

(2) Patient's Name: XYZ.

Age: 63 years Gender: male Weight: 69 kg.

Allergy: Nil.

Past medicines: P/C/O

- HTN for 10 years.
- T. Amlodipine (5mg)
- T. Enalopril (5mg).

Social History: No habits.

Family History: Nil.

Mental Status: Conscious, Oriented, Alert.

Complaint: Chest tightness since 3-4 days. Continuous pain present on left side & central region of chest.

Vital Signs:

HR - 80 ; BP - 130/90 mmHg
bpm.

Other Diagnostic Tests: T-wave inversion & other cardiac markers.

* Blood and Urine Analysis.

Hb: 14.8 g/dL ; S. urea: 24 mg/dL ; S. Cr: 0.9 mg/dL ; S. Na: 137 mg/dL

S. U: 4.4 mg/dL ; ESR: 9 mm/hr ; WBC: 7200/mm³.

Diagnosis:

Final - On the basis of subjective & objective data the final diagnosis is unstable angina. Based on T-wave inversion & other cardiac markers.
E/Clo hypertension from last 10 years.

Brand Name / generic	Dose	Route
T. Ennas.	5mg	Oral
T. Amiodarone	5mg	Oral
T. clovix AS	75mg/150mg	Oral
T. Sotalol tartrate	5mg	Sublingual
T. Pindadol	40mg	Oral
T. Isosorbide Mononitrate	30mg	Sublingual
T. Metoprolol XL	50mg	Oral
T. Stosvas.	20mg	Oral

Physician Note: Clopidogrel & Aspirin are given at the same time even though they show synergism.

- Use of ^{outi} 2nd hypertension drug?
- Large of SPG_2 level.
- There are many drug-drug interaction.

Followup: Stress thallium test on 14/10/2010.

Subjective

Patient name: XYZ.

Age: 63 yrs.

WT: 69 kg.

Sex: Male

Date: 28/9/10

DOD: 6/10/10.

Patient history:

Medical: B/Clo at HCN for 10 yrs.

Medication history: T. Amlodipine 5mg.

T. Enalapril 5mg.

Social history: No habits.

Family history: Nil.

Previous allergies: Nil.

CLO: Chest tightness since 3-4 days, Pain in chest present on left hand side & central region, (Non-radiating).

Objective

Vital signs:

PR: 80 bpm BP: 130/90 mmHg

Mental status: Conscious, Oriented, Alert.

Parameters.

Observed Value

Normal range.

Urea.

21 mg/dL

8-35 mg/dL

S.Cr

8.9 mg/dL

0.6-1.6 mg/dL

Na

137 mEq/L

135-148 mEq/L

K

4.4 mEq/L

3.5-5 mEq/L

LDL

121.6 mg/dL

60-140 mg/dL

HDL	30mg/dL	740mg/dL
Hb	14.8g/dL	13-17g/dL
ESR	9mm/hr	1-13mm/hr

Haematology

Parameters	Observed value	Normal Range
WBC	7200/mm ³	4000-10000/mm ³
Neutrophils	67%	60-70%
Lymphocytes	19%	20-25%
Monocytes	9.7%	3-9%
Eosinophils	3.1%	2-4%
Basophils.	0.5%	0.5-1%

Assessment

Diagnosis: On the basis of subjective & Objective data
Final diagnosis is Unstable Angina.

Based on T-wave inversion & Other cardiac markers.

H/o hypertension for last 10 yrs.

Etiology.

Patient is suffering from HTN for last 10 years, which is
basis of ischaemic heart disease.

Based on T-wave inversion & Other cardiac markers.

NEED OF therapy.

- * To reduce Morbidity & Mortality.
- * To resolve patient complaints.
- * To provide healthy & happy life to patient.
- * To control HTN.

Assessment of Standardized therapy.

Non-ST-segment elevation ACS. → No PCI planned



Oxygen (if O₂ saturation < 90%).

SL NITG, Aspirin, Nitroglycerine



B-blocker, ACEi;
anti-coagulant

↓

Stress test.

