



Vascular Risk Reduction: Addressing Vascular Risk





Vascular Risk Reduction (VRR)

Welcome!

- Presentation & Activities
- Focus: Managing known risk factors for vascular disease.
- Engage, collaborate and have fun!



Vascular Risk Reduction

Objectives:

- Discuss the impact of vascular disease in Canada.
- Identify non-modifiable, modifiable and manageable vascular risk factors.
- Describe appropriate management of known vascular risk factors .



Impact of Vascular Disease

Vascular Risk Round Up:

1. Volunteer reads Question card.
2. The person with the correct Answer card must wave it and read the answer aloud.
3. If correct, it will be his/her turn to read out the question on the Question card.
4. If not correct, everyone must agree on the correct answer, then ask the person with the correct Answer card to read out his/her question.
5. Play continues until all questions have been read, along with their correct answers.



Addressing Vascular Risk Factors



Vascular Disease & Risk Factors

Most vascular disease(s) can be prevented or managed by addressing the risk factors

Why are risk factors such a big deal??

- Over 90% of Canadians have one or more risk factors
- Almost every person you come across can have increased risk for vascular disease





Non-Modifiable Risk Factors

- Age
- Gender
- Family History/Genetics
- Ethnicity
- Previous Event (Heart Attack, Stroke, etc)



What are some risk factors we can modify?





Modifiable Risk Factors

May also be called “Healthy Lifestyle Behaviors”

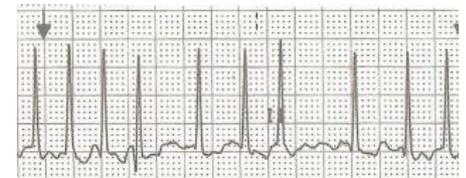
- Tobacco Use
- Physical Inactivity
- Poor Diet
- Obesity or Overweight
- Excess Alcohol
- Unmanaged Stress
- Lack of Sleep





“Manageable” Risk Factors

- Hypertension (High Blood Pressure)
- Dyslipidemia (High Cholesterol)
- “Metabolic Syndrome”
- Diabetes
- Cardiac Disease: Atrial Fibrillation

