Heart disease during pregnancy

Under supervision of

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HEART DISEASE & PREGNANCY

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Introduction

- The majority of women want to have children and women with heart disease are no exception. Complex heart disease is no bar to sexual activity
- these discussions should cover future pregnancies and their prevention, both to prevent accidental and possibly dangerous pregnancies and to allow them to terms with their future child bearing potential.
- They also need to be able to plan their families in the knowledge of their likely future health and life expectancy

Definition

Heart disease:

Any disorder that affects the heart and blood vessels. Sometimes the term "heart disease" is used narrowly and incorrectly as a synonym for coronary artery disease.

Pathophysiology

- Pregnancy stresses the cardiovascular system, often worsening known heart disorders, mild heart disorders may first become evident during pregnancy .
- stresses include decreased Hb and increased blood volume, stroke volume and eventually heart rate. Cardiac output increases by 30 to 50% . These changes become maximal between 28 to 34 Wk gestation.

Types

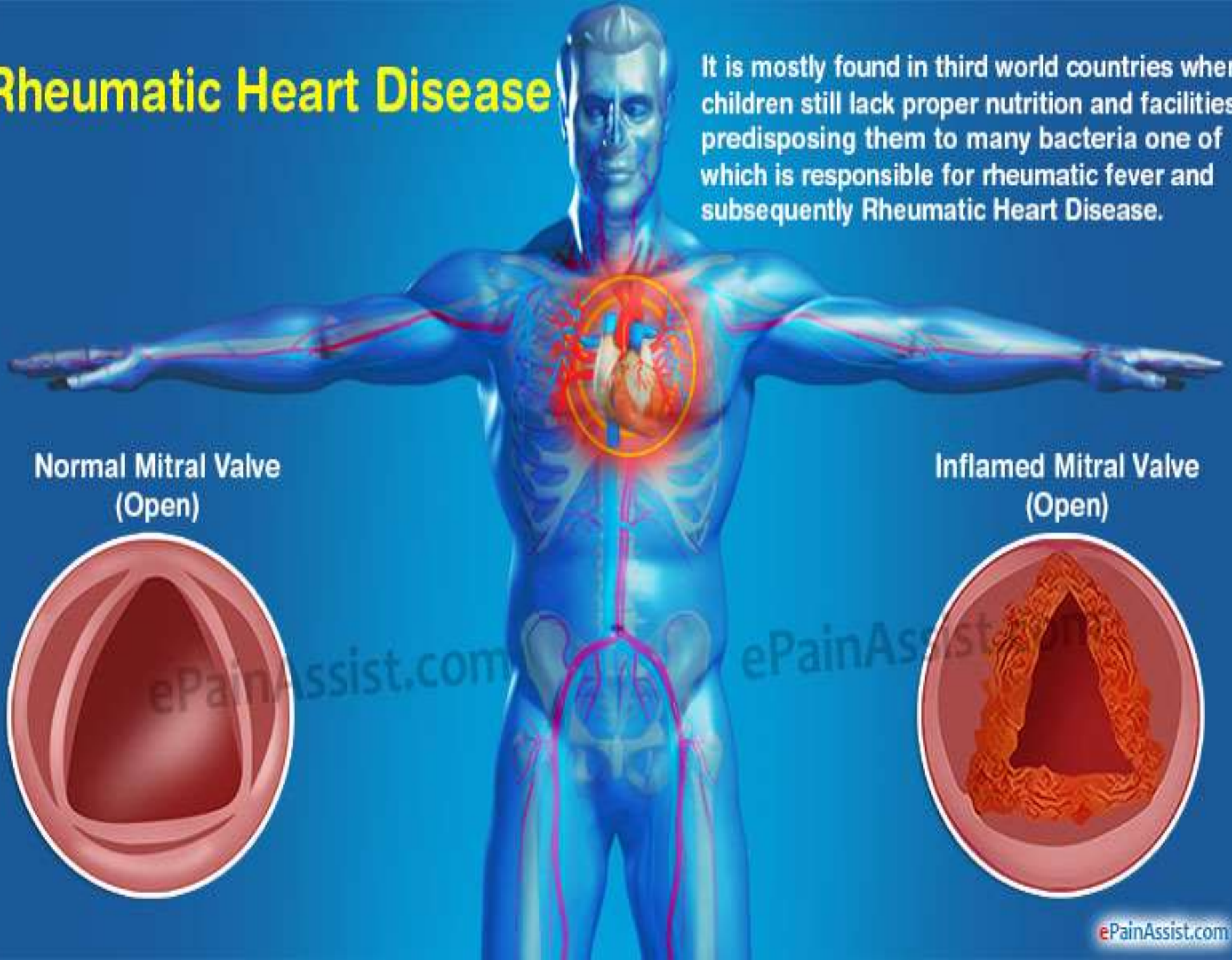
- Rheumatic heart disease
- Hypertensive heart disease
- Ischemic heart disease
- Cerebrovascular disease
- Inflammatory heart disease
- Congenital heart disease

