celecoxib (previous) **Perindopril (new)**	**200 mg OD**	**8 mg OD**

Treatment of Hypertension in Patients with Left Ventricular Hypertrophy

Hypertensive patients with left ventricular hypertrophy should be treated with antihypertensive therapy to lower the rate of subsequent cardiovascular events.



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Hypertension CANADA

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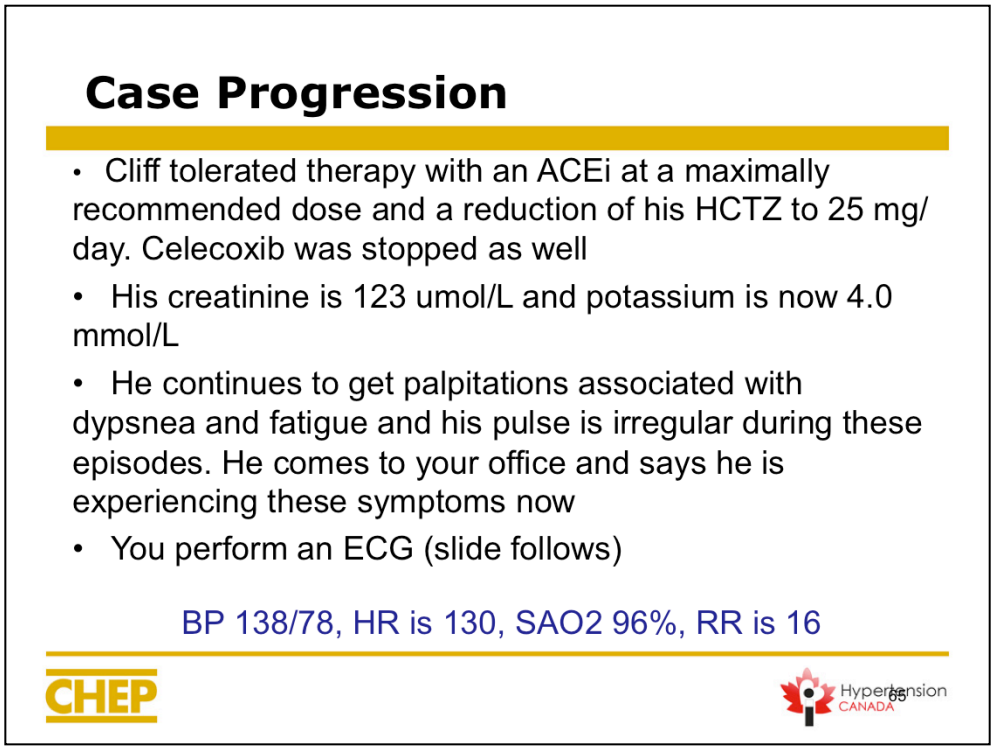
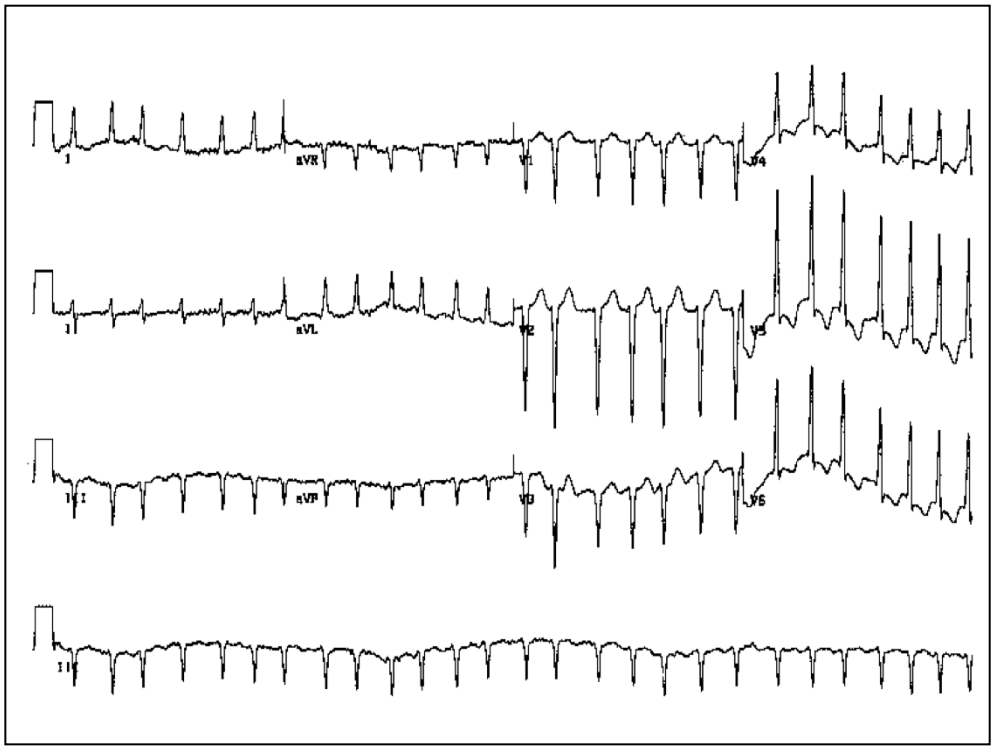


Instructions

Review the progress of the patient case and his current values and then proceed to the next slide.



Instructions

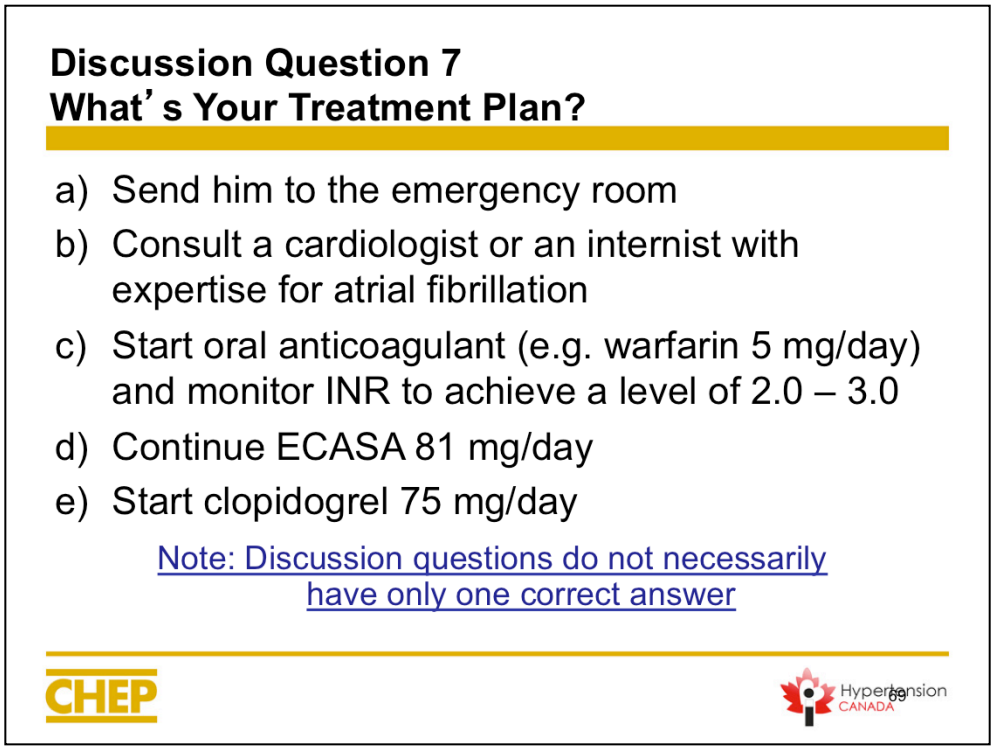
Review the ECG with the group.