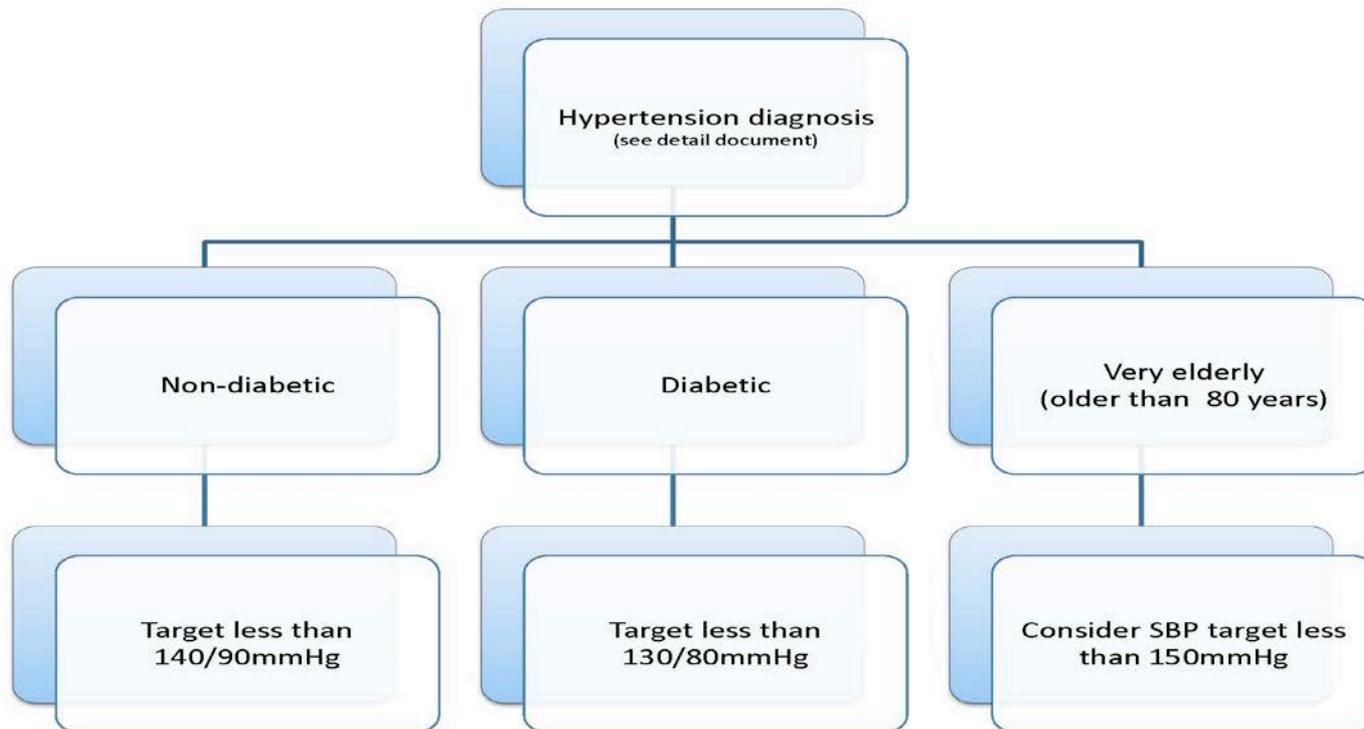




Hypertension (HTN)

- **#1 risk for Stroke and major risk for Heart Disease**
 - #1 risk of death and disability
- Manage HTN, by addressing modifiable risk factors (healthy lifestyle behaviours)
- Antihypertensive therapy should be strongly considered if blood pressure is not within target

Hypertension Targets





Exogenous Factors That Can Elevate Blood Pressure

- Prescription Drugs:
 - NSAIDS, including Cox II inhibitors
 - Corticosteroids and anabolic steroids
 - Oral contraceptives and other hormonal therapy
 - Vasoconstricting/sympathomimetic decongestants
 - Calcineurin inhibitors (cyclosporins, tacrolimus)
 - Erythropoietin and analogues
 - MAOI's – Monoamine Oxidase Inhibitors (Marplan, Nardil, Parnate)
 - Midodrine



Exogenous Factors That Can Elevate Blood Pressure

- Others

Licorice Root

Stimulants including cocaine

Sodium

Excessive Alcohol

Sleep Apnea



Recommended Health Behaviours in Adults with Hypertension:



Intervention

Target



Reduce foods with added sodium

→ 2000 mg /day

Weight loss

BMI <25 kg/m²

Alcohol restriction

≤ 2 drinks/day

Physical activity

30-60 minutes 4-7 days/week

Dietary patterns

DASH diet

Smoking cessation

Smoke free environment

Waist circumference

Men <102 cm

Women <88 cm

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

The treatment of hypertension is all about vascular protection

Statins are recommended in high risk hypertensive patients based on having established atherosclerotic disease or at least 3 of the following:

- Male gender
- 55 y or older
- Smoking
- Type 2 Diabetes
- Total-C/HDL-C ratio of 6 or higher
- Premature Family History of CV disease
- Previous Stroke or TIA
- LVH
- ECG abnormalities
- Microalbuminuria or Proteinuria
- Peripheral Vascular Disease

ASCOT-LLA *Lancet* 2003;361:1149-58



Medication Recommendations

- Low doses of multiple drugs may be more effective and better tolerated than higher doses of fewer drugs.
- A combination of two first line drugs may also be considered as initial treatment if SBP 20 mmHg above target or is DBP is 10 mmHg above target.

Treatment of Systolic-Diastolic Hypertension without Other Compelling Indications

TARGET <140/90 mmHg

Lifestyle modification

Initial therapy

A combination of 2 first line drugs may be considered as initial therapy if the blood pressure is ≥ 20 mmHg systolic or ≥ 10 mmHg diastolic above target