Rheumatic heart disease

Rheumatic heart disease is caused by one or more attacks of rheumatic fever, which then do damage to the heart, particularly the heart valves. Rheumatic fever usually occurs in childhood, and may follow a streptococcal infection.

Rheumatic Heart Disease

It is mostly found in third world countries where children still lack proper nutrition and facilities predisposing them to many bacteria one of which is responsible for rheumatic fever and subsequently Rheumatic Heart Disease.



Normal Mitral Valve
(Open)

Inflamed Mitral Valve
(Open)

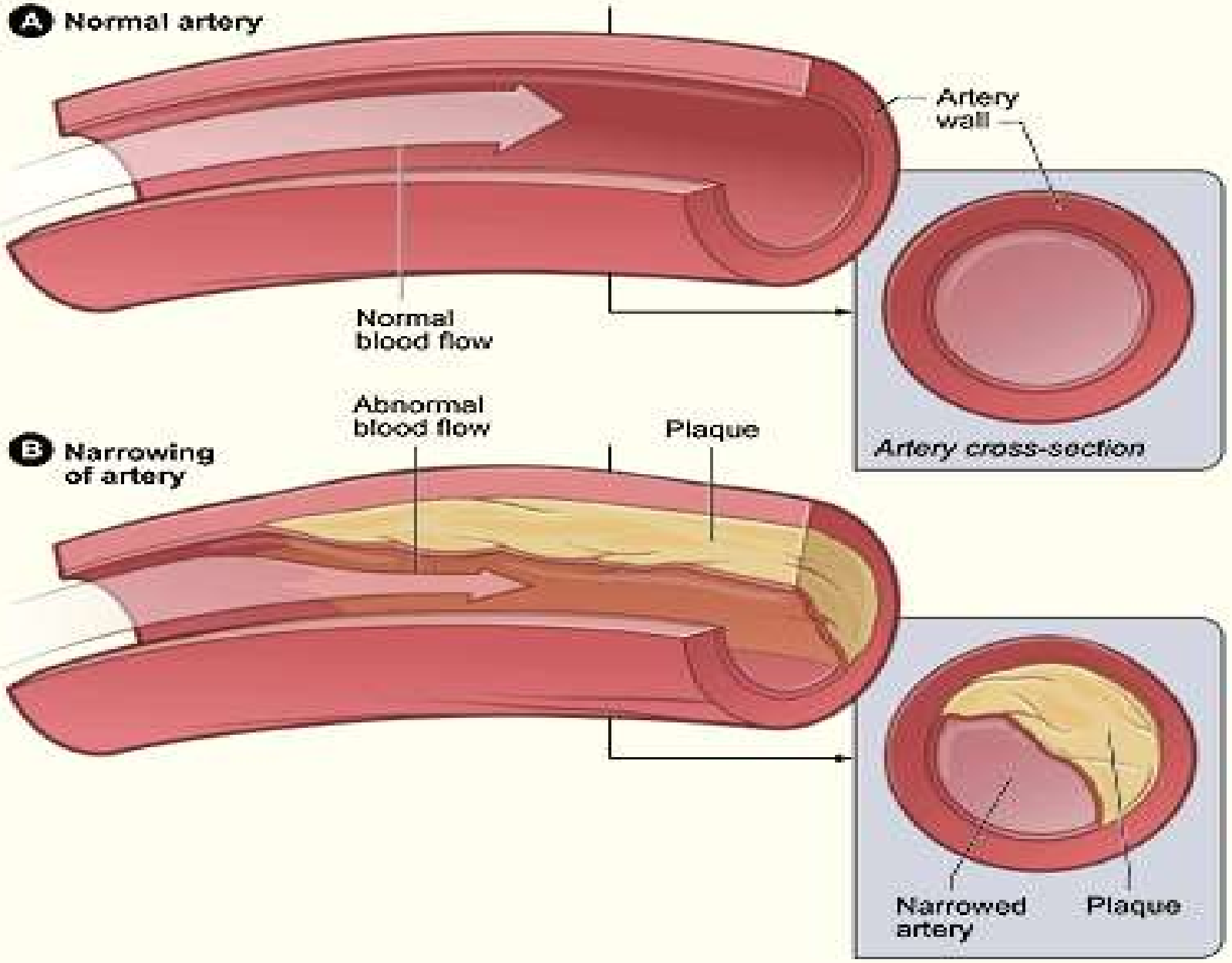
ePainAssist.com

Hypertensive heart disease

High blood pressure of unknown origin (primary hypertension) or caused by (secondary hypertension) certain specific diseases or infections, such as tumor in the adrenal glands, damage to or disease of the kidneys or their blood vessels.