Atrial Fibrillation: Uncontrolled Rate

- You start him on bisoprolol 5 mg/day for rate control
- His rate drops to 70-80 bpm but he remains in atrial fibrillation

Instructions

Read the question to the group. A selection of multiple choice answers will follow on the next slide.



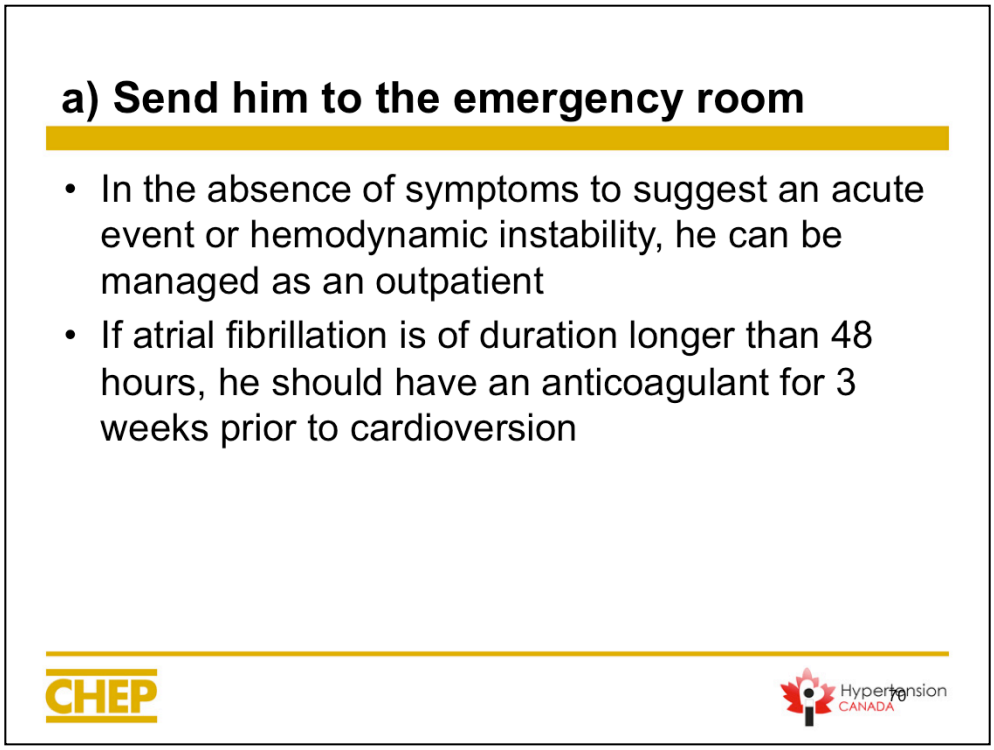
Instructions

Review the options and pause here to discuss with the group.

Discuss the potential merits of each answer.

There is not necessarily one right answer; the goal of the exercise is to have an open discussion.

When you have discussed each possible answer, proceed to see the feedback provided by the case authors.



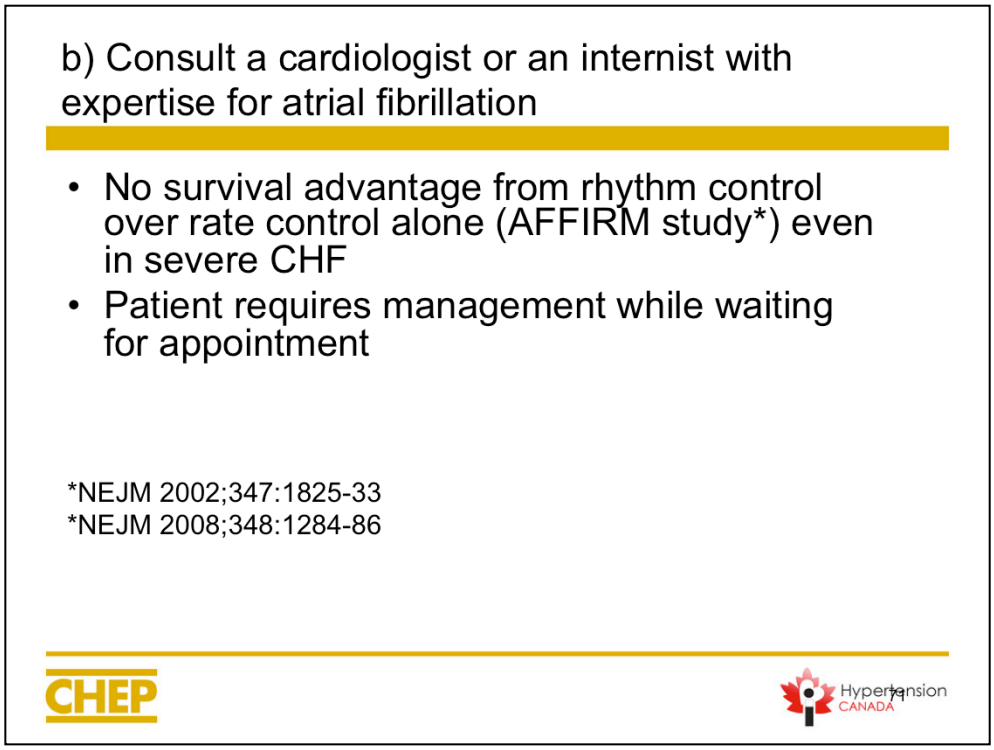
Notes

- There are two large atrial fibrillation trials on rate vs rhythm control
- The Atrial Fibrillation Follow-up Investigation of Rhythm Management (AFFIRM) study looked at patients with normal ejection fraction and no heart failure; it showed no benefit of rhythm control (patients enrolled if they tolerated AF)
- The Atrial Fibrillation and Congestive Heart Failure (AF-CHF) study in heart failure patients with low ejection fractions also showed no benefit. Therefore focus should be on rate control and anticoagulation if required first.

References

1.Atrial Fibrillation: Rate versus Rhythm Control. N Engl J Med 2003; 348:1284-6.