Thiazide diuretic

ACEI

ARB

Long-acting CCB

Beta-blocker*

CONSIDER

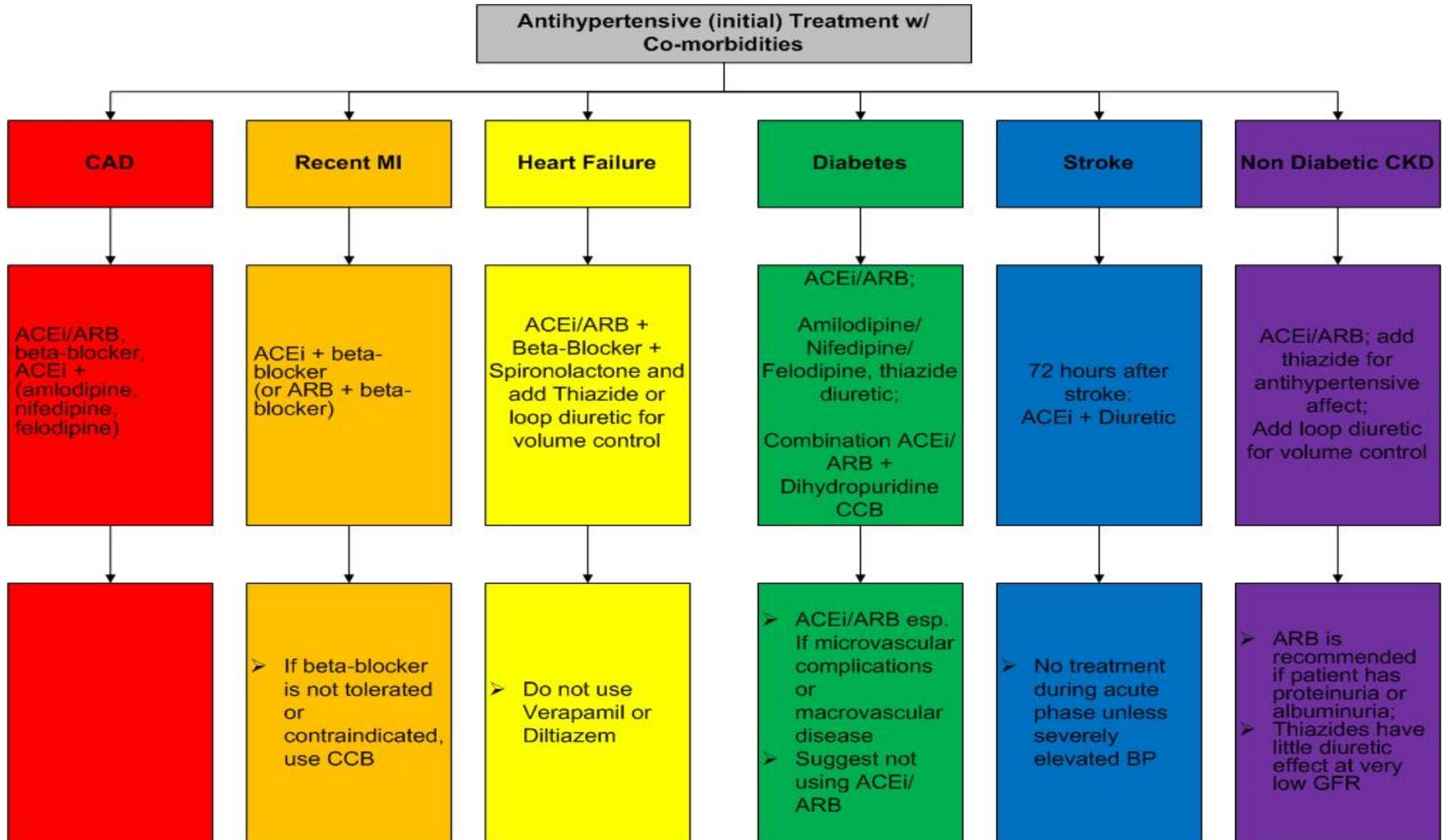
- Nonadherence
- Secondary HTN
- Interfering drugs or lifestyle
- White coat effect

Dual Combination

Triple or Quadruple Therapy

*Not indicated as first line therapy over 60 y

HTN Treatment with Co-morbidities





Vascular Protection for Hypertensive Patients: ASA

Low Dose ASA in patients \geq 50 years

Caution should be exercised if BP is not controlled.



*** Reminder ***

- ACE and ARB combinations are not recommended except for HTN with heart failure refractory to an ACE alone.



How do I monitor and follow up?