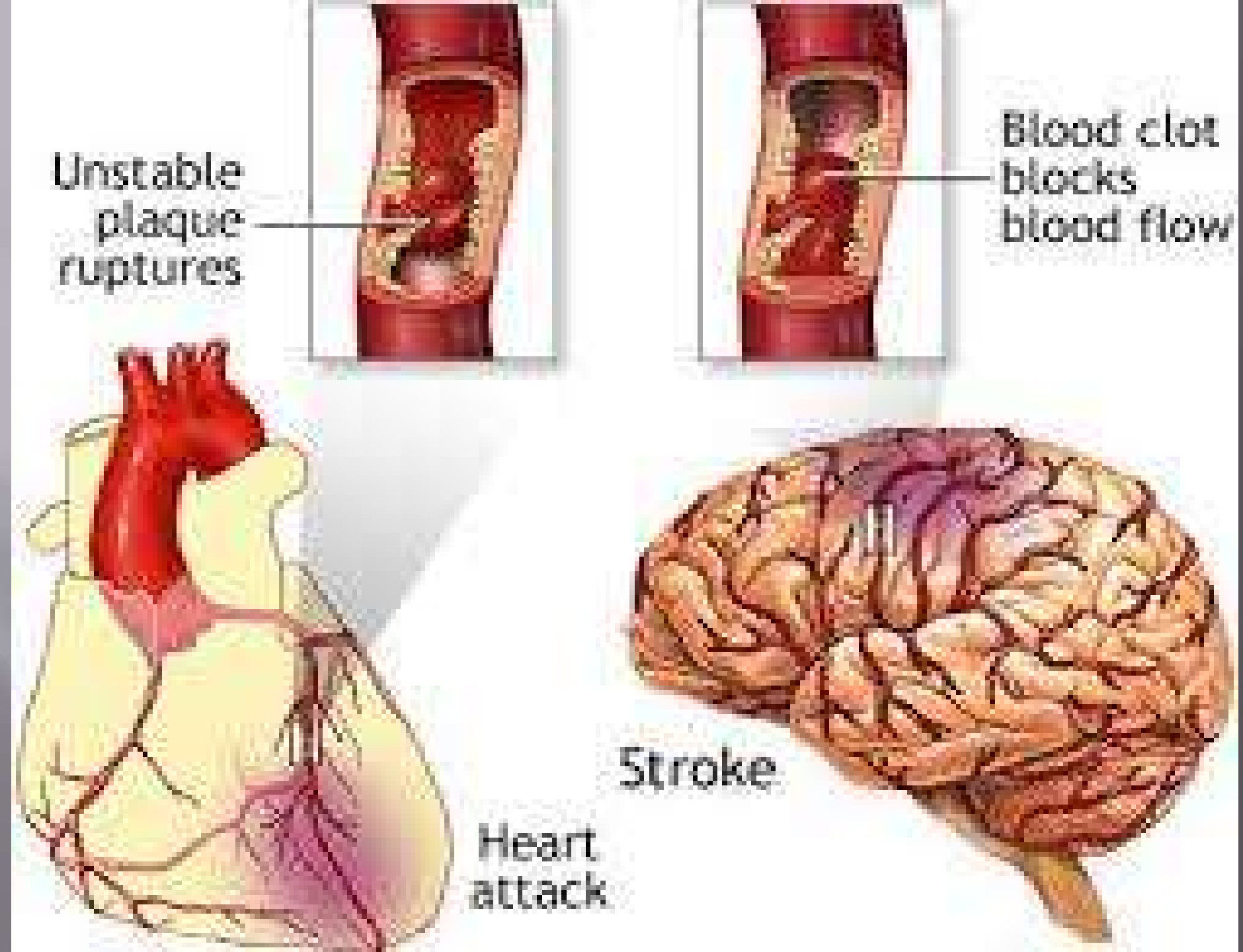
Ischemic heart disease

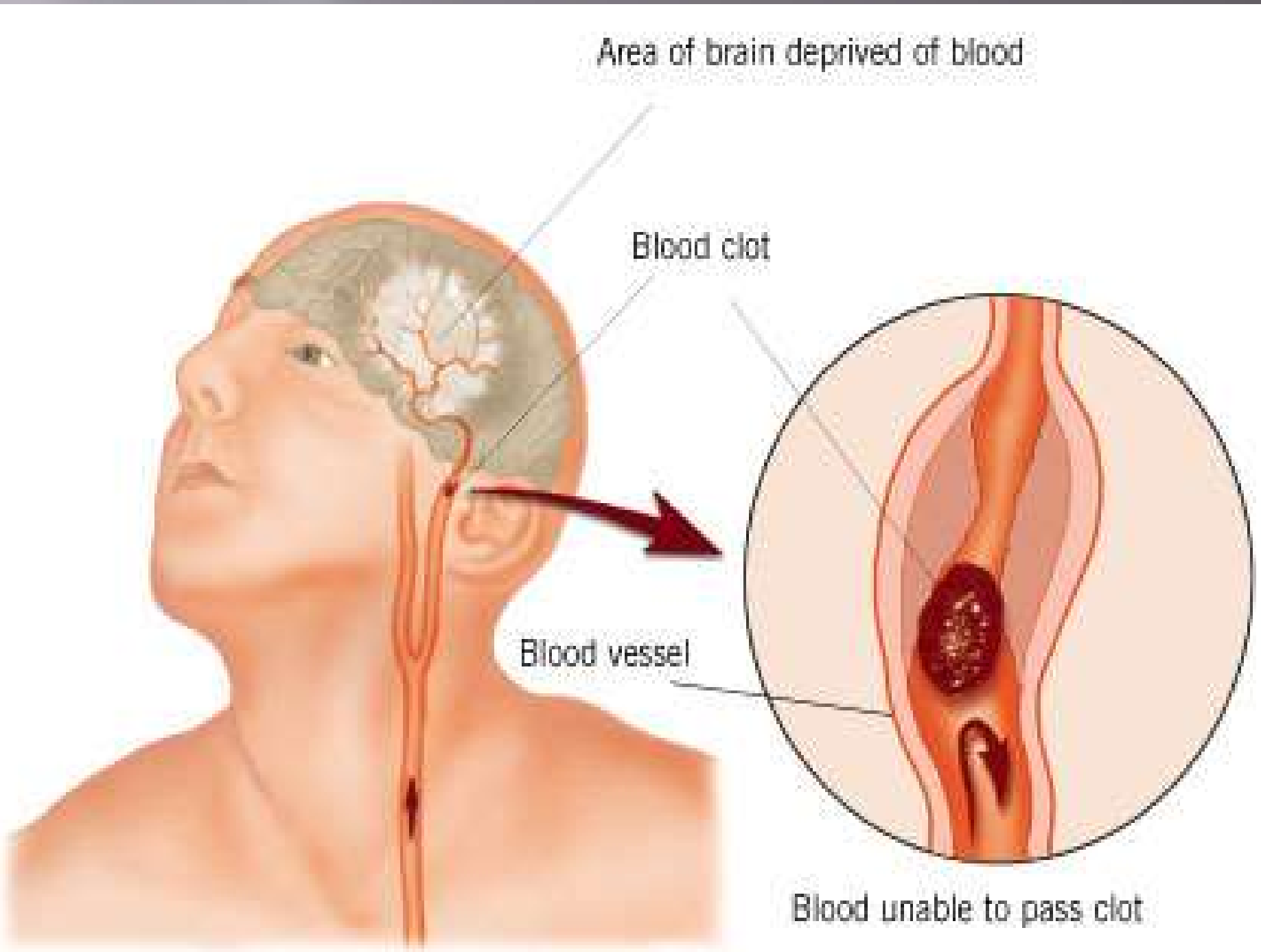
caused by narrowing of the coronary arteries and therefore a decreased blood supply to the heart.