Delayed PCI planned



Bivalirudin at
time of PCI

B-blocker, statin, ACEi



High / Moderate risk Patient



Folteric Echocardiogram / troponin

either before angiography;
distinction.

Assessment of current therapy.

I Encalapril.

Class: ACEi

Brandname: T-Ewan.

Route: Oral.

Dose: 5mg.

Indications: Hypertension treatment.

Frequency: 1-0-1.

SIE: Dizziness, Hypotension, headache, Chest pain, Cough, Rash, Asterixis, Nausea, Vomiting, Hypercalcaemia.

Contraindication: Hypertension

2. Amlodipine.

Class: Antihypertensive; Ca²⁺ channel blocker.

Route: Oral.

Dose: 5mg

Indication: HTN, chronic stable Angina.

Freq: 1-0-0.

M/A: Calcium channel blocker.

SIE: Edema, Dizziness, Headache, flushing, fatigue.

CI: sick sinus syndrome; 2^o/3^o AV block

3 Aspirin.

Class: NSAID.

Route: Oral.

Dose: 150mg

Indication: Treatment for pain & fever, & Antiplatelet.

Freq: 0-1-0

M/A: inhibit synthesis of Prostaglandin by cyclooxygenase pathway.

CI: Hypersensitivity to NSAID's.

4. Pantoprazole (f. Pantodase).

Class: Proton pump inhibitor.

Route: Oral.

Dose: 40mg.

Indication: GI related problem.

Freq: 1-0-0.

M/A: Proton pump inhibitor binds to ^{H₊/K₊ exchanging} Na⁺/K⁺ adenosine triphosphatase in gastric parietal cells, resulting in blocking acid secretion.

c/I: Hypersensitivity to pantoprazole (rarely PPI).

5. Isosorbide nitrate (f. Sorbitrate).

Class: Anti anginal.

Route: Oral

Dose: 10mg (1-8 day).

Indication: Treatment & Prevention of angina pectoris.

Freq: 1-0-1.

M/A: Relaxes smooth muscle via cholinergic stimulation of cholinergic & vagus cells to reduce both preload & afterload, as well as myocardial O₂ demand.

S/E: Headache, dizziness, weakness, nausea, vomiting

Planning.

Discharge Medications.

Eucapril - f. Efon	5mg	oral
Amlodipine - f. Amlodac	5mg	oral
Aspirin - f. Clovir	75mg	oral
Isoosmotic nitrate - f. Sustained route	5mg	sublingual
Pantoprazole - f. Pantodac	40mg	oral
Metformin - f. Metformol	500mg	oral
Atorvastatin - f. statoven	20mg	oral

Points to Patient

① Unstable Angina:

આવી રીતથી હોકે જોગા તમારા દુધારો
લોહીની પ્રવાહ જાણો કોઈ રસાયન મળતું નથી
લોનારી હાઈ બોટિનું વાખે હો

Lifestyle Modification.

- Consume overall healthy diet
- Maintain healthy body weight
- Maintain normal B.P

Follow-up & Review

Stress thallium test on 14/10/2010.

Hypertension, history type-2 Diabetes.

Subjective:

Patient's Name: XY2 ; Age: 55 years; Weight: 98kg ; Sex - Male

Mental Status: Conscious & Oriented

D.O.A: 21/9/2016 D.O.D: 28/9/2016.

Past Medical History: Suffering from type 2 diabetes mellitus & HTN for 10 years.

Social History: Salesman, Frequent travel so generally misses his medication & diet is uncontrolled.

Family history: Mother - diabetic, On dialysis - Father - Stroke [residual left hemiparesis].

Allergies: Nil.

C/O: Headache, Nausea, drowsiness, blurred vision & fatigue.

Objective:

General Examination: Wt-98kg

Body mass index: 35kg/m²

P.R: 88 bpm

B.P: ~160/90mm Hg

Minimal bilateral leg edema.

Other Systemic Examination: Unremarkable.