2.Roy D, Talajic M, Nattel S, et al. Rhythm Control versus Rate Control for Atrial Fibrillation and Heart Failure. N Engl J Med 2008; 358:2667-77.



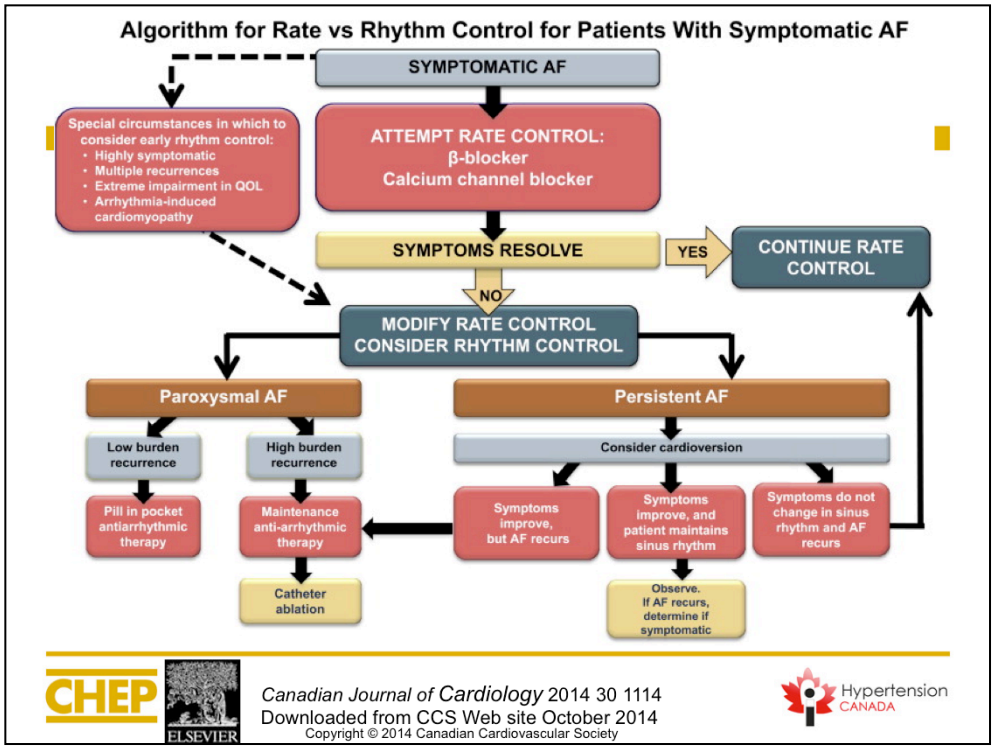
Notes

This patient should not be sent to a cardiologist for conversion without first trying a trial of medical therapy for rate control and a decision on whether to treat with ASA vs warfarin vs clopidogrel.

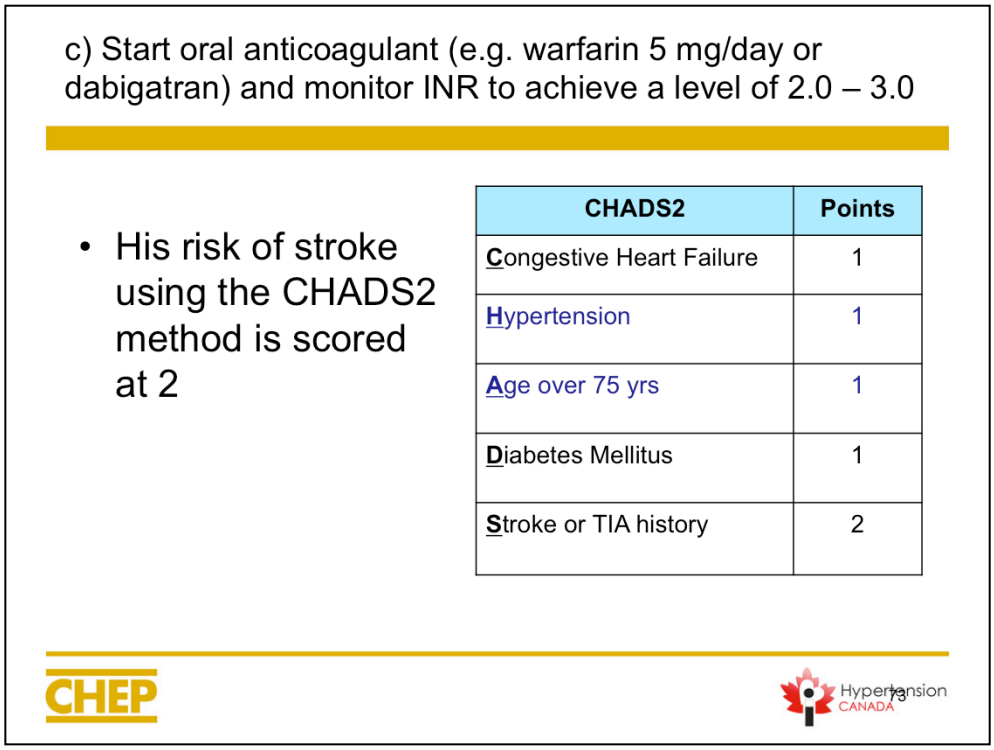
References

1.Atrial Fibrillation: Rate versus Rhythm Control. N Engl J Med 2003; 348:1284-6.

2.Roy D, Talajic M, Nattel S, et al. Rhythm Control versus Rate Control for Atrial Fibrillation and Heart Failure. N Engl J Med 2008; 358:2667-77.



Approach to rate and/or rhythm control of atrial fibrillation (AF) in patients presenting with symptomatic AF. QOL, quality of life.



Notes

•The $CHADS_2$ score is used to assess risk of stroke with atrial fibrillation to determine whether ASA or warfarin is indicated

•The $CHADS_2$ risk index provides a graded scale of risk with increasing numbers of risk factors

•It uses a point system in which 2 points are given for a history of stroke or TIA, and 1 point each for age ≥ 75 years, a history of hypertension, diabetes, or recent congestive heart failure