A Normal artery
Artery wall
Normal blood flow
Artery cross-section
Abnormal blood flow
Plaque
B Narrowing of artery
Narrowed artery
Plaque

Cerebrovascular disease

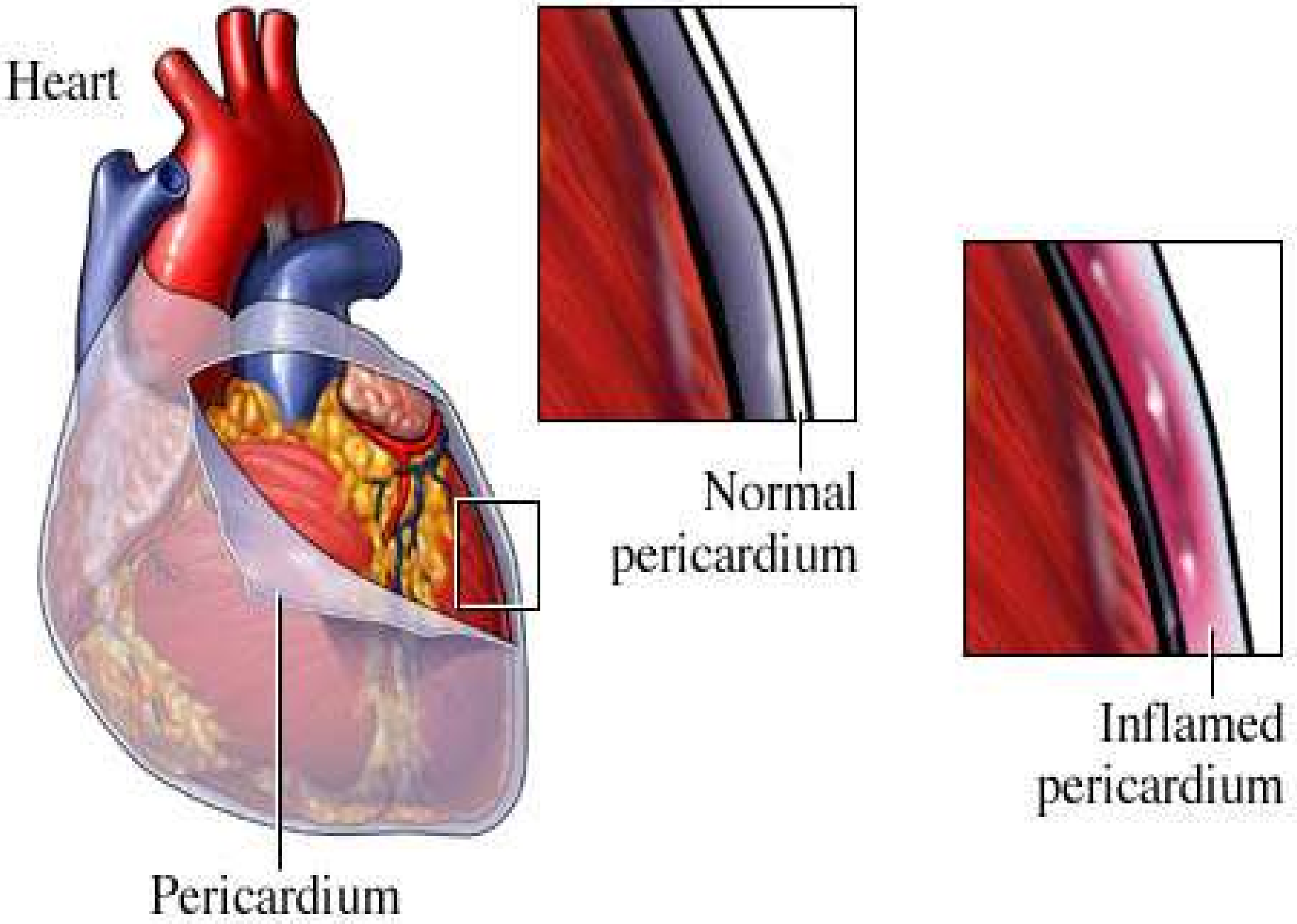
- Disease pertaining to the blood vessels in the brain. A cerebrovascular accident or stroke is the result of an impeded blood supply to some part of the brain.


