Cardiac Conditions: Hypertension and Hyperlipidemia

Presented by UIC College of Nursing
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Agenda

- Introduction
- Background
- Management
1. Provide a basic level of knowledge regarding hypertension and hyperlipidemia to care coordinators/team members.

2. Identify warning signs and red flag symptoms of hypertension and hyperlipidemia.

3. Discuss care coordinator/team member actions related to hypertension and hyperlipidemia.
As your heart pumps, it forces blood throughout your body.

The action of the heart causes difference between systolic (pumping) and diastolic (resting) blood pressure.

Force is needed to ensure blood gets where it is needed.

Too much force can cause damage.
## Blood Pressure

<table>
<thead>
<tr>
<th>Blood Pressure Category</th>
<th>Systolic mm Hg (upper #)</th>
<th>Diastolic mm Hg (lower #)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Normal</strong></td>
<td>less than 120</td>
<td>and</td>
</tr>
<tr>
<td><strong>Prehypertension</strong></td>
<td>120 – 139</td>
<td>or</td>
</tr>
<tr>
<td><strong>High Blood Pressure (Hypertension) Stage 1</strong></td>
<td>140 – 159</td>
<td>or</td>
</tr>
<tr>
<td><strong>High Blood Pressure (Hypertension) Stage 2</strong></td>
<td>160 or higher</td>
<td>Or</td>
</tr>
<tr>
<td><strong>Hypertensive Crisis (Emergency care needed)</strong></td>
<td>Higher than 180</td>
<td>Or</td>
</tr>
</tbody>
</table>

(American Heart Association, 2016)
What is high blood pressure?

When the force of blood flow is consistently too high
1/3 of Americans over age 20 have high blood pressure.

Almost 20% are not aware they have high blood pressure.

Only about 50% of US adults with high blood pressure have it under control.

If untreated, high blood pressure can lead to damage in the circulatory system.

High blood pressure increases your risk for heart disease and stroke.

Many people do not experience symptoms.

(American Heart Association, 2016; CDC, 2016; CDC, 2015)
Causes for Hypertension

- Kidney Function
- Hormone levels that control renal fluids and electrolyte imbalance
- Sympathetic nervous system function
- Blood vessel structure and function
- Lifestyle habits
- Genetics
Blood Pressure and Related Conditions

- About 70% of individuals having their first heart attack have high blood pressure.
- Approximately 80% of individuals having their first stroke have high blood pressure.
Many of the transitioning members have been diagnosed with hypertension.

Factors related to transition may make it more difficult to manage blood pressure such as
- Learning to self-monitor blood pressure
- Shopping and preparing his or her own meals
- Medication management skills
- Co-morbid conditions

Many mortalities in Williams and Colbert are linked to cardiovascular causes.
Consequences of Hypertension

- Hypertension makes the heart work harder to get blood and oxygen where it needs to go
- Can cause hardening of the arteries (atherosclerosis)
- Can lead to heart disease and stroke (first and third leading causes of death in US)
Major Complications

- Stroke
- Kidney Damage
- Heart Attack
- Damage to Eyes
- Chest Pain
- Seizures in Pregnancy
- Loss of Consciousness
- Fluid back up in the lungs
Hypertension Management

- There are a lot of medications available for hypertension management
- It takes time to find the right medication or combination of medications
- Taking medications at night can be beneficial
- Consistently taking medication as prescribed is necessary for efficacy

(American Heart Association)
Thiazide-type diuretics
- Hydrochlorothiazide, Diuril, Indapamide

Angiotensin-converting enzyme (ACE) inhibitors

Angiotensin II receptor blockers (ARBs)
- Irbesartan ([Avapro](https://www.avapro.com/)), Losartan ([Cozaar](https://www.cozaar.com/)), Olmesartan ([Benicar](https://www.benicar.com/)), Telmisartan ([Micardis](https://www.micardis.com/)), Valsartan ([Diovan](https://www.diovan.com/))

