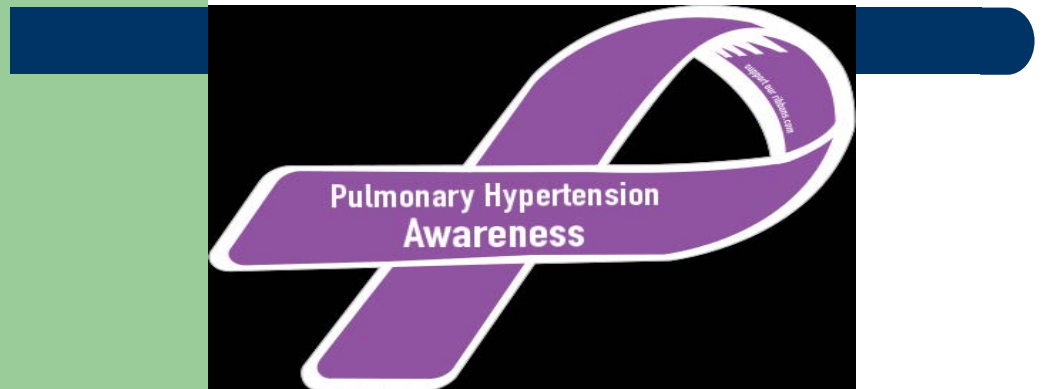


Understanding Pulmonary Hypertension



National Standards
Cardiac
Respiratory



Dedicated to John Sperando



Case Study

- You respond to a patient with difficulty breathing
- Upon arrival you find a 45 year old in respiratory distress

Case Study

- General Impression
 - Appearances
 - Tripod Position
 - Using accessory muscles
 - Work of Breathing
 - Increased
 - Circulation (CTC)
 - Moist
 - Pale

Case Study

- Chief Complaint
 - “I cannot catch my breath”
 - “I have Pulmonary Hypertension”
- Thoughts so far??

Case Study

- How many of you have heard of Pulmonary Hypertension?
- Do you know what it is?

Further Information

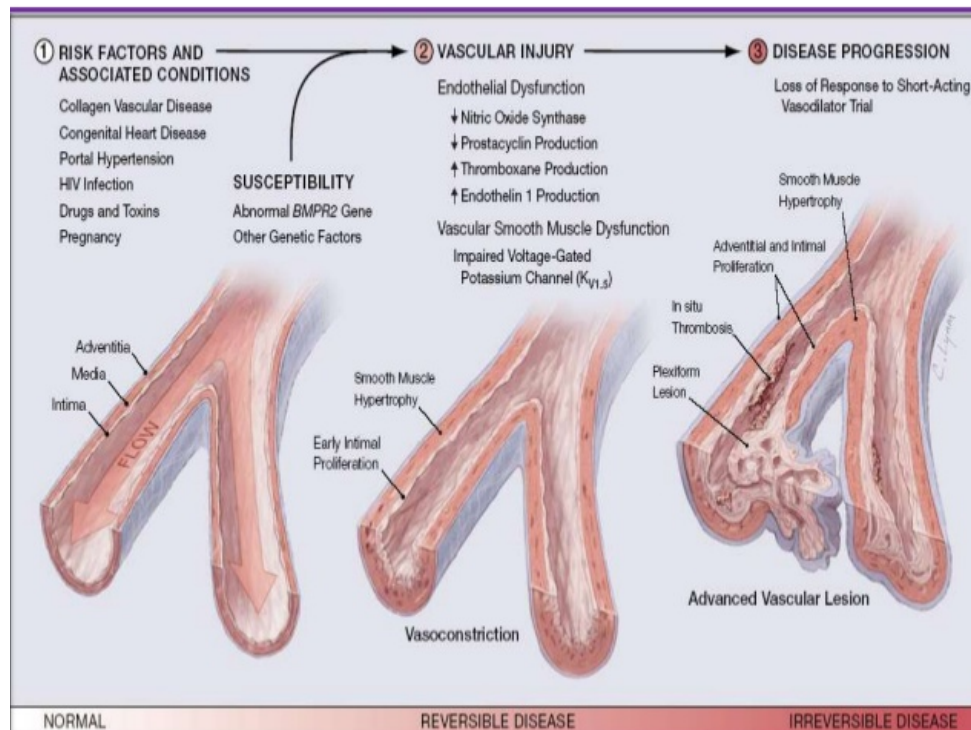
- When you ask about medications the patients tells you that they have a medication pump.
 - Now what do you do?
 - Can BLS transport this patient if ALS is delayed

Pulmonary Hypertension

- Pulmonary Hypertension is a complex and often misunderstood disease
- The term Pulmonary Hypertension (PH) refers to high blood pressure in the lungs
- In regular hypertension, the arteries throughout the body are constricted
- It is a rare and often fatal condition

