CASE PRESENTATION ON CHRONIC KIDNEY DISEASE AND URINARY TRACT INFECTION

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CHRONIC KIDNEY DISEASE

DEFINITION:-

Chronic kidney disease (CKD) is defined by a reduction in the glomerular filtration rate (GFR) and/or urinary abnormalities or structural abnormalities of the renal tract.

- CKD refers to an irreversible deterioration in renal function that usually develops over a period of years.
- Initially, manifests only as a biochemical abnormality but, eventually, loss of the excretory, metabolic and endocrine functions of the kidney leads to clinical symptoms and signs of renal failure.

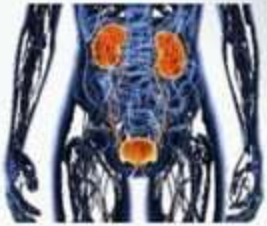
ETIOLOGY:-

- Diabetes mellitus
- Interstitial diseases
- Glomerular diseases
- Hypertension
- Reno vascular disease
- Unknown

CLINICAL FEATURES:-

- Polyuria and nocturia
- Proteinuria
- Haematuria
- Hypertension and fluid overload
- Uraemia
- Anaemia
- Electrolyte disturbances

URINARY TRACT INFECTION



DEFINITION:-

Urinary tract infection refers to the presence of organisms in the urinary tract together with symptoms and signs, of inflammation.

- Refers to presence or absence, of functional or structural abnormalities within the urinary tract.
- Infections of the urinary tract can be divided into two general anatomic categories :

a) Lower tract infection (Urethritis, cystitis)

b) Upper tract infection (pyelonephritis)

ETIOLOGY:-

- Escherichia coli (80%)
- Gram negative enteric bacteria such as *Klebsiella* and *Proteus* species.
- Gram positive enterococci and *Staphlyococcus saprophyticus*.
- *Pseudomonas aeruginosa, Enterobacter* and *Serratia* species.

CLINICAL FEATURES:-

- Abrupt onset of frequency of micturition and urgency
- Burning pain in the urethra during micturition(dysuria)

- Suprapubic pain during and after voiding
- intense desire to pass more urine after micturition, due to spasm of the inflamed bladder wall(strangury)
- Urine that may appear cloudy and have an unpleasant odour
- Non-visible or visible haematuria.

PATIENT DEMOGRAPHIC DETAILS:-

- PATIENT NAME:- RAMA.....
- AGE:- 74 years
- GENDER:- Male
- BMI :- Normal (19.6)
- IP no.:- 19090456
- UNIT:- Nephrology and Urology
- WARD:- GNW MALE
- DOA:- 21-9-2019
- DOD:- 2-10-2019

CHIEF COMPLAINTS ON ADMISSION:-

C/o Uncontrolled urination since 1 day

Fever, cold, cough since 2 days

Frequent urination since 6 months

PATIENT HISTORY:-

- **PAST MEDICAL HISTORY:-** k/c/o Type II Diabetes mellitus, Hypertension since 7 years
- **PAST SURGICAL HISTORY:-**CAD s/p CABG at age of 68yrs
- **PAST MEDICATION HISTORY:-** Prolomet XL 50(1-0-1), Human mixtard(1-0-1), Plagerine-A 150(0-1-0), Rozavel 20(0-0-1), Clonazepam(0-0-1/2), Lubrex eye drop
- **SOCIAL HISTORY:-** Nothing significant
- **FAMILY HISTORY:-** Nothing significant
- **ALLERGIES:-** Nil known allergies
- **DIET:-** Mixed diet

GENERAL PHYSICAL EXAMINATION :-

- CVS:- S1S2 heard
- RS:- B/L NVBS
- CNS:- Concious and oriented
- P/A:- Soft and abdominal distension present
- GRBS:-331mg/dl
- BP:- 200/100 mmHg
- HR:- 66 bpm
- RR:- 24 bpm
- Temp.:- 98.2° C
- SPO2:- 96%

PROVISIONAL DIAGNOSIS:-

- CHRONIC KIDNEY DISEASE
- URINARY TRACT INFECTION
- ACUTE PULMONARY EDEMA


PHARMACEUTICAL
CARE PLAN:-

SUBJECTIVE EVIDENCE	OBJECTIVE EVIDENCE
▪ C/o Uncontrolled urination since 1 day; ▪ Fever, cold, cough since 2 days; ▪ Frequent urination since 6 months ▪ k/c/o Type II Diabetes mellitus, Hypertension ▪ CAD s/p CABG	▪ Sodium:-132mmol/L ▪ Chloride:-92mmol/L ▪ Blood urea nitrogen:-151mg/dl ▪ Serum creatinine:-3.5mg/dl ▪ Uric acid:-9.7mg/dl ▪ RBC:-3.48milli/cumm ▪ Hb:-10.2g/dl ▪ Urine glucose:-1% ▪ Hematocrit:-30.2% ▪ Neutrophills:- 76.5% ▪ Eosinophils:-0.8% ▪ Lymphocytes:-11.6% ▪ Monocytes:-11.1% ▪ Non specific ST abnormality → abnormal ECG