Calcium channel blockers
- Amlodipine ([Norvasc](https://www.norvasc.com/)), Diltiazem ([Cardizem](https://www.cardizem.com/)), Nifedipine, Verapamil

Beta blockers
- Metoprolol, Propanolol, Atenolol
Hypertension Management

- Ensure appointments with healthcare providers are kept
- Keep a list of all medications (prescription and over the counter)
- Expect to take medications for life
- Never cut back or decrease dosages without consulting with a healthcare provider

(American Heart Association)
Management Factors

- Medication
- Nutrition
- Exercise

Care Plan
Condition Management Review

- Collaborate with providers
- Medication plan
- Hypertension supplies
- Self-management skills
- Nutrition
- Lifestyle habits and choices
- Red flags
- Assessment
Many individuals with hypertension have multiple health conditions.

Individuals commonly have multiple providers and need to be seen regularly to monitor:
- Primary Care Provider (every 3 months)*
- Cardiologist (once a year)*
- Co-morbidity specialists (varies)

Collaboration:
- Prevents duplicating treatment
- Facilitates a comprehensive care plan
- Identifies complications
- Identifies resources

Impact of co-morbid conditions

*At Least
## Monitoring Supplies

- Blood Pressure Cuff
- Blood Pressure Log
- Action Guide

### Blood Pressure Tracker

<table>
<thead>
<tr>
<th>Date</th>
<th>Time (a.m.)</th>
<th>Blood pressure (a.m.)</th>
<th>Time (p.m.)</th>
<th>Blood pressure (p.m.)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/8</td>
<td>11:45</td>
<td>137/87</td>
<td>8:24</td>
<td>154/95</td>
<td>Stressful day at work</td>
</tr>
</tbody>
</table>
Monitoring Blood Pressure

Be still
- No smoking, drinking caffeine, or exercise 30 minutes before measuring
- Avoid conversation when your blood pressure is being taken

Sit correctly
- Back straight and supported (on a dining chair, not sofa), feet flat on the floor and legs uncrossed
- Arm supported on flat surface (such as a table) with the upper arm at heart level
- Know correct placements for the cuff you are using

Measure at the same time every day

Take multiple readings and record the results
- Take two or three readings one minute apart
- Record the results using a paper, online tracker or monitor’s built-in memory

(American Heart Association, 2016)
Self Management

- What tasks does the member need to do?
- What is their current knowledge?
- How do they learn?
- Who can be involved?
Self Management
Nutrition

- Talk to the care team about recommended diet
- Healthy food choices play a large role in management
- Nutrition
  - DASH diet – increase servings of fruits and vegetables, decrease fats, lean meats and proteins, decrease sodium, 2000 calorie max
  - Monitor sodium intake
Lifestyle Choices and Habits

Sleep

Exercise

Hygiene
Exercise

- 150 minutes of moderate exercise per week
- Can include household chores, walking, swimming, climbing stairs, or exercise classes
- [https://www.silversneakers.com/](https://www.silversneakers.com/) is a free gym program with many healthcare plans
Red Flags

“Silent Killer”

Chest Pain

Strong Headache

Muscle Weakness

Confusion / Fatigue

Difficulty Breathing

Arm/Jaw Pain

Changed Coordination

Dizziness / Lightheaded

Fainting

Blurred Vision

Cold / Clammy Skin

Nausea / Vomiting

Sweating
What do I do?

1. If there is imminent danger (the person is not responding, having difficulty talking, breathing, not thinking clearly, etc.) stay with the member and call emergency services.