Unstable plaque ruptures
Blood clot blocks blood flow
Heart attack
Stroke


Area of brain deprived of blood
Blood clot
Blood vessel
Blood unable to pass clot

Inflammatory heart disease

Inflammation of the heart muscle (myocarditis), the membrane sac (pericarditis) which surround the heart or the inner lining of the heart (endocarditis) Inflammation may be caused by known toxic or infectious agents or by an unknown origin.


Heart
Pericardium
Normal pericardium
Inflamed pericardium

congenital heart disease

- congenital cardiac malformations resulting from defective embryonic development without obvious cause.
- Between 3-8 weeks “gestation” all the fetal heart structures are formed “organogenesis”

Risk factors

Age

Sex

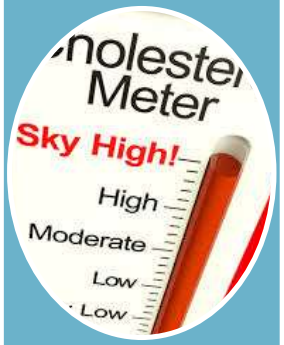
Poor diet

Smoking

Family history.

Cont. risk factor

High blood pressure



High blood cholesterol levels.

Stress

Physical inactivity

Obesity

Diabetes

Signs and symptoms

Chest pain or discomfort able	• it may feel like pressure or a squeezing pain in the chest. • It may feel like indigestion. You may also feel pain in(shoulders, arms, neck, jaw, or back).
Shortness of breathing	• often comes along with chest discomfort but can also occur before.
Other symptom	• breaking out in a cold sweat, nausea, or light-headedness, upper body discomfort in one or both arms, the neck, jaw, or stomach.

Classification

Class	Patient Symptoms
Class I (Mild)	No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, or dyspnea (shortness of breath).
Class II (Mild)	Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in fatigue, palpitation, or dyspnea.
Class III (Moderate)	Marked limitation of physical activity. Comfortable at rest, but less than ordinary activity causes fatigue, palpitation, or dyspnea.
Class IV (Severe)	Unable to carry out any physical activity without discomfort. Symptoms of cardiac insufficiency at rest. If any physical activity is undertaken, discomfort is increased.