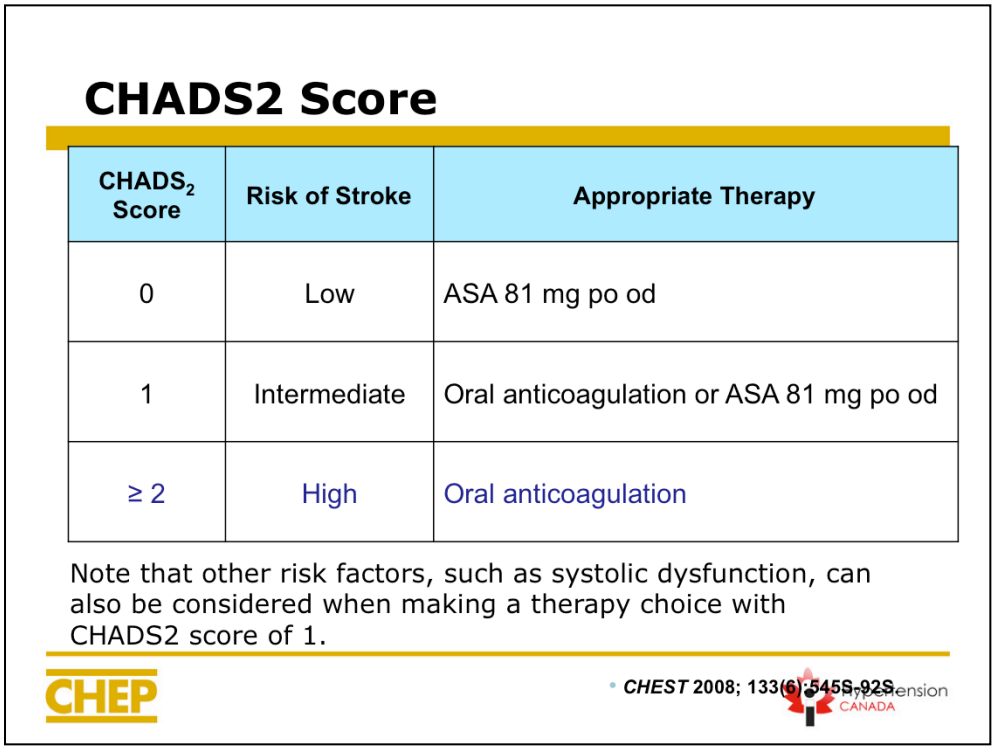
Further slides on other scoring systems such as CHA_2DS_2-VASc and HAS-BLED are available in the supplementary slide deck.

RE-LY Study (Randomized Evaluation of Long-Term Anticoagulation Therapy)

•Recently completed trial comparing dabigatran and warfarin in patients with atrial fibrillation.

•In patients with atrial fibrillation, dabigatran given at a dose of 110 mg was associated with rates of stroke and systemic embolism that were similar to those associated with warfarin, as well as lower rates of major hemorrhage.

•Dabigatran administered at a dose of 150 mg, as compared with warfarin, was associated with lower rates of stroke and systemic embolism but similar rates of

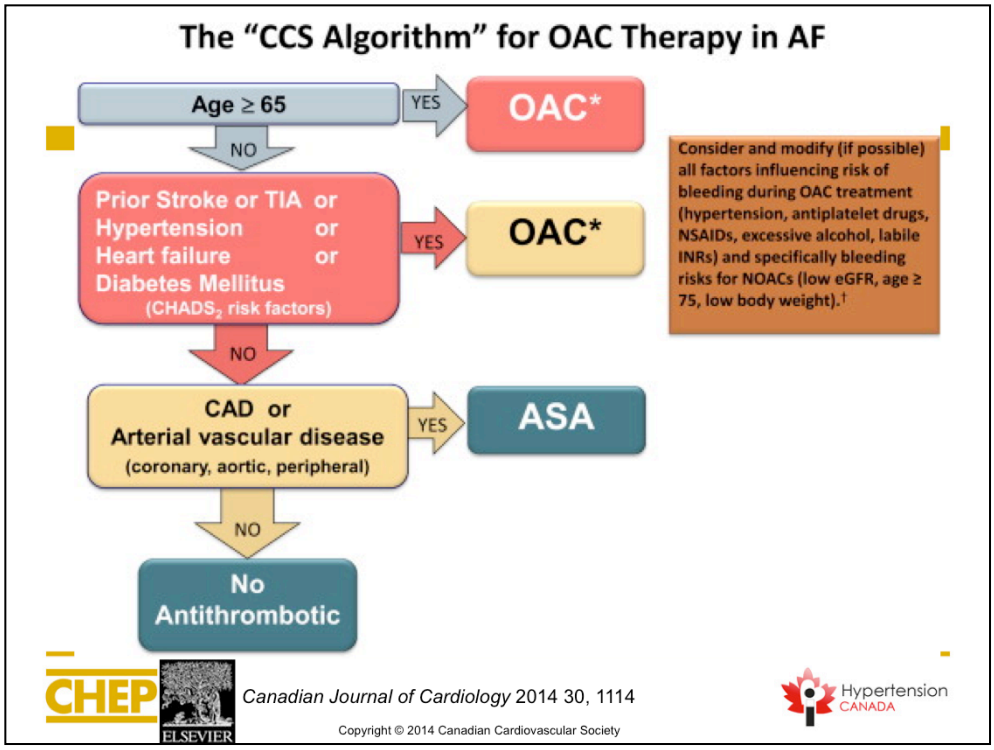


Instructions

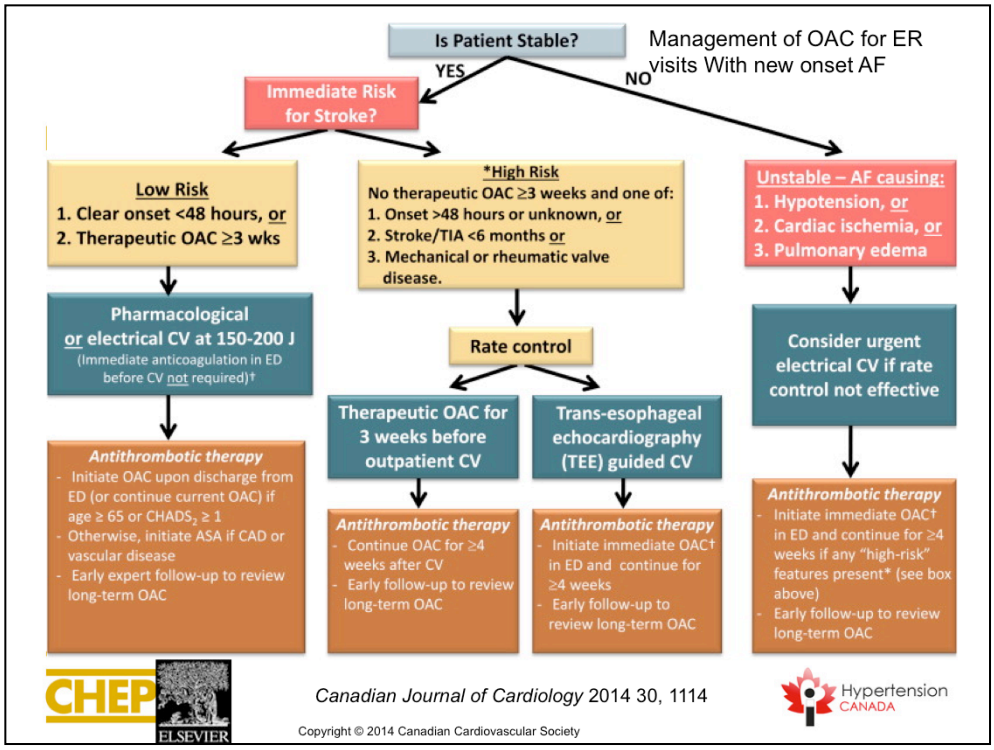
Review the appropriate therapy associated with each CHADS2 score.