- Recommend regular home BP monitoring and keeping a log
- Ask about potential symptoms (dizziness)
- Encourage lifestyle modification at every visit
- Additional blood tests may include serum creatinine, potassium, HbA1C in patients with diabetes

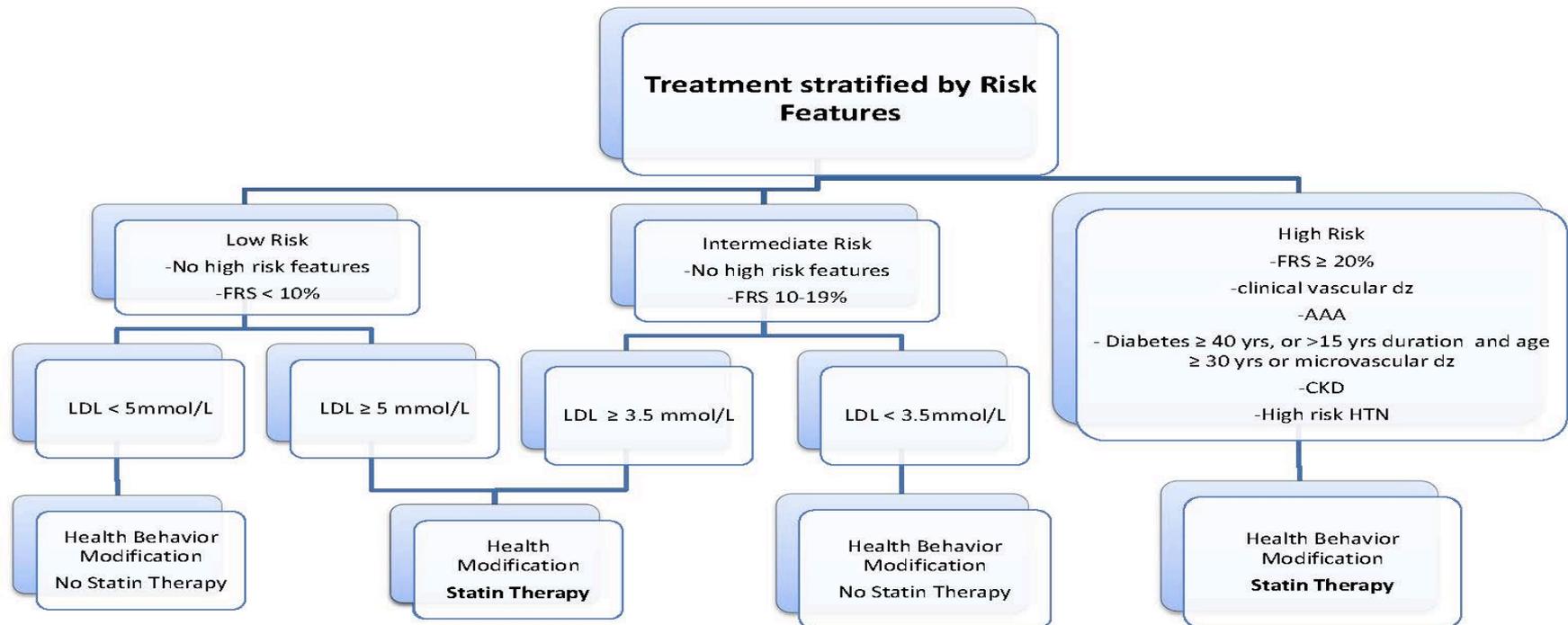


Dyslipidemia

- High cholesterol can contribute to atherosclerosis
- Treatment targets are based on the level of risk
 - *Known Vascular Disease or High cardiovascular risk (FRS > 20%)*
Lifestyle modification + Statin therapy
- For those not already treated and FRS 10-19%, Statin therapy will reduce risk

Dyslipidemia

Treatment Recommendations





Statins: “Myth Busting” for Patients

1. My cholesterol is normal, why do I need a statin?
2. Does changing my diet work as well as taking a statin?
3. What kind of side effects do statins have?
4. Is it true that statins cause serious muscle problems?
5. Is it true that statins can damage the liver?
6. Do I have to take a statin for the rest of my life?
7. Are natural health products a good option to statins?
8. If taking a statin, Do I have to take coenzyme Q10?
9. When is the best time of day to take a statin?
10. Is Lipitor more harmful compared to other statins?