LAB PARAMETERS:

Parameter	Value	Normal Range
FBS (Fasting blood sugar).	11.8 mmol/L	< 5.6 mmol/L
Creatinine (in blood)	106 μmol/L	94.3 - 107.2 μmoles/L
E-GFR (Estimated glomerular filtration rate)	88 mL/min/1.73 m²	90 - 120 mL/min/1.73 m²
ECG	LVH (Left Ventricular hypertrophy)	LQR = 6-5%
A ₁ C	9.2%.	
Sg. RBC	4.02 × 10 ¹² /L	3.9 × 10 ¹² /L
Haemoglobin	12 g/dL	11.5 - 15.5 g/dL
Platelet Count	290 × 10 ⁹ /μL	150 - 400 × 10 ⁹ /μL
Haemocrit	38%.	30 - 45%

Assessment

Provisional Diagnosis: Patient was suffering from HTN & diabetes & bcz of us non-compliance in taking medicine the condition has worsened.

Final Diagnosis: On basis of medical history, complaints of patient, patients examination & lab parameters we conclude that s/he is suffering from HTN in diabetes.

Etiology.

Disease: Diabetes damage arteries & make them lose its stretching ability [atherosclerosis], which causes high blood pressure, & as patient is not taking serious care of himself Case has got worsened.

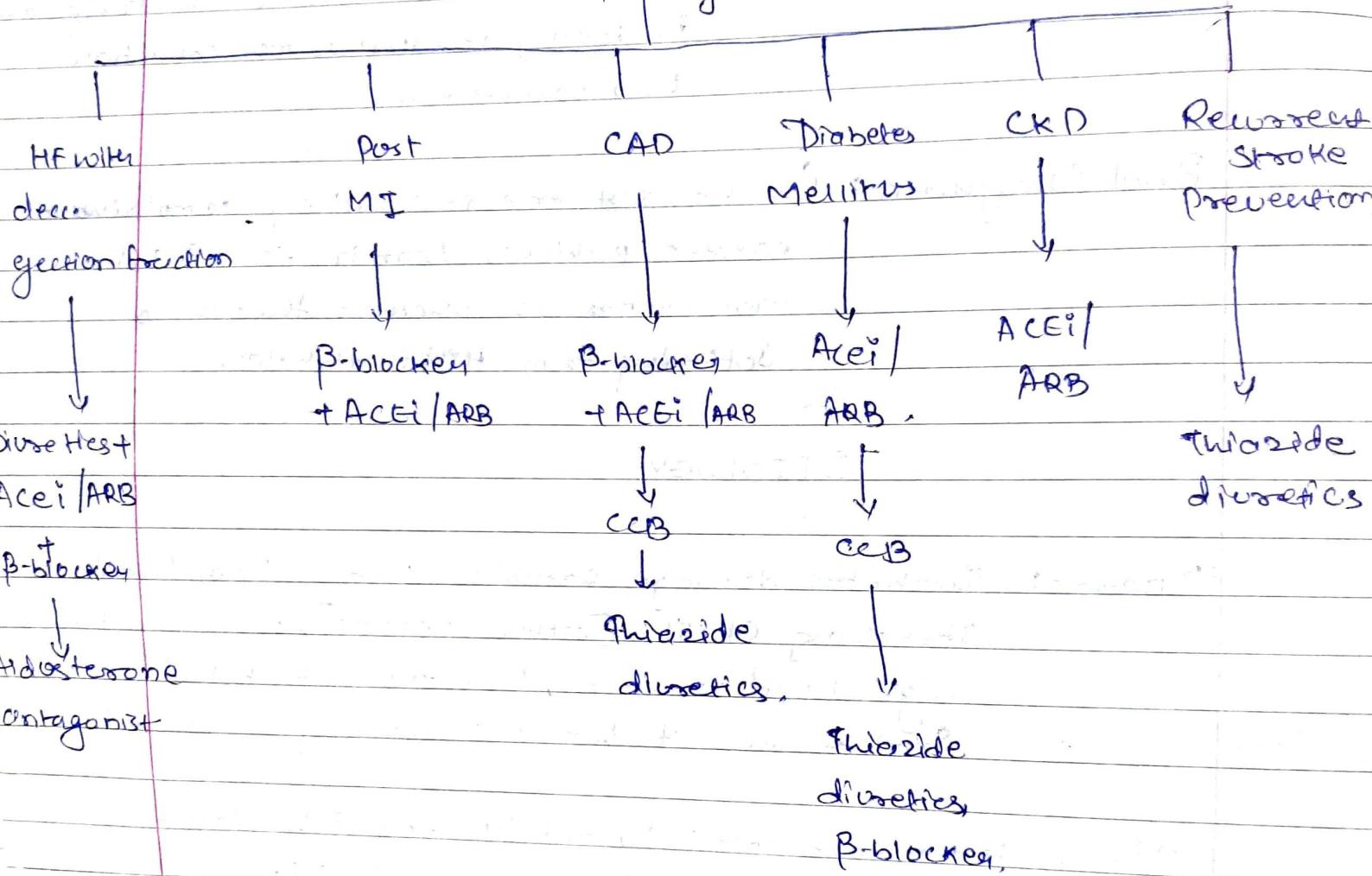
Clo & lab parameters: Visual blurring & headache associated with B.P.