Causes

- Coronary artery disease
- High blood pressure
- Diabetes
- Smoking
- Excessive use alcohol
- Drug abuse
- Stress
- Rheumatic fever
- Infection (infection endocardites)

Diagnosis

1) diagnostic vascular ultrasound
2) Echocardiogram
3) stress echocardiogram
4) supine bike test
5) transesophageal echocardiogram
6) pulse oximetry
7) chest-x rays
8) cardiac catheterization

Effect of HD on pregnancy woman

- Increase approaches.
- Increased heart with less effort.
- swelling in the outskirts of the hands, feet and face.
- Exposure to the blue of the lips and fingertips and face.
- Increase the amount of protein (albumin) in the urine
- A shortage in kidney function
- Break in red blood cells
- A shortage of blood platelets
- An increase in liver enzymes
- Heart failure Or as seizures, convulsions, such as those suffering from epilepsy patients
- Abortion
- Still birth
- Premature labor

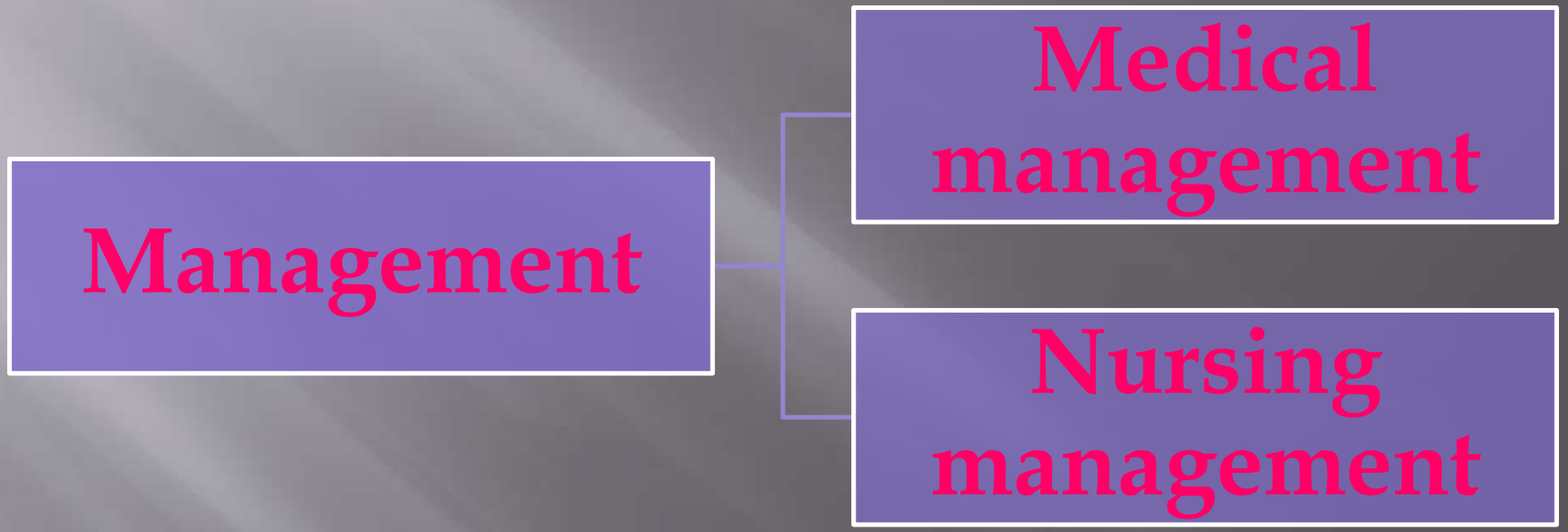
Effect of pregnancy on HD

1)Cardiac Output
2)Blood Pressure
3)Heart Rate
4)Contractility
5)Sympathetic Activity and Baroreceptors
6)Pregnancy Hormonal Changes
7)Renin-Angiotensin-Aldosterone System
8)Remodeling
9)Changes in Plasma Volume and Red Blood Cell Mass

Prevention

- Know your blood pressure and keep it under control
- Exercise regularly
- Don't smoke
- Get tested for diabetes and if you have it, keep it under control
- Know your cholesterol and triglyceride levels and keep them under control
- Eat a lot of fruits and vegetables
- Maintain a healthy weight

- **Get a rubella (German measles) vaccine.**
- **Take a multivitamin with folic acid.** Daily consumption of 400 micrograms of folic acid has been shown to reduce birth defects in the brain and spinal cord and may help reduce the risk of heart defects as well.
- If you have a family history of congenital heart defects, ask your doctor about genetic screening. Certain genes may contribute to abnormal heart development.
- Avoid drinking alcohol and using illegal drugs during pregnancy.