Statins: “Myth Busting” for HCPs

1. Should statins be used in elderly patients?
2. If CK is elevated, should the statin be stopped?
3. If myalgias without CK elevation, should statin be stopped?
4. If not at LDL-C target with a statin, is adding a fibrate OK?
5. Does high-dose statin therapy increase risk of myopathy?
6. Do statins cause diabetes?
7. Do statins cause cognitive impairment?
8. Do statins cause cancer?
9. Does the dose of statin matter in primary prevention?



Metabolic Syndrome (aka Syndrome X)

May be diagnosed if ≥ 3 of the following conditions:

- ❖ Fasting Glucose >5.6 mmol/L
- ❖ Blood Pressure >130/85 mmHg
- ❖ Triglycerides >1.7 mmol/L
- ❖ HDL <1.0 mmol/L in men
<1.3 mmol/L in women
- ❖ Abdominal Obesity (Caucasians)
Waist Circumference >102 cm in men
>88 cm in women



Metabolic Syndrome – Cont'd

The good news... even modest improvements can improve health and reduce poor health outcomes

Research has shown:

↓ body weight 5-7% and ↑ physical activity to 150 mins/wk could reduce the risk of developing Type 2 DM in obese patients

Management includes targeting modifiable risk factors (diet, activity, weight) and monitoring blood glucose, cholesterol and blood pressure regularly



Diabetes - Assessing Plasma Glucose

Test Result	FPG (mmol/l)	OGTT (mmol/l)	HbA1C (%)
Normal	FPG \leq 6	OGTT $<$ 7.8	HbA1c $<$ 6
Impaired	6.1 \leq FPG $<$ 7	7.8 \leq OGTT $<$ 11.1	6 \leq HbA1c \leq 6.4
Diabetes	FPG \geq 7	OGTT \geq 11.1	HbA1c \geq 6.5

*If one of these measurements was indicating diabetes without any hyperglycemia symptoms, the test should be repeated on another day to confirm the diagnosis



Glycemic Control Targets

Glycemic control targets should be individualized based on the following:

- Age
- Diabetes duration
- Life expectancy
- Risk of severe hypoglycemia
- Presence or absence of cardiovascular disease

A target of HbA1c \leq 7% is recommend in most patients with diabetes



Diabetes Management

Optimal glucose control is very important in diabetes treatment. Diabetes can be treated by:

1. Lifestyle Adjustments
2. Oral Antihyperglycemic medications
3. Insulin

Type 2 diabetes treatment should start with lifestyle adjustment; if lifestyle adjustment fails to achieve the target blood glucose after 2-3 months, antihyperglycemic medication should be started



Diabetes – Medical Management

Diabetes treatment should be individualized based on the properties of the antihyperglycemic medications, e.g. efficacy, contraindications, side effects and risk of hypoglycemia

For more information on specific pharmacotherapy recommendations, go to the Canadian Diabetes Association 2013 Clinical Practice Guidelines at:

<http://guidelines.diabetes.ca/>





Atrial Fibrillation

Irregular rhythm / contraction of the atrium muscles

Why is it important to treat?

- Formation of blood clots \longrightarrow Stroke / TIA
- Worsening of other cardiac conditions (i.e. heart failure)