Need of therapy.

- To reduce morbidity & mortality.
- To resolve complaint of patient.
- To provide healthy & happy life to patient.
- To control HTN.

Assessment of Standard Therapy.

Compelling Indication.



Assessment of

Current Therapy.

3/17kg

1. Lisinopril, Enalapril (Vasotec).

Class: ACEI Route: Oral Dose: Sing

Indication: HTN treatment. Freq: 1-0-1.

M/A: Inhibits conversion of Angiotensin I ~~to~~ to Angiotensin II (Vasoconstriction causing) Agent thus inc. BP.

S/E: Hyperkalemia, acute hypotension, Nausea, vomiting, cough.

C/I: Pregnancy, Preexisting kidney disease.

Note: It is a contraindicated drug.

2. Amlodipine (Norvasc).

Class: Calcium channel blocker.; Route- Oral ; Dose- Sing.

Indication: Treatment of HTN ; Freq: 1-0-1.

M/A: They block voltage sensitive calcium channel, preventing entry of calcium into cell. Thus vascular smooth muscle relaxation leads to vasodilation & ↓ BP.

S/E: Headache, Pulmonary edema, dizziness, fatigue

C/I: Hypersensitivity to dihydropyridines, sick sinus syndrome.

Note: The drug is Renin-angiotensin.

HFn
econ
ction

8.	Metformin (Zanoxalyn)	Class: Diabetics; Route: Oral	Dose - 2.5mg; freq: 1-0-0.
Indication: HFN treatment			
M/A: They cause diuresis, which leads to ↓ Plasma volume, ↓ cardiac output, that result in ↓ PB.			
S/E: Hypokalemia, hyperlipidemia, hypercalcemia, & muscle cramp.			
C/I: Patients with ↓ hypertrophy, Ischemic heart disease can lead to serious cardiac arrhythmia			

Note: Rational Drug.

9. Aspirin (T.eicosin)

Class: Analgesic Route - Oral Dose - 150mg

Indication: Analgesic Effect Freq: 0-1-0.

M/A: Inhibits cyclo-oxygenase term inhibits Prostaglandin.

S/E: Angioedema, bronchospasm, GI pain, Hepatotoxicity.

C/I: Hypersensitivity to NSAIDs.

Note: Partonal.

5. Metformin

Date: / /

Class - Biguanides

Route: Oral

Dose: 1gm

Indication: Treatment of type-2 diabetes freq: 0-0-1.

M/A: Decreases hepatic glucose production through mild inhibition of mitochondrial respiratory-chain complex, decr. intestinal absorption of glucose

S/E: Abdominal discomfort, stomach upset, diarrhea, anorexia etc.

C/I: Patient with heart failure, acute myocardial infarction.

Note: The drug is Rational.

Planning.

Goal of Therapy.