Reference

1.Singer DE, Albers GW, Dalen JE, et al. Antithrombotic Therapy in Atrial Fibrillation. CHEST 2008; 133(6):545S-92S.



The simplified "CCS algorithm" for deciding which patients with atrial fibrillation (AF) or atrial flutter (AFL) should receive oral anticoagulation (OAC) therapy. * We suggest that a NOAC be used in preference to warfarin for non-valvular AF. † Might require lower dosing. ASA, acetylsalicylic acid; CAD, coronary artery disease; CCS, Canadian Cardiovascular Society; CHADS2, **C**ongestive Heart Failure, **H**ypertension, **A**ge, **D**iabetes, **S**troke/Transient Ischemic Attack; eGFR, estimated glomerular filtration rate; INR, international normalized ratio; NOAC, novel oral anticoagulant; NSAID, nonsteroidal anti-inflammatory drug; TIA, transient ischemic attack.



Decision algorithm for management of oral anticoagulation (OAC) therapy for patients who present to the emergency department (ED) with recent-onset atrial fibrillation (AF) requiring rate control or cardioversion (CV) in the ED. † Immediate OAC = a dose of OAC should be given just before cardioversion; either a novel direct oral anticoagulant (NOAC) or a dose of heparin or low molecular weight heparin with bridging to warfarin if a NOAC is contraindicated. ASA, acetylsalicylic acid; CAD, coronary artery disease; CHADS2, **C**ongestive Heart Failure, **H**ypertension, **A**ge, **D**iabetes, **S**troke/Transient Ischemic Attack; TIA, transient ischemic attack.

d) Continue ASA 81 mg/day

- Stop ASA*
- His CHADS2 score is 2, indicating moderate-high risk of stroke
- Indicates anticoagulation

*Don't add ASA for associated stable vascular disease in a patient with atrial fibrillation receiving anticoagulation. Lip GY BMJ 2008;336:614

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Notes

- Pharmacologically, near-complete platelet inhibition is achieved with ASA 75 mg
- Low-dose aspirin (<100 mg) is safer than higher doses (such as 300 mg), given that bleeding rates with higher doses of ASA are significant; thus, if ASA is used, it is reasonable to use doses in the lower end of the allowed range (75 to 100 mg daily)[1]
- Recent trials have demonstrated that vitamin K antagonists are superior to antiplatelet therapy.
  - The Birmingham Atrial Fibrillation Treatment of the Aged (BAFTA) study showed a benefit of vitamin K antagonists over ASA with a 52% reduction of stroke or intracranial hemorrhage or arterial embolism but not difference in hemorrhage[2]
  - The Atrial fibrillation Clopidogrel Trial with Irbesartan for prevention of Vascular Events-Warfarin arm (ACTIVE-W) showed that warfarin was superior to ASA and clopidrogel in combination with no difference in bleeding between the arms
  - The ACTIVE-A arm with ASA alone was inferior to ASA and clopidogrel in combination for major vascular events (mostly due to reduction of stroke) but there was significantly more bleeding[3,4]

-Anticoagulation: New direct thrombin inhibitors such as dabagatrin (150 mg bid) are now indicated for atiral fibrillation (except for patients with eGFR <= 30 ml/min)

References

1.Camm JA, Kirchhof P, Lip GYH, et al. Guidelines for the management of atrial fibrillation: the Task Force for the Management of Atrial Fibrillation of the European Society of Cardiology (ESC). Eur Heart J 2010 ; 31(19):2369-429.

2.Mant J, Warfarin versus aspirin for stroke prevention in an elderly community population with atrial fibrillation (the Birmingham Atrial Fibrillation Treatment of the Aged Study, BAFTA): a randomised controlled trial. Lancet 2007;370:493–503.

3.Connolly S Clopidogrel plus aspirin versus oral anticoagulation for atrial fibrillation in the Atrial fibrillation Clopidogrel Trial with Irbesartan for prevention of Vascular Events (ACTIVE W): a randomised controlled trial. Lancet 2006;367:1903–1912.

4.Connolly SJ. Effect of clopidogrel added to aspirin in patients with atrial fibrillation. N Engl J Med 2009;360:2066–2078.

5. Connolly SJ, Ezekowitz MD, Yusuf S, Eikelboom J, Oldgren J, Parekh A, et al. Dabigatran versus warfarin in patients with atrial fibrillation. *N Engl J Med* 2009;361:1139-51.

e) Start clopidogrel 75 mg/day

- His CHADS2 score is 2, indicating moderate-high risk of stroke
- Indicates anticoagulation

Notes

• Pharmacologically, near-complete platelet inhibition is achieved with ASA 75 mg

• Low-dose aspirin (<100 mg) is safer than higher doses (such as 300 mg), given that bleeding rates with higher doses of ASA are significant; thus, if ASA is used, it is reasonable to use doses in the lower end of the allowed range (75 to 100 mg daily)[1]

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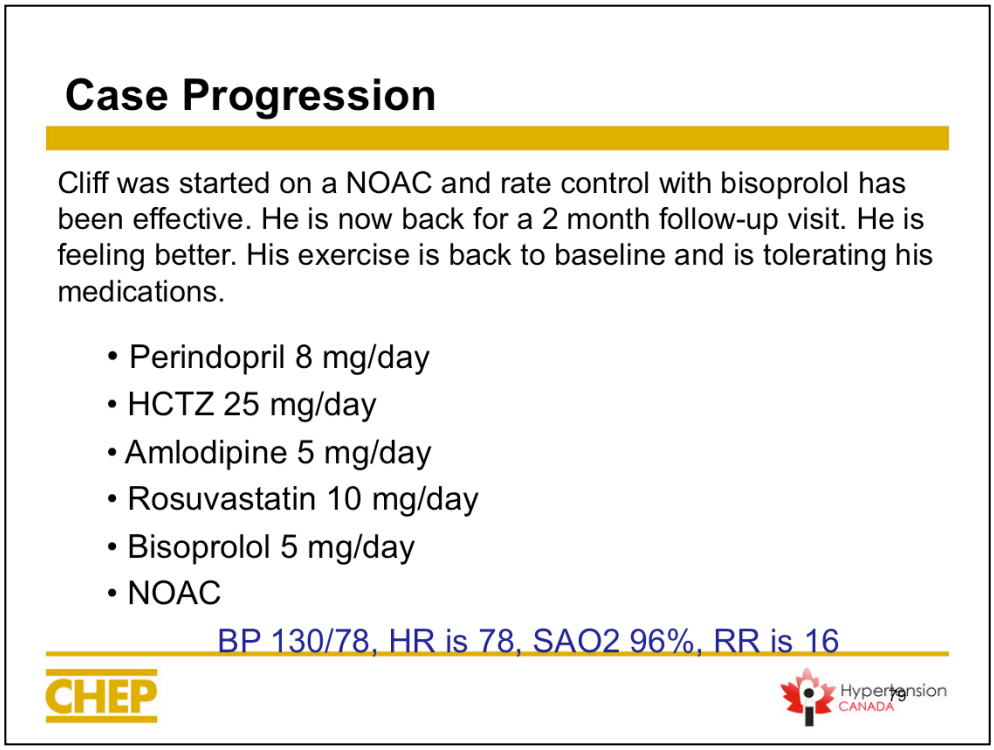
5. Connolly SJ, Ezekowitz MD, Yusuf S, Eikelboom J, Oldgren J, Parekh A, et al. Dabigatran versus warfarin in patients with atrial fibrillation. *N Engl J Med* 2009;361:1139-51.