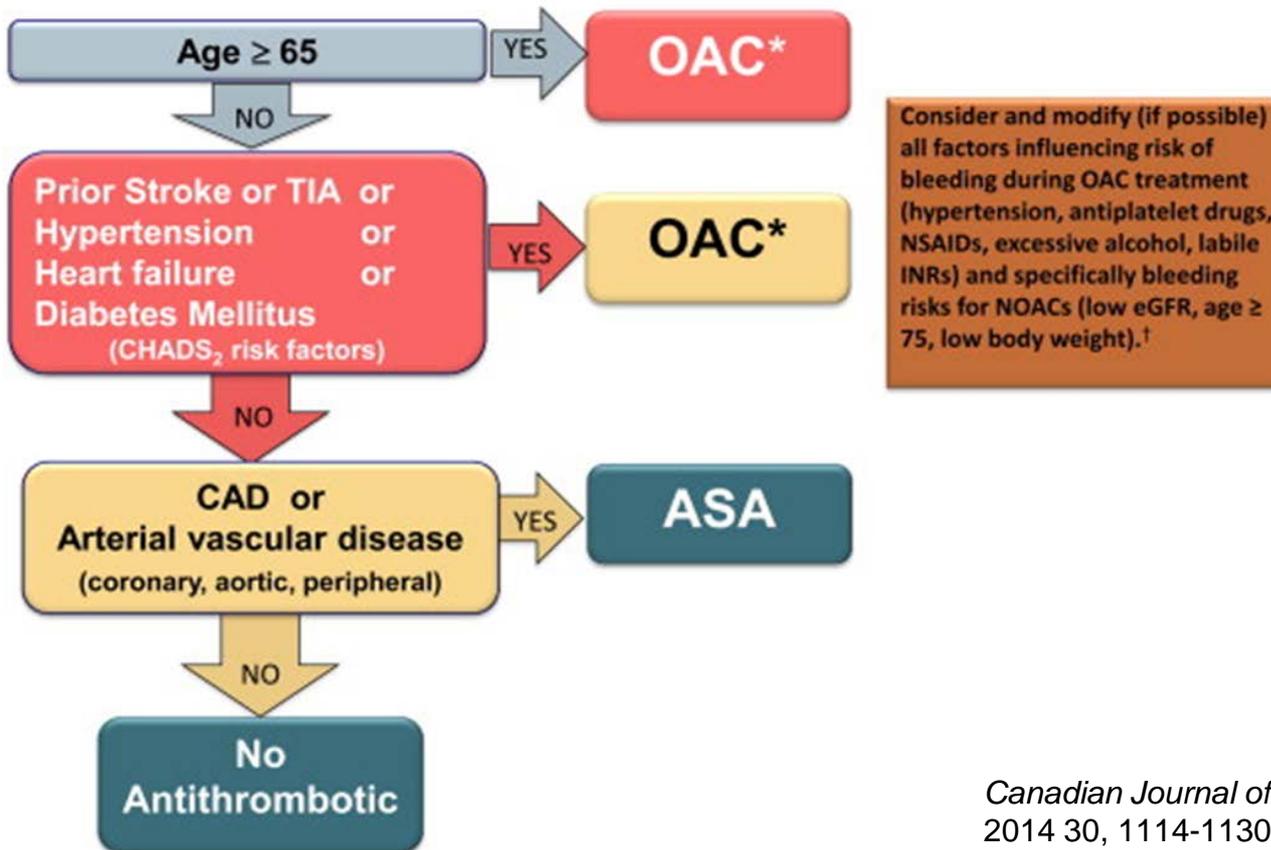
When is it important to treat?