General: To improve quality of life.

To reduce morbidity & mortality rate.

To prevent further complication.

Patient Specific goal: To control HTN.

To overcome complaints of patients.

Monitoring Therapy.

① Enalapril

Therapeutic: Review baseline creatinine, glucose, cholesterol, monitoring serum electrolytes & liver function test results. Headache, Nausea, abdominal pain

Toxicity: Most likely Hypotension which can be treated by IV saline solⁿ
Monitoring:

② Amlodipine

Therapeutic: Assess for sign of withdrawal syndrome
Monitoring: Abrupt withdrawal may cause inci. freq. of angina

Toxicity: Nausea, weakness, dizziness, confusion,
Monitoring: ~~bradycardia~~ ^{and / or} bradycardia, ^{and / or} AV block.

③ Aspirin

Therapeutic: Monitor for hypersensitivity & for elevation of LFT increased creatinine, Thrombocytopenia
Monitoring: signs of & decreased white blood cell count

Toxicity: Hypoventilation, GI irritation, Nausea,
Monitoring: Vomiting, sweating, fever, epigastric pain, tachycardia may be present.

④ Metformin.

Therapeutic: Periodic monitoring of Vitamin B₁₂ level.
Monitoring:

Toxicity: Anorexia, diarrhea, abdominal discomfort
Monitoring:

Points To physician.

- ^{only one} With ACE inhibitors Diuretics / CCB is enough for HTN treatment.
- Alternative of diuretics to be given with metformine bcs they both can be having harmful drug interaction.
- Albumin concentration should have been measured before assigning treatment.

Drug - Drug interaction.

① Enalapril + Aspirin.

Monitoring: Increases toxicity of one another. May result in renal deformation with high dose of aspirin in elderly.

Management: Routine Monitoring to detect intercession.

② Amlodipine + Metformin

Monitoring: Amlodipine decreases effect of metformin by pharmacodynamic antagonism may result in glucose imbalance.

Management: Close monitoring for loss of blood & glucose control.

③ Enalapril + Metformin.

Monitoring: Enalapril increases toxicity of metformin by unspecified interaction mechanism & may cause hypoglycemia & hyper acidosis.

Management: Dose of beta should be adjusted properly
q blood sugar check up should be
taken more often

① Metformin + Metformin.

Monitoring: Metformin decreases effect of metformin by
Pharmacodynamic antagonism. Thiazide
dosage $\geq 50 \text{ mg/day}$ may inc. blood sugar.

Management: Adjustment & More frequent monitoring
of blood sugar be done to safely use
beta medicines.

Points to Patients.

Hypertension: A conditⁿ in which force of blood against arteries
is too high.

Type 2 diabetes: It is a chronic disease in which
body doesn't produce enough insulin
or it resists insulin causing \uparrow blood sugar.

General: Report doctor if any side effects / if symptom worsen.

Life Style Modification

- Exercise, reduce body weight; Avoid red meat, fats & alcohol
- Proper diet, ~~steaks~~; low dietary salt & sugar intake

→ Follow-up & Review: Medicine prior to patient's admission was
discontinued, for better control of B.P.
ACEi were given

(4) Subjective (S)

Name: XYZ.; Age: 56 years; Gender: Male; Ht: 183cm;
wt: 99.7kg; BMI: 29.8 kg/m²

Mental status: Alert & Oriented.

Patient's history:

- i) Past Medical: known Medical problem is HTN.
- ii) Medical: T. Enalapril (10mg)
- iii) Family: father died at 55yrs due to MI.
- iv) Social: Drinks 2 glasses of wine each evening
- v) Allergies: NKDA.

Patient's complain:

- i) Headache; Shortness of breath; Visual blurring, stomach ache, fatigue

Objective

General Examination:

Temp: 36.9°C

HR: 90 bpm

BP: 140/90 mmHg

Edema in calves.

Lipid profile test

	Obs. value	Normal
LDL-C	165 mg/dL	<100 mg/dL
HDL-C	30 mg/dL	>40 mg/dL
Triglyceride	300 mg/dL	<150 mg/dL
Total cholesterol	255 mg/dL	125-200 mg/dL

* Assessment (A).