Instructions

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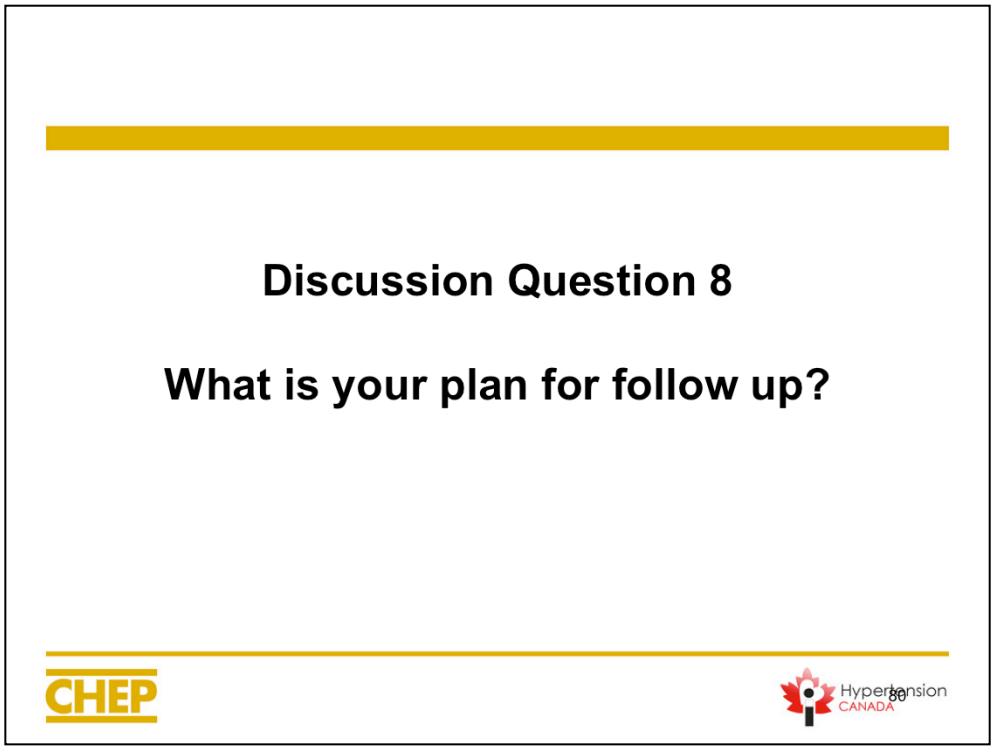
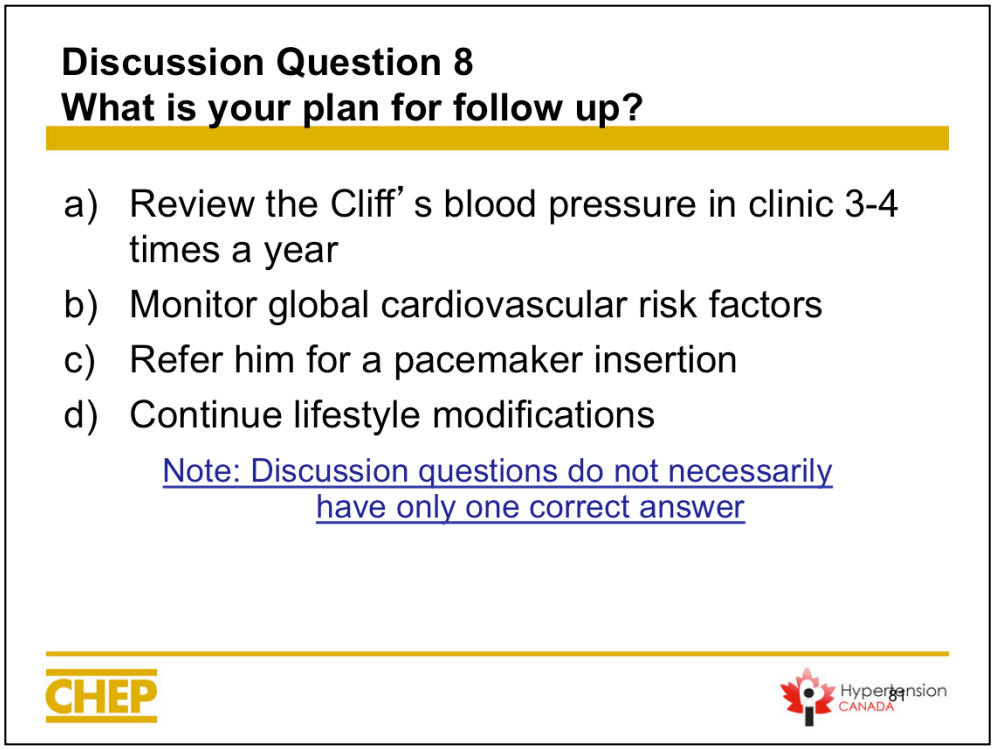


Instructions

Read the question to the group. A selection of multiple choice answers will follow on the next slide.