- Decision tools (CHADS2 or CHA2DS2-VASc)
- CCS Algorithm



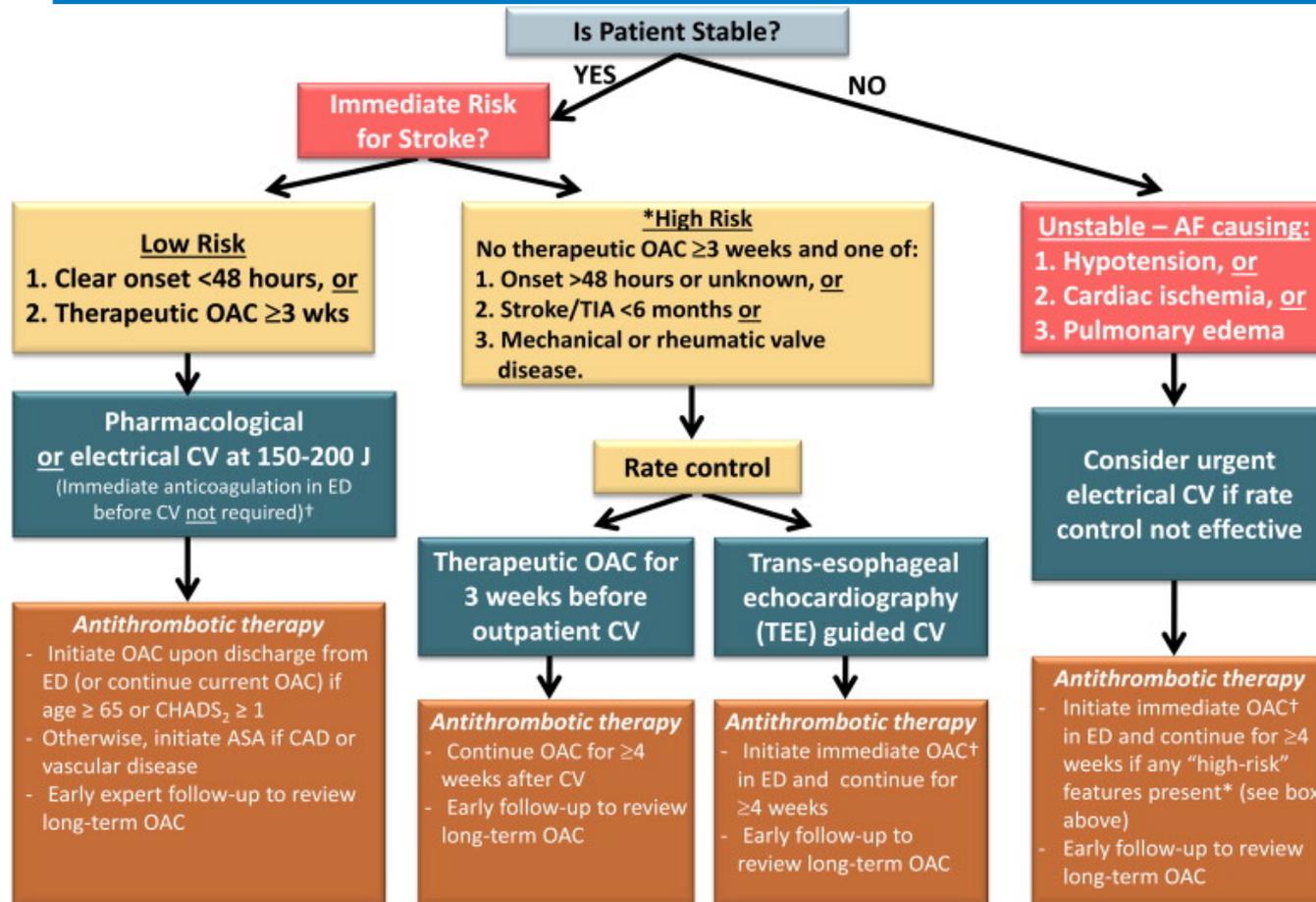
Atrial Fibrillation: Treatment

The “CCS Algorithm” for OAC Therapy in AF



Canadian Journal of Cardiology
2014 30, 1114-1130 DOI: (10.1016/j.cjca.2014.08.001)