Diagnosis: On the basis of Subjective & Objective data we conclude that patient is suffering from HTN with hyperlipidemia.

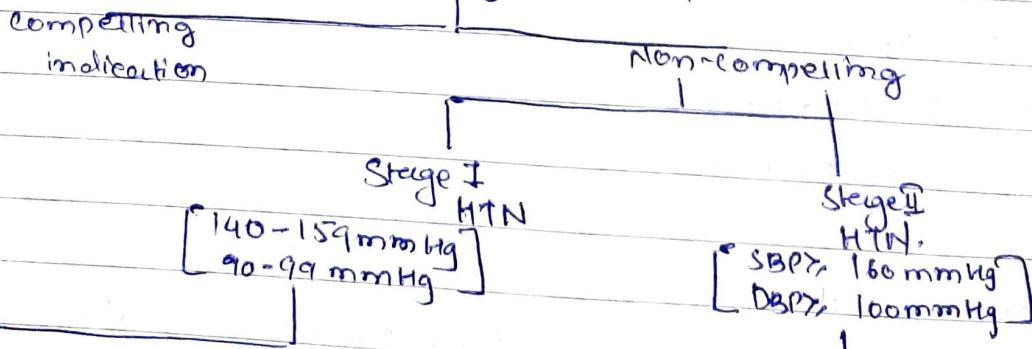
Etiology: ① High B.P causes tiredness as a result of elevated pressure on vital organs.
② Blurred vision is related to inc. B.P.
③ Headache: Uncontrolled HTN.

⇒ Need of therapy.

- To prevent other cardiac related problems like MI.
- Prevent dizziness.
- To give patient comfort.
- Reduce Morbidity & Mortality rate.
- Improve quality of life.

Assessment of Standard Therapy.

Initial drug therapy choice.



Monotherapy

- ACEi; ARB; CCB,

Thiazide [OR]

Two drug

Combo.

Two drug comb.

- ACEi | ARB with
furoxide [OR]

- ACEi | ARB with
CCB.

Assessment of Current Therapy:

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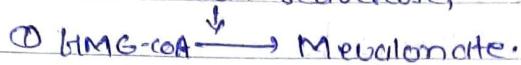
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① Simvastatin

Brand name: T. Zetia

Class: HMG-CoA reductase inhibitor Route: Oral Dose: long
Freq: 0-0-1.

M/A: Inhibits HMG-CoA reductase,



A rate limiting step in biosynthesis of cholesterol

S/E: Headache, Insomnia, Muscle Ache, fatigue, Cramps, rash, flushing of skin.

C/I: Hepatic disorders.

② Ezetimibe [T. Zetia].

Class: Lipid lowering Agent. ; Route: Oral ; Dose: long

Freq: 0-0-1.

M/A: It selectively inhibits absorption of cholesterol & Phytosterol by small intestine without altering absorption of fat-soluble vitamins & nutrients.

S/E: Nausea, Stomach, darkened urine, pain, Vomiting, Headache.

C/I: Pregnancy, Liver disorders, lactation.

③ Aspirin [T. Ecotin].

Class: NSAID Route: Oral Dose: 305mg Freq: 0-0-1

M/A: Aspirin blocks cyclooxygenase pathway that produces PG's. that causes Inflammation, swelling, pain & fever.

S/E: Rash, abdominal pain, drowsiness, headache, nausea, vomiting, nervousness.

E/I: Anemia, haemoptilus, low vit.K, thrombocytopenia, hypersensitivity to NSAIDs.

(4) Clopidogrel [T. Plavix].

Class: Anti-platelet. Route: Oral Dose: 75mg
Freq: 1-0-0.

M/A: Clopidogrel is metabolised to its active form by carbonyl esterase-1. The active form irreversibly binds to P_2Y_{12} ADP receptors on platelets. This binding prevents activation of glycoprotein GP 2b/3a complex & platelet aggregation.

