



AIIMS-NORCET

Nursing Officer Recruitment Common Eligibility Test

ALL INDIA INSTITUTE OF MEDICAL SCIENCE

Volume – VI (Part – 3)

**Medical Surgical Nursing
(Human Body System & Disorders)**



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"HYPERTENSION"

Def:→

When there is ^(primary) persistent elevation of B.P more than 140/90 MMHg known as Hypertension

Classification

(1) Primary Hypertension

also k/as ⇒ Idiopathic / Essential Hypertension

↓
due to some
unknown cause

↓
above 60 years in person
elastic कम होने के कारण
Atherosclerosis

(2) Secondary Hypertension

Due to some known cause

↓
Etiology ⇒ (A) C.V. Disorder ⇒ CAD

(B) Renal disorder

(C) Endocrine Disorder ⇒ Diabetes Mellitus

↓
Hypo / Hyperthyroidism

↓
BMR ↑ se

↓
BP ↑ se

(D) Drugs ⇒ oral Contraceptive pills

Antidepressant drug
Steroid
NSAID

↓
due to
prolonged
persistent
use.

(3) Pre-Hypertension B.P. = $\frac{120-139}{80-89}$

(4) Systolic Hypertension when rise only systolic B.P. more than 140 mmHg

(5) Diastolic Hypertension when rise only diastolic B.P. more than 90 mmHg

(6) Benign Hypertension \Rightarrow B.P. \Rightarrow $\frac{180}{100}$

Maximum \Rightarrow 200/100 mm of Hg

(7) Malignant Hypertension \Rightarrow It is medical emergency condition. \Downarrow

\Rightarrow when the B.P. of a person exceed more than 200/100 mm of Hg \Downarrow

\Rightarrow It should treat immediately by the use of emergency Hypertensive Drug

Eg \rightarrow

Laxis

Nitroglycerin

Hydralazine

Sodium Nitro-prusside

⇒ During the malignant Hypertension

Risk ⇒ Damage the vital organ of the body

⇒ Malignant Hypertension also known as "Hypertensive Crisis"

* Risk factor of HTN ⇒ same as CAD

* P/P ⇒

B.P. ⇒ Cardiac output \times peripheral Resistance

⇒ Cardiac output ↑ ⇒ Systolic B.P. ↑

⇒ peripheral Resistance ↑ ⇒ diastolic B.P. ↑

* C/M ⇒

(1) In Hypertension the pt. may be asymptomatic for prolonged time

(2) The some symptom which are present by pt are ⇒

* Occipital Headache

* Vertigo

* Tachycardia

* palpitation

* Chest pain

* Dyspnea

* Epistaxis

* sweating

⇒ The target organ HTN
↓↓↓

- (1) Heart ⇒ CAD (MI, Angina pectoris)
- (2) Brain ⇒ stroke
- (3) Kidney ⇒ CRF [due to damage nephrons]

⇒ Diagnostic Measures
↓↓↓

- (1) History collection and physical Examination
- (2) ECG
- (3) Lipid profile ⇒ (cholesterol level ↑)
- (4) Serum Electrolyte (Na ↑)
- (5) Blood Sugar, CBC.
- (6) RFT / LFT, USG
- (7) ECHO cardiography
- (8) Thyroid profile

⇒ Mat

- (1) Life & style Modification
- (2) Dietary Modification
- (3) Pharmacology

Rx ⇒ Tab → Atenolol
OR

Tab → Amlodipine

OR

Tab → Laxis

(2) Tab → Atorvastatin / statin / Lovastatin
↓↓↓
Anticholesterol drugs

Amloras AT \Rightarrow Amlodipine + Atenolol
Alpraxo \rightarrow 0.5 Mg

\Downarrow
Anti-anxiety, Sedative, muscle Relaxant

\Downarrow
vasodilation (Use B.P.)