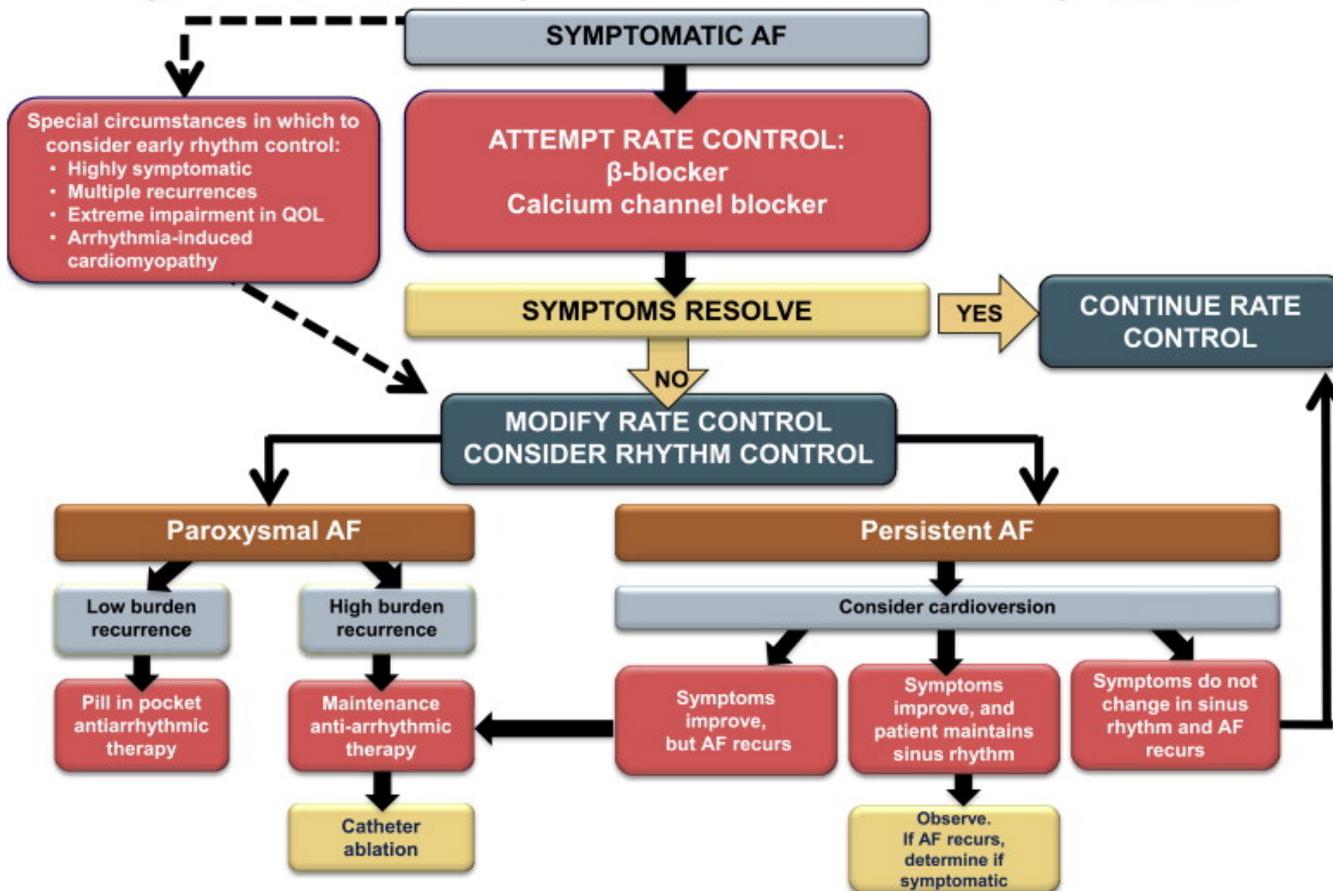
Atrial Fibrillation: Treatment (in the ED)



Canadian Journal of Cardiology
2014 30, 1114-1130DOI:
(10.1016/j.cjca.2014.08.001)

Atrial Fibrillation: Treatment

Algorithm for Rate vs Rhythm Control for Patients With Symptomatic AF



Canadian Journal of Cardiology
2014 30, 1114-1130 DOI:
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Atrial Fibrillation: Treatment

Anti-coagulants

- NOACs (novel oral anticoagulant)
 - include Dabigatran (Pradex), Rivaroxaban (Xarelto) & Apixaban (Eliquis)
- Warfarin (Coumadin)

Rhythm and Rate control

- Beta-blockers, CCB's (Digoxin), Amiodarone

***Individuals with atrial fibrillation have a risk of stroke that is 3 to 5 times greater than those without AF.**



Addressing Vascular Risk

Key Messages:

- Support Healthy Lifestyle Behaviours to reduce vascular risk
- Strongly consider antihypertensive therapy if blood pressure is not within target
- Base dyslipidemia treatment on level of vascular risk
 - Those with **High Cardiovascular Risk** or known **Vascular Disease** should be treated with **statin therapy**
- Optimal glucose control is important in diabetes treatment.
- Treat atrial fibrillation when indicated

Questions?



A Special Thanks to:

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References:

Canadian Cardiovascular Society:

<http://www.ccs.ca/index.php/en/>

C-CHANGE Clinical Resource Centre:

<http://www.c-changeccrc.ca/>

Harmonization of guidelines for the prevention and treatment of cardiovascular disease: the C-CHANGE Initiative – www.cmaj.ca (November 18, 2014)

Heart and Stroke Foundation of Canada:

<http://heartandstroke.com>

References:

Hypertension Canada (CHEP recommendations):

<http://hypertension.ca>

Vascular Risk Reduction Resource:

<http://www.albertahealthservices.ca/10585.asp>