S/E: Headache, dizziness, Nausea, Stomach ache, nose bleed.

E/I: Increased risk of bleeding, stomach/intestinal ulcers.
~~new spinal anaesthesia, deep plexus block.~~

(5) Metoprolol [T. Betalone-XL].

Class: β -blocker Route: Oral Dose: 100mg
Freq: 1-0-1.

M/A: It blocks the β -adrenergic receptors.

S/E: Shortness of breath, \downarrow H.R., dry mouth, vomiting, dizziness, headache, fatigue, Insomnia.

E/I: Hyperthyroidism, AV block, bradycardia, cardiogenic shock.

⑥ Enalapril [T. Enalapril].

Class: ACEi ; Route: Oral ; Dose: 10mg ; Freq: I-O-O.

M/A: B Inhibit the production of Angiotensin II.

S/E: Dizziness, Slurred speech, Cough, weakness, numbness, Shortness of breath, Sore throat, breathing trouble,

CI: Angioedema, bilateral renal artery stenosis, Pregnancy.

Planning. [P].

Goal of therapy

(a) General Goal

- To reduce future problems
- Improve quality of life
- Improve overall health

(b) Patient Specific

- To maintain patient's normal B.P.
- To control high cholesterol.
- Give patient best possible treatment

Monitoring Therapy.

① Simvastatin

Therapeutic Monitoring

- Check creatine kinase periodically.
- Monitor liver enzymes
- Observe transaminase levels closely.

Toxicity Monitoring.

- Muscle pain, Liver damage, diarrhea type 2, kidney failure,

② Aspirin.

- Therapeutic Monitoring
- Sign & Symptom of bleeding
- Assess pain/Pyrexia,
- LFT
- Interaction with warfarin,
- Monitor Hb periodically.

Toxicity Monitoring

- Slurred speech, hallucination.
- Tachypnoea, seizures,
- Hypotension, cerebral edema
- Pulmonary edema, cardiac dysrhythmias.

③ Clopidogrel.

- Hb & hematocrit periodically
- Sign of bleeding
- Pyrexia

- Vomiting, red/black stool,
- GI hemorrhage, bleeding gums
- difficulty in breathing.

④ Encalapril.

- Angioedema
- Kidney function test
- K+ levels
- B.P., BUN, serum creatinine.

- Hypotension, fetal toxicity,
↑ BUN, Serum creatinine,
- Insomnia, dry cough.

Drug-Drug Interaction.

Monitoring

① Aspirin +
Clopidogrel,

Either inc. toxicity of
each other by added
drug affects

Management

Before use in form
the physician.

② Aspirin +
Metoprolol,

Aspirin decr. effects of
metoprolol by pharmacodynamic
antagonism

Patients who need combined
therapies should be monitored
for altered anti-HTN

response whenever a
Salicylate is added or
discontinued from therapy.

③ E2e Timbet

Simvastatin

Monitoring.

Management.

- May inc. the risk of myopathy & serum transaminase

- One of the drug should be discontinued in case of creatinine kinase elevation in absence of strenuous exercise or if myopathy is suspected.

* Points to Physician.

- Either ^{only} β -blocker or ACEi would be enough.
- Lab parameters for urine analysis is not mentioned.
- Aspirin Should be substituted as it has many interactions.
- Antacid Should be prescribed.
- ASCVD risk percentage for next 10 years is not mentioned.

* Points to Patient.

- HTN: A medical condition defined with elevated B.P.
- Hyperlipidemia: A condition of high levels of fats in blood such as Cholesterol & Triglycerides

* Lifestyle Modification.

① For HTN

- Wt. reduction
- DASH Eating plan
[Dietary Approach to Stop HTN],
- Decr. Salt intake
- Physical Activity.

② For Hyperlipidemia,

- Aerobic exercise
- Reduce oily food.
- Reduce beverage intake.
- Decr. Sugar intake.
- Alcohol & Smoking cessation.
- Avoid dehydration.

* Follow-up & Review.

- After 8 weeks for lipid panel Test.