OBJECTIVE EVIDENCE:-

- ULTRA SOUND ABDOMEN AND PELVIS:-
  - Diffuse urinary bladder wall thickening with fine echoes of concern for cystitis.
  - B/L relatively small kidneys with subtle increase in cortical echoes- grade- II/III medical renal disease.
  - Both kidney shows increase in cortical echotexture with maintained CMD – grade-I parenchymal disease.
  - Mild thickening of urinary bladder wall with mucosal irregularity and freely floating internal echoes noted in urinary bladder- cystitis
- RETROGRADE URETHROGRAM:-
  - Evidence of short segment smooth narrowing near the anterior end of the penile urethra for 2.2cm-suggestive of stricture

FINAL DIAGNOSIS:-

- CHRONIC KIDNEY DISEASE
- URINARY TRACT INFECTION
- ACUTE PULMONARY EDEMA
- COPD
- URETHRAL STRICTURE

k/c/o

- TYPE II DIABETES MELLITUS
- ACCELERATED HYPERTENSION
- CAD s/p CABG

TRATMENT CHART:-

BRAND NAME	GENERIC NAME	DOSE	FREQUENCY	ROA	Number of days
Inj.Auxifast	Cefoperazone+sulbactum	1.5g	1-0-1	IV	1-5
Inj.Retamol	Paracetamol	1g	1-1-1	IV	1-2
Inj.Lasix	Furosemide	5mg/hr	onflow	IV	1-12
Inj.Heparin	Heparin	5000u	1-1-1	IV	1-12
Tab.Clopilet	Clopidogrel	75mg	0-1-0	PO	2-5
Tab.Ecosprin AV	Atorvastatin+aspirin	150/20 mg	0-0-1	PO	2-5
Inj.Pan	Pantoprazole	40mg	1-0-1	IV	1-12
Inj.Emeset	Ondansetran	4mg	1-1-1	IV	1-3
Tab.Amlong	Amlodipine	5mg	1-0-0	PO	2-12

BRAND NAME	GENERIC NAME	DOSE	FREQUENCY	ROA	No. of days
Tab.Cardivas	Carvedilol	3.125mg	1-0-1	PO	2-12
Inj.Human Actrapid	Soluble insulin				2
Inj.Levoday	levofloxacin	10mL	1-0-0	IV	3-12
Tab.Nexito	Escitalopram oxalate	5mg	1-0-1	PO	6-12
Lubrex eye drop	Carboxymethylcellulose	0.5%w/v	1-1-1-1		6-12
Neb.Duolin	Levoalbuteral+ipratropium		1-1-1		3-12
Tab.Angiplat	Nitroglycerin	2.5mg	1-1-0	PO	8-12
Inj.Etrax XL	Ceftrixone	1.5mg	1-0-1	IV	9-12
Neb.Foracort	Formoterol+Budesonide	1.5mg	1-0-1		11-12

PROGRESSION:-

- **Day-1 (21-9-19)**

c/o breathing difficulty, general weakness, abdomen discomfort, throat pain since 1 day; constipation since 2 month → cremaffin

BP:-200/100mmHg ; PR:-100bpm ; SPO2:-95% ; I/O:-300/200mL

- **Day-2 (22-9-19)**

c/o breathing difficulty

BP:- 140/80mmHg ; PR:- 80bpm ; SPO2:-100% ; RS:- B/L Ronchi+,basal crepti+ ; serum creatinine:-2.5mg/dl ; BUN:-82 mg/dl; I/O:- 1875/2490mL

- **Day-3 (23-9-19)**

c/o Sleeping disturbance

BP:- 150/80mmHg ; PR:- 90bpm ; I/O:-950/1550mL

- **Day-4 (24-9-19)**

c/o cough

BP:- 110/80mmHg ; PR:-80bpm ; I/O:- 1200/1600mL

- **Day-5 (25-9-19)**

Vitals stable ; I/O:- 1600/1150ml ; BUN:-151mg/dl ; serum creatinine:-3.5mg/dl ; uric acid:-9.7mg/dl

- **Day-6 (26-9-19)**

Vitals stable ; P/A:-soft B/S+ ; I/O:-1600/2250mL

- **Day-7 (27-9-19)**

Acute pulmonary edema

RS:- B/L ronchi+ basal crepti+ ; vitals stable ; I/O:- 1300/1900mL

- Day-8 (28-9-19)

GC fair ; BP:- 120/80mmHg ; I/O:- 1550/2600mL
Adv. CST

- Day-9 (29-9-19)

BP :- 130/90 mmHg ; PR :-105bpm ; RS :- B/L Ronchi+
P/A:- Soft B/S + ; CVS :- S1S2 + ; SPO:- 97% on 2 L of oxygen support ; I/O:- 1450/2200mlL

- Day-10 (30-9-19)

C/o general weakness ; BP :- 140/80mmHg ; RS :- B/L Ronchi + ; SPO2 :- 90% RA ; I/O:- 1450/1800mL

- Day-11 (1-10-19)

Vitals stable ; afebrile ; RS :- B/L NVBS
Adv. CST

THERAPEUTIC GOALS:-

- To maintain normal blood glucose levels , blood pressure to control accelerated hypertension.
- To treat risks factors of cardiovascular disease
- To control further complication
- To reduce cystitis cause .
- To reduce urethral stricture.
- To reduce complications related due to COPD
- To control respiratory failure caused due to pulmonary edema.
- To reduce infection and maintain good health.