^(Pain)
* "ANGINA PECTORIS" *

\Downarrow
Angina pectoris is referred to Chest pain due to Ischemia of Heart Muscle (Myocardium)

Etiology

So The most common ~~cause~~ Cause Angina pectoris

\Downarrow
Atherosclerosis

Risk factor \Rightarrow same as CAD

P/P \Rightarrow

O₂ demand
of Myocardium

O₂ supply
to Myocardium

Imbalance

O₂ supply ~~use~~ use
O₂ demand \uparrow use

\Downarrow
Ischemia to Myocardium

↓
Anaerobic Respiration of some myocardial fibers

↓
Formation of Lactic Acid

↓
Pain ⇒ Manage

↓
O₂ ↑ se. supply
O₂ ↓ se. demand

* Pattern/Classification/Type of angina pectoris

(1) Stable angina ⇒

↓
also k/as ⇒ Exercitional angina

⇒ There is a predictable pattern of angina pt. complained of ischemic chest pain

↓
during exercise or exertion or during cold environment, after meal and during stress

⇒ The chest pain has been relieved by Rest or nitroglycerine.

(2) Unstable Angina ⇒

↓
also k/as → pre-infraction angina

⇒ There is a no predictable pattern of ischemic chest pain, The chest pain may occur at rest & may or may not be relieved by Rest or nitroglycerin

(3) Variant Angina ⇒

⇒ There is variable pattern of Chest pain

⇒ The pain occurs

⇓⇓⇓
Due to the Coronary artery spasm

(4) Silent Angina ⇒

This type of angina the pt. does not present any clinical presentation clinical symptom of angina pectoris ~~but the~~

⇓⇓⇓
But The ECG show pattern of ischemic

(5) Micro-angina

⇓⇓⇓
also-k/as → Refractory Angina

⇒ It is the Chronic pattern of ischemic pain which does not respond ~~to~~ medical intervention

⇓⇓⇓
ischemic pain ⇒ due to micro-circulation in formation of clot.

C/M ⇒

- Tachycardia
- Chest pain
- Palpitation
- Sweating
- Dyspnea
- A → Anorexia
- N → Nausea
- V → Vomiting
- F → Fatigue

Diagnostic Measures

- Main
- (1) History or physical Examination
 - (2) ECG
 - (3) TMT
 - (4) Angiography [Coronary angiography]
 - (5) Blood sugar,
 - (6) Lipid profile
 - (7) Electrolyte (Serum), CBC
 - (8) ECHO Cardiology

Mgt ⇒

- ① Life style Modification
- ② Dietary Modification

③ ~~Pharmacological~~ Treatment ⇒ Rest

Tab. NTG 200

Tab. Amlodipine Ac
OR

Tab. Nitemolon Ac

Tab. - Atorvastatin 10mg (1 pc)

(4) Invasive procedure / surgical

- * PTCA
- * Atherectomy
- * Stent
- * CABG

(5) In Case of unstable angina \bar{c} 3 tab. NTG

Emergency care \Rightarrow * O₂ Administration
* Obtain ECG

\Downarrow
If wave abnormal than
* give / Administer streptokinase,
urokinase

* MYOCARDIAL INFARCTION *

Q Which is the most common cause of MI

(A) Coronary artery Embolism

(B) Coronary Artery Spasm

(C) Coronary artery thrombus

(D) Severe Anaemia (C)

Q Which the priority of nsg action perform by the nurse in emergency department \bar{c} the pt of MI

MI pain \rightarrow More than 15 Min

Blood # troponine Level rise \Rightarrow confirm indicate MI

- (A) Administer Aspirin
- (B) O₂ inhalation
- (C) Administer streptokinase (B)
- (D) Administer β -Blocker

Q3. Which is the most important and specific Cardiac marker for myo-cardial damage

- (A) Myoglobin
- (B) Troponine
- (C) CK-MB
- (D) Lactate dehydrogenase (LDH) (B)

Q4. Which is the most common complication of MI

- (A) Cardiogenic shock
- (B) Heart failure
- (C) dysrhythmia
- (D) Recurrent MI (C)

Def. of MI

It is the infarction to the myocardium

Due to complete blockage of coronary artery

\Rightarrow It is life threatening condition which require immediate intervention

\Rightarrow MI also known as Heart Attack/Coronary Occlusion
 \hookrightarrow (Acute condition)

⇒ It also include under "Acute Coronary Syndrome" (ACS)
↓ ↓ ↓
ACS include ⇒ unstable angina, MI

⇒ Most common site of MI are ⇒ Anterior wall of Lt ventricle.