Management
Medical management
Nursing management

Medical management

The aim of management :

- Prevent of HF
- Prevention of infected endocarditis .

(1) Antepartum

(2)Intrapartum

(3) Post partum

Nursing management

[1] nursing assessment

[2] nursing Care during Antenatal Period

[3] nursing management during labor and delivery

[4] nursing care during post partum period

nursing assessment

*** History**

(1) history of dyspnea ,palpation , easily Fatigability.

(2) Identify other factor that would increase strain on heart e.g anemia , infection , anexity

(3) Family history of heart disease

(4) Determine the function capacity of the heart by talking the woman's Pulse or respiration and blood pressure.

nursing Care during Antenatal Period

(1) assess cardiac status .

(2) assess if symptoms of cardiac de compensation occur

(3) teach signs and symptoms of deteriorating cardiac status such as (dyspnea ,orthopnea , cough and hemoptysis)and how to report them .

*** protection from infection :**

(1) inform the woman about the importance of the protection from infection especially upper respiratory infection .
(2) teach patient to report signs and symptoms of infection.

*** Decrease exertion reduces fatigue and promotes Adequate ventilation.**

*** promotion of adequate nutrition :**

(1) A diet should be rich in Iron , Protein and essential nutrition.
(2) Low In sodium .

*** Promotion of rest :**

(1) Rest is necessary to reduce the work load on heart .

(2) 8-10 hrs of sleep are essential with daily rest period .

(3) the patient should be instructed to rest on the left Side.

(4) lateral recumbent position to facilitate blood flow to the fetus .

*** The woman should understand her condition :**

(1) Sings of de compensation .
(2) any medication she is taking and how to use it .
(3) Reason for the need to decrease activity if symptoms occur .

*** When therapy is being initiated the nurse must assisstethe patient by :**

(1) Providing oxygenation .
(2) Providing skin care .
(3) Ensuring that constipation is avoided .
(4) Promoting good nutrition .

*** Implementation of supportive therapy :**

(1) Use of prophylactic antibiotic on doctors order .

(2) Oxygen by mask if dyspnea occur .

(3) **Administration of :**

- Diuretics to reduce the venous return to the heart and there by decrease the pulmonary and left atrial blood pressure so reducing pulmonary congestion .
- Sedative to help to alleviate anxiety and decrease the voluntary muscles activity during the second stage of Labor.

nursing management during labor and delivery

(1) Encourage relaxation and sleep between contractions.
(2) Support the woman emotionally to be less anxious .
(3) The nurse guards the woman against over exertion during Pushing by coaching her to use shorter more Moderate open glottis pushes with complete relaxation between pushes .
(4)Monitor vital sings closely every 10 minutes during the second stage .
(5) Oxytocin is contraindicated for heart disease in first and second stage .
(6) Blood loss during 3rd and 4 rd stage of labor is kept to a minimum by promote delivery of the placenta and Oxytocin administration bimanual compression .

nursing care during post partum period

***promotion of recovery :**

(1) Monitor vital signs regularly .
(2) Maintain the woman in semi- fowler's positions.
(3) Facilitate bowel elimination by controlling the diet .
(4) The woman resumes activity gradually and progressively .

*** promotion of physiological support :**

(1) Encourage maternal and fetal attachment .

(2) Continous monitoring of maternal status after Delivery scince cardiac work load is great .

(3) Prevent post partum hemorrhage , infection and Thrombo –embolism that can cause crisis.

(4) **Education and assistance in new born care :**

- The woman can breast feed her infant .
- The nurse can assist the woman to comfortable Side lying position with her head moderately elevated or to semi-fowler's position .

*** Preparation for discharge :**

(1) Realistic home care plans should be communicated With patient .

(2) Plan with the woman an activity schedule that is gradual progressive and appropriate to her needs and home environment .

(3) Give appropriate information counseling regarding sexual relations and contraception .