Pulmonary Hypertension

- PH only affects the blood vessels in the lungs and the right side of the heart

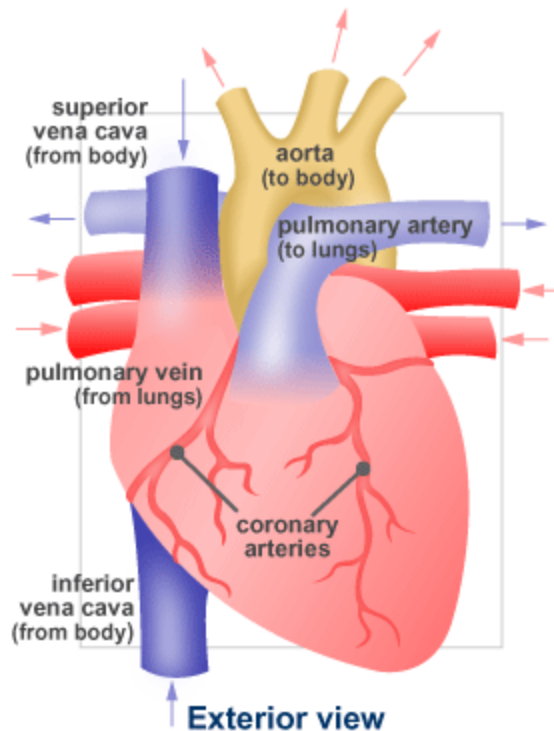


Pulmonary Hypertension

- Pulmonary Arterial Hypertension is a chronic and incurable disease
 - Causes the walls of the arteries in the lungs to tighten and stiffen
- The right side of the heart has to work harder to push blood through the narrowed arteries in the lungs (pulmonary artery)

Pulmonary Hypertension

- PH occurs when the pressure in the blood vessels leading from the heart to the lungs is too high



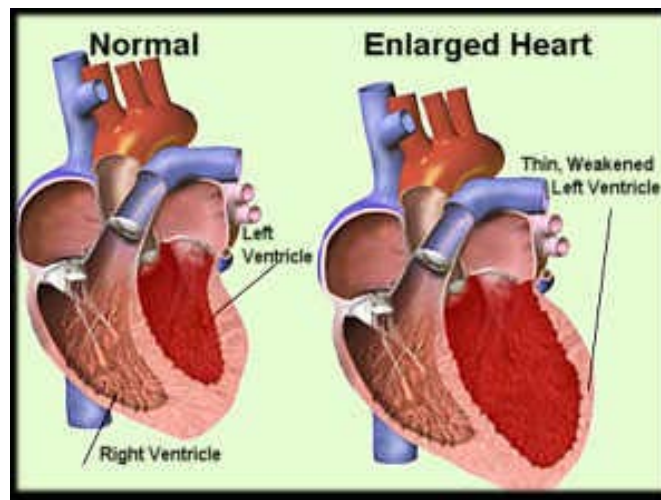
The heart pumps blood from the right ventricles to the lungs to get oxygen

Pulmonary Hypertension

- The pressure in this side of the heart and in the arteries taking blood from the right ventricle to the lungs is normally low.
- When the pressure increases the blood cannot flow as well as it should
 - This results in less oxygen in the blood

Pulmonary Hypertension

- The extra stress causes the heart to enlarge and become less flexible
 - This compromises the hearts ability to push out the blood through the lungs and into the rest of the body



What Causes PH?

- In many cases no cause can be identified
- PH can develop due to other medical conditions
 - Congenital Heart Disease
 - Liver Disease
 - HIV
 - Others
- Can start with injury to the layer of cells that line the small blood vessels in the lungs
- Smooth muscles contract more the normal

What Causes PH?

- Generics can play a role in PH
- PH occurs at all age levels and the incidence of PH increases with age
- PH is more common in
 - Women
 - ratio of women to men affected is almost 4:1, so chances are that EMTs will have female patients
 - Hispanic Blacks
 - Among the population 75 and older

How Serious is PH?

- Affects activity level
- Causes lack of energy
- And usually leads to death

Heart Failure is common in PH patients

Signs and Symptoms

- Signs
- Swelling of the arms, ankles or abdomen
- Increased work of breathing
- Poor Appearance

- Symptoms
- Reported SOB upon exertion
- Chest pain
- Dizziness
- Syncope
- Lack of energy
- Dry cough

General Treatment

- There is no cure for PH
- Heart and Lung Transplants are a last resort
- Your prehospital patient might be on a number of medications
 - Vasodilators
 - Anticoagulants
 - Diuretics
 - Calcium Channel Blockers

Medications

- There are also reports of Viagra being prescribed due its initial development to control blood pressure

Why is EMS Called?

- For incidents of new chest pain or discomfort
 - Usually accompanied by
 - Shortness of Breath
 - Sweating
 - Nausea and vomiting
- Shortness of breath not relieved by rest
- Fast heart beat (120 to 150)
- Sudden weakness in arms or legs
- Syncope

Prehospital Treatment

- Consider ALS
- Make sure they are breathing adequately
- NRB @ 15 liters per minute if the patient is in respiratory distress
- Patient in respiratory failure assist with ventilations
- Do not turn off or touch their medication pump if they have one
- Transport to an appropriate medical facility

Get A Good History

- PH can be secondary to
- Connective Tissue Diseases
 - Rheumatoid arthritis
 - Lupus
- Secondary to
 - HIV
 - Blood clots

Pulmonary Hypertension Pumps

- If your patient has a medication pump
 - Do you know what it is?



Pulmonary Hypertension Pumps

- Is it an insulin pump?
- Is it a pump administering a life saving medication?
- Some pumps are for delivery of pulmonary hypertension medications designed to keep the right ventricle pumping?

Pulmonary Hypertension Pumps

- Most PH patients and families are well trained in the use of the pump and are
 - trained to notify EMS of medications that are being infused
- If you come across a pump make every effort to find out what kind of pump it is
 - What medications are being infused

Pulmonary Hypertension Pumps

- Do not touch the pump
- Never turn off the pump
- Make sure to let the ED staff know about the pump

Questions??

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Pre-hospital Care Concepts

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