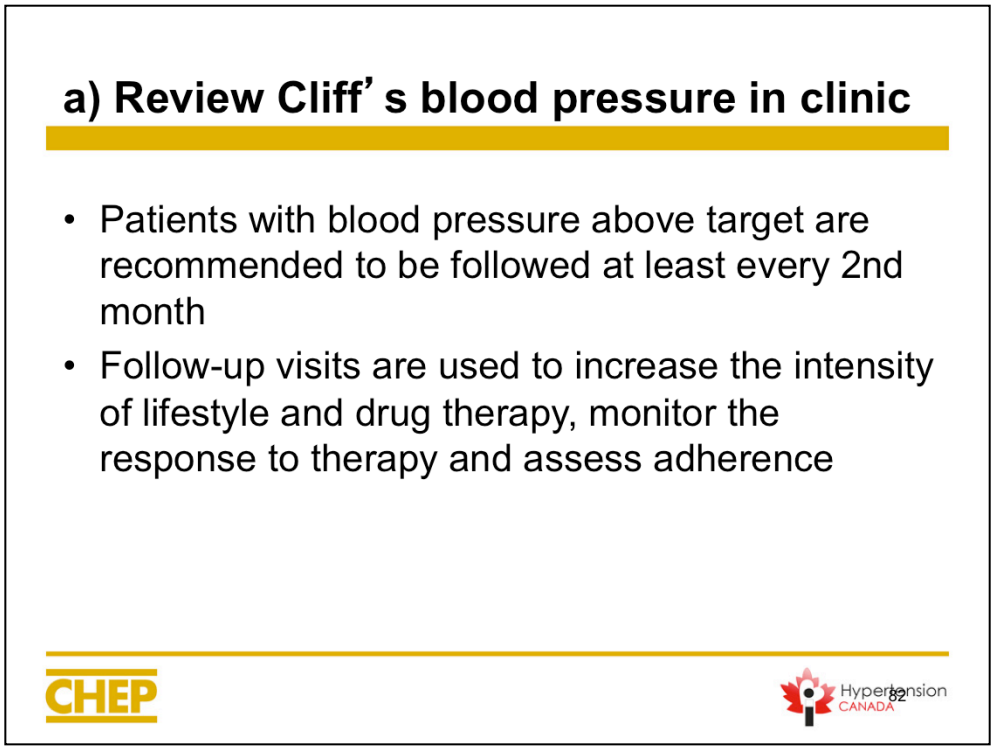
Instructions

Review the options and pause here to discuss with the group.

Discuss the potential merits of each answer.

There is not necessarily one right answer; the goal of the exercise is to have an open discussion.

When you have discussed each possible answer, proceed to see the feedback provided by the case authors.



Instructions

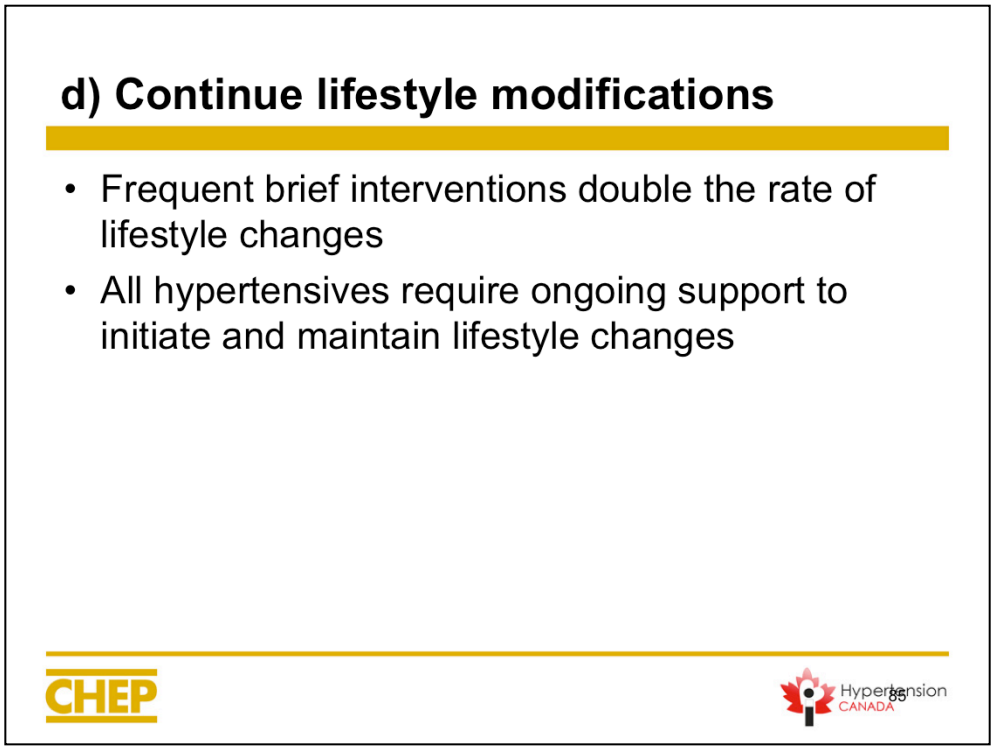
Review the discussion points and the role of the multidisciplinary team to improve adherence.

b) Monitor global cardiovascular risk factors

- This patient is higher risk so he is on a statin
- Ensure his blood pressure remains controlled
- Target < 140/90 mmHg as he has chronic kidney disease, LDL <2.0 and he is on a RAAS blocker

c) Refer him for a pacemaker insertion

- Unnecessary



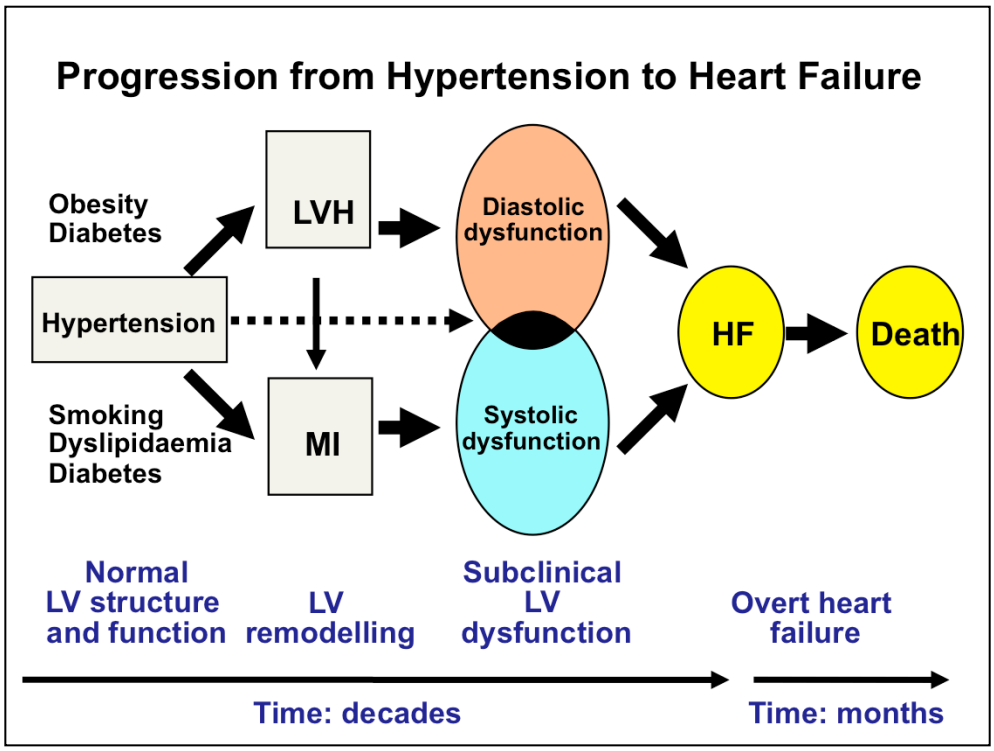
Instructions

Review the discussion points and the role of the multidisciplinary team to improve adherence.