TREATMENT OPTIONS:-

- Calcium channel blockers :- amlodipine and nifedipine.
- Beta blockers :- carvedilol ,nebivolol and labetalol.
- Insulin Human mixtard.
- Antibiotic :- Ciprofloxacin , norfloxacin , cefalexin and levofloxacin.
- Eye drops:- carboxymethylcellulose .
- B2 sympathomimetic bronchodilators:- formoterol , salmeterol.
- Corticosteroid:- budesonide.

TREATMENT OPTIONS (continued...)

- Anti-cholinergic Bronchodilators:- ipratropium bromide.
- Nitrates:- nitro-glycerine.
- Anti-emetic :- ondansetron, palonosetron, dolanosetron.
- Proton pump inhibitor :- pantoprazole , rabeprazole
- Anti-pyretic:- paracetamol/ acetaminophen.
- HMG COA reductase inhibitor:- atarvosatitin

DISCHARGE MEDICATION:-

BRAND NAME	GENERIC NAME	DOSE	FREQUENCY	ROA	NO. OF DAYS
Tab.Levoday	Levofloxacin	500mg	1-0-1	PO	3days
Tab.Angiplat	Nitroglycerin	2.5mg	1-1-0	PO	Till review
Tab.Ecosprin AV	Atorvastatin+Aspirin	150/20	0-0-1	PO	-
Tab.Lasix	Furosemide	40mg	1-0-0	PO	-
Tab.Amlong	Amlodipine	5mg	1-0-0	PO	-
Tab.Nebicard	Nebivolol	5mg	1-0-1	PO	-
Tab.Etizolam	Etizolam	0.25mg	SOS	PO	-
Tab.Ketofix	Cefixime	200mg	1-1-1	PO	-
Syp.Cremaffin	Liquid paraffin+Mg(OH)2	20ml	0-0-1	PO	-
H.Actrapid	Soluble insulin	25u	1-1-0	SC	-
H.Mixtard	NPH+Soluble	15u	0-0-1	SC	-
Lubrex eye drop	Carboxymethylcellulose		1-1-1-1		-
Tab.Silotime D	Silodosin+dutasteride	8+0.5mg	0-0-1	PO	-

PROBLEMS IDENTIFIED:-

- Diuretics:- patient has low level of electrolytes
- Where diuretics may cause more deficiency in electrolytes levels which may lead to severe hyperthermia .
- HbA1c test is not performed to monitor the average blood glucose level of blood
- Lipid profile tests are not performed.

- Bilirubin levels are not checked to determine the complication related to constipation
- Administration of aspirin, heparin,clopidogrel though patient has anaemia.
- Use of antiplatelet and anticoagulant may cause increased risk of bleeding and anaemia
- Patient already has abnormal ECG (i.e. non-specific ST abnormality)where, administration of diuretics and albuterol may lead to more ECG complications.

PHARMACIST INTERVETION:-

- Diuretics can be replaced by calcium channel blockers where they will maintain the cardiac health and prevent the loss of electrolytes caused by the diuretics , lead to prevention of risks of hyperthermia.
- Check HbA1c levels.
- Check and monitor of bilirubin levels.
- Check lipid profile test.

MONITERING PARAMETERS:-

- HEMATOLOGY
- URINE ROUTINE
- ULTRASOUND ABDOMINAL PELVIS
- RETROGRADE URETHROGRAM
- ECG
- LIVER FUNCTION TEST
- LIPID PROFILE TEST
- GLUCOSE TEST

PATIENT COUNCELLING:-

- About disease:-
  - Explain to patient about the disease
  - Educate the patient about the complication of disease
  - Explain to patient about cause of disease and risk factors of the disease.

- About Medications:-
  - Take regular medications as prescribed by the doctors
  - Don't miss or double the dose
  - Advice about the drug interactions , ADR
  - Advice about route and frequency of administration.

❑ About life style modifications:-

- Regular health check-up
- Advice for Exercise or yoga
- Prevent of excessive consumption of protein.
- Consume low potassium fruits like papaya, Kiwi .
- Consume cranberry juice.
- Consume low fat content food
- More electrolytes consumption
- Reduce amount of spices in daily diet
- Consume less amount of caffeine.


Thank You