⇒ There are 2 type of presentation of "MI"

(i) Non-ST-segment elevation MI (NSTEMI)

↓ ↓ ↓
Commonly present in female

⇒ Common cause of NSTEMI is

↓ ↓ ↓
platelet aggregation

↓ ↓ ↓
Rx ⇒ Aspirin or Heparin

(ii) ST-segment elevation MI

↓ ↓ ↓
Common cause ⇒ Thrombus

↓ ↓ ↓
Treated by ⇒ streptokinase

Etiology of MI ⇒

① Coronary artery thrombus
↓ ↓ ↓

The factors precipitated the thrombus formation are :->

- (A) Atherosclerosis in coronary artery
- (B) Rupture of Atheroma
- (C) Injury to the inner wall of coronary artery
- (D) coronary artery inflammation

(2) Coronary artery Embolism

(3) Coronary artery Spasm

(4) Severe anemia

(5) Hypoxia -> (due to fire)

* Risk Factor of MI \Rightarrow same as CAD

* C/M \Rightarrow

(1) Effect on CVS \Rightarrow

(A) Chest pain

\Downarrow

* It persist more than 15 min

* Can not be relived by NTG or Rest

* Require morphine Sulphate

* There is numbness to the left shoulder

- (B) Hypertension or Hypotension
- (C) Tachycardia or Bradycardia
- (D) palpitation may be present

② Effect on Respiratory

- * Dyspnea, Tachypnea
- * Coughing, wheezing

③ Effect on Renal ⇒ * Oliguria

④ Effect on Digestive ⇒ * Anorexia

- * N/V
- * Fatigue
- * Constipation

⑤ Effect on Nervous and psychological

- ⇓
- * Altered LOC
 - * Anxiety, ~~fear~~
 - * Fear

⑥ Effect on skin ⇒

- * Cool & diaphoretic skin

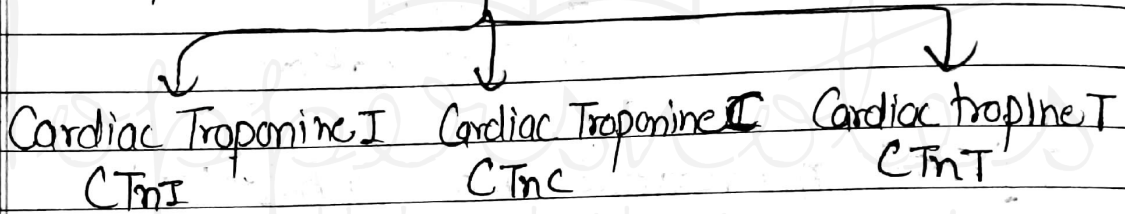
* Diagnostic Measures

- ⇓
- main [
- (1) History OR Physical Examination
 - (2) ECG ⇒ Abnormal Q wave
 - (3) Coronary Angiography
 - (4) ECHO- Cardiography

- (5) Blood sugar
- (6) Lipid profile
- (7) X-Ray
- (8) Serum Electrolyte
- (9) LFT, RFT
- ~~IMP~~ (10) Cardiac Marker \Rightarrow / Cardiac Enzyme

(1) Troponine \Rightarrow Troponin is a protein found in Heart Muscle
(Prolonged time)

Troponin has 3 Iso-mark



✓ CTnI and CTnT most specific and most sensitive marker

Their level has rise for 4-6 Hours after MI

\Rightarrow Reaches to peak \rightarrow 24 Hours and remain in blood for about \rightarrow 7-14 days

\rightarrow (Myocardial Band)
(2) CK-MB / CPK-MB \Rightarrow IInd important marker for Myocardial damage

Creatinine kinase Creatinine phospho-kinase

CK-MB \Rightarrow Heart Muscle

CK-MM \Rightarrow Skeletal

CK-BB \Rightarrow Brain

(3) Myoglobin \Rightarrow

* It is the oxygen binding protein present in Heart Muscle.

* The Level of Myoglobin \Rightarrow rises quickly just after 2-3 Hour of Myocardial damage.

\Rightarrow declines quickly when the blood supply of myocardium has restored.

\Rightarrow This Cardiac Marker has also used to know the effectiveness of thrombolytic therapy

(4) Lactate Dehydrogenase

It is an enzyme responsible for conversion of Lactic acid into pyruvic acid

\Rightarrow It has 2 Isomers \Rightarrow

(1) LDH₁

(2) LDH₂

$$\boxed{LDH_1 < LDH_2}$$

$$\boxed{\text{In Normal person } \Rightarrow \frac{LDH_1}{LDH_2} < 1}$$

$$\boxed{\text{In pt. of MI } \Rightarrow \frac{LDH_1}{LDH_2} > 1}$$