Cliff's wife who is also hypertensive asks: "What can I do to prevent a similar outcome?"

- Cliff is a 76 year old man with longstanding hypertension presenting with dyspnoea
- Likely a manifestation of CHF and atrial fibrillation
- Treated effectively with BP control and management of his atrial fibrillation

How might this have been prevented?

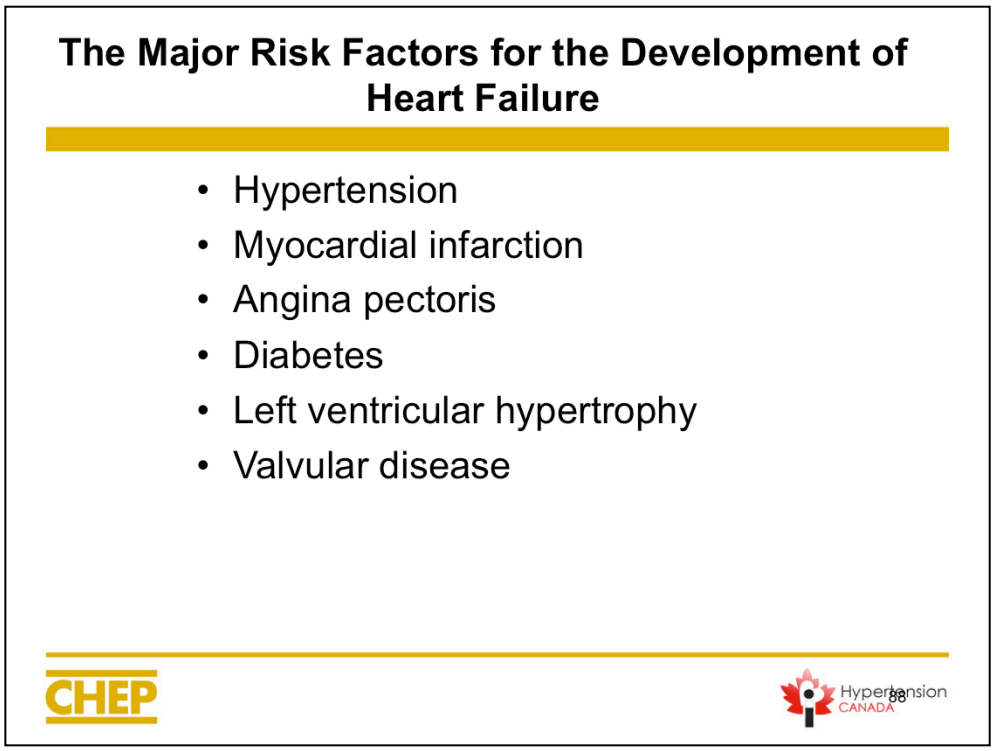


Notes

- The development of heart failure is a complex, continuous and progressive process usually associated with cardiovascular (CV) disease which results from classic risk factors such as hypertension, obesity, diabetes, smoking and dyslipidemia
- In many instances these are present as co-morbidities and, in some instances, there is a synergistic interaction between the various risk factors
- Although it is well recognised that heart failure is the final stage of CV disease resulting from these risk factors, the exact nature of the development process has not been fully elucidated; however a model for the progression from hypertension to heart failure has been developed[1,2]
    - This model provides a single unified hypothesis that effectively links hypertension to heart failure:
    - The model acknowledges that CV disease is a continuous and progressive disease, with a disparate timescale
    - In the early stages in the process of progression to heart failure, the left ventricular structure and function will typically be normal, however, with time the pathologic effects of one or more cardiovascular risk factor will result in the development of structural and functional changes with or without left ventricular hypertrophy and myocardial infarction
    - This may result in left ventricular remodelling and the development of systolic or diastolic dysfunction which in turn often leads to heart failure

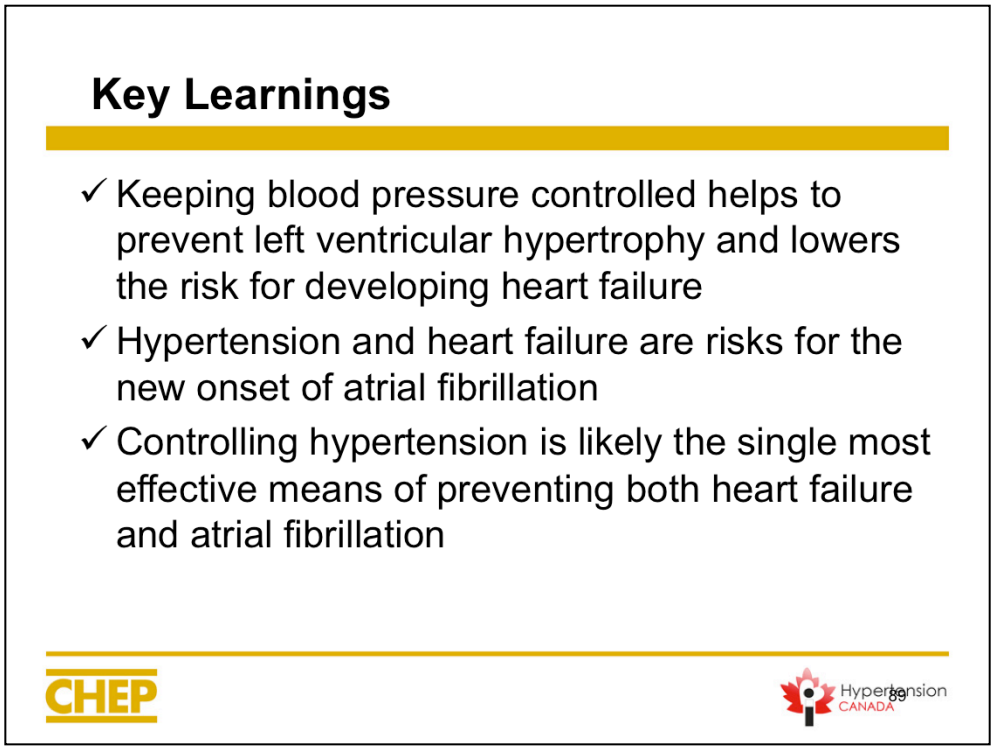
References

1.Vasan RS, Levy D. The Role of Hypertension in the Pathogenesis of Heart Failure: A Clinical Mechanistic Overview. Arch Intern Med, 1996;156:1789-96.



Notes

Whilst this is not an exhaustive list of factors precipitating heart failure, this slide represent the major risk factors associated with the development of heart failure.



Instructions

Review the key points discussed in the meeting.

The full slide set of the
2015 CHEP Recommendations
is available at
www.hypertension.ca

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