2. If the person has an ongoing problem that is not resolving or getting worse, assist the member to seek more help.
   
   A. Use your team
   B. Call providers to communicate symptoms
   C. Assist in getting further evaluation
   D. Follow-up
Common Barriers

- Education level
- Income
- Access to providers
- Motivation
- Health literacy
- Functional status
- Social support
- Co-morbid Conditions
- Others?
Assessment Before Transition

- What have recent blood pressures been?
- Is the member able to self-monitor AND report blood pressures (assess over time, not just single session)?
- What medications are prescribed and when were they last changed?
- How compliant is member with medication, diet and exercise?
- What changes will occur at transition that might impact member’s BP (access to activities, cooking independently, medication self administration)?
• Is Member medication compliant?
• Is Member seeing providers as recommended?
• Are providers receiving information regarding member’s current condition?
• Is member regularly monitoring their blood pressure?
• Are blood pressure readings within safe limits?
• Are blood pressure readings being reported to health care providers?
• Is member having any red flag symptoms?
• Is member experiencing any side effects to medication (dizziness, confusion, falls)?
• What is member’s nutritional status?
• Does member have regular access to physical activity?
Why does this Matter?

High Blood Pressure Deaths on the Rise

More Americans are dying from high blood pressure today than a decade ago. Meanwhile, the prevalence of high blood pressure continues to climb, with about 41 percent of U.S. adults expected to have high blood pressure by 2030.

46,765 → 65,123
2001 2011
Increase in annual number of high blood pressure-related deaths 39%

16.9 → 18.9
2001 2011
Increase in high blood pressure-related deaths per 100,000 people 13%

Sources: Centers for Disease Control and Prevention, National Center for Health Statistics, National Heart, Lung, and Blood Institute, American Heart Association
What is hyperlipidemia?
- Blood has too many lipids (fats)
- Hypercholesterolemia- too much bad cholesterol (LDLs) in blood
73.5 million adults (31.7%) in the United States have high low-density lipoprotein (LDL), or “bad,” cholesterol.

Fewer than 1 out of every 3 adults (29.5%) with high LDL cholesterol has the condition under control.

Less than half (48.1%) of adults with high LDL cholesterol are getting treatment to lower their levels.

People with high total cholesterol have approximately twice the risk for heart disease as people with ideal levels.

Nearly 31 million adult Americans have a total cholesterol level greater than 240 mg/dL.
How are lipids measured?

- Two types of lipids are in the blood
  - Cholesterol - produced naturally in the liver because every cell in the body uses it and travels in the bloodstream through vessels and two types High density lipoprotein (HDL) and Low density lipoprotein (LDL)
  - Triglycerides - fats directly from your diet that come from extra calories
Blood work

- Lipid panel- includes Cholesterol (LDL, HDL)
  - LDL- “bad cholesterol” – less than 130 mg
  - HDL- “good cholesterol”- higher than 60 mg
  - Total Cholesterol- less than 200 mg
  - Triglycerides- less than 150 mg

- NIH Medline Plus 2012
Causes for Hyperlipidemia

- Diet
- Physical activity
- Smoking
- Excessive alcohol
- Pregnancy
- Liver Disease and Failure
- Lupus
- HIV/AIDS
- Genetics
- Specific diseases and medications (renal disease, hypothyroidism)(diuretics)
Hyperlipidemia and other Conditions

- Diabetes Mellitus increases the risk for high cholesterol.
- Body needs glucose (sugar) for energy. Insulin is a hormone made in the pancreas that helps move glucose from the food eaten to body’s cells.
- Diabetics do not make enough insulin or can’t use its own insulin as well as it should, or both.
- Diabetes causes sugars to build up in the blood.
Many of the transitioning members have been diagnosed with hyperlipidemia.

