Renal disease in pregnancy

By
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