Factors related to transition may make it more difficult to manage hyperlipidemia
- Follow up with labs and appointments
- Shopping and preparing his or her own meals
- Medication management skills
- Co-morbid conditions

Many mortalities in Williams and Colbert are linked to cardiovascular causes
Complications of Hyperlipidemia

- Heart Attack
- Stroke
- Heart disease
- Vascular Disease
Hyperlipidemia Management

- Goal is to decrease LDL level if no event
  - Lifestyle management
    - Diet, exercise, reducing stress
  - Medication management
Diet and Exercise

- Diet low in saturated and trans fats
- Choose fruits, vegetables, foods with high omega 3 such as avocado, fish, nuts, lean meats, whole grains, low sugar, non tropical vegetable oils (canola, corn, olive, safflower)
- Limit sugary sweets, red meat, full fat daily, salty foods, fried foods
- Cardiac activity 30 minutes 5 times weekly
- Eliminate tobacco
- Reduce alcohol intake
Medication Management
- Initial Drug Therapy are **Statins**
  - Atorvastatin, Pravastatin, Simvastatin, Lovastatin (Lipitor, Crestor, Zocor)
  - Zetia, Vytorin, Niacin
Labs to determine if member will be started on medications

- Side effects of medications
  - Liver Injury- increased enzymes
  - Muscle Injury- muscle pain
  - Diabetes

- Monitor labs every 3 months while on medication
Hyperlipidemia Follow up

- Ensure appointments with healthcare providers are kept
- Keep a list of all medications (prescription and over the counter)
- Monitor shopping and food choices
- Never cut back or decrease dosages without consulting with a healthcare provider

(American Heart Association)
Condition Management Overview

- Collaborate with providers
- Medication plan
- Self-management skills
- Nutrition
- Lifestyle habits and choices
- Red flags
- Assessment
Many individuals with hyperlipidemia may have multiple health conditions

Individuals commonly have multiple providers and need to be seen regularly to monitor

- Primary Care Provider (every 3 months)*
- Cardiologist (once a year)*
- Co-morbidity specialists (varies)

Collaboration

- Prevents duplicating treatment
- Facilitates a comprehensive care plan
- Identifies complications
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Impact of co-morbid conditions
Self Management

- What tasks does the member need to do?
- What is their current knowledge?
- How do they learn?
- Who can be involved?
- Talk to the care team about recommended diet
- Healthy food choices plays a large role in management
- Nutrition
  - Low Cholesterol—increase servings of fruits and vegetables, decrease fats, increase lean meats and proteins, decrease sodium, 2000 calorie max, decrease sweets, full fat dairy
  - Monitor sodium intake
Physical Activity

- At least 30 minutes of cardio activity 5 times weekly
- This can include walking, swimming, household chores
Red Flags

“Silent Killer”
Chest Pain
Strong Headache
Muscle Weakness
Confusion / Fatigue
Difficulty Breathing
Arm/Jaw Pain
Changed Coordination
Dizziness / Lightheaded
Fainting
Blurred Vision
Cold / Clammy Skin
Nausea / Vomiting
Sweating
What do I do?

1. If there is imminent danger (the person is not responding, having difficulty talking, breathing, not thinking clearly, etc.) stay with the member and call emergency services.

2. If the person has an ongoing problem that is not resolving or getting worse, assist the member to seek more help.
   A. Use your team
   B. Call providers to communicate symptoms
   C. Assist in getting further evaluation
   D. Follow-up
Common Barriers

- Education level
- Income
- Access to providers
- Motivation
- Health literacy
- Functional status
- Social support
- Co-morbid Conditions
- Others?
Assessment Before Transition

- What was recent cholesterol?
- Is the member able to follow up with PCP, cardiology or dietician?
- What medications are prescribed and when were they last changed?
- How compliant is member with medication, diet and exercise?
- What changes will occur at transition that might impact member’s lipid levels (access to activities, cooking independently, medication self administration)?
Assessment After Transition

- Is Member medication compliant?
- Is Member seeing providers as recommended?
- Are providers receiving information regarding member’s current condition?
- Is member having lab work done regularly?
- Is member having any red flag symptoms?
- Is member experiencing any side effects to medication (dizziness, confusion, falls)?
- What is member’s nutritional status?
- Does member have regular access to physical activity?
Resources:

- American Heart Association
  - www.heart.org
- Silver Sneakers
  - https://www.silversneakers.com
- Centers for Disease Control and Prevention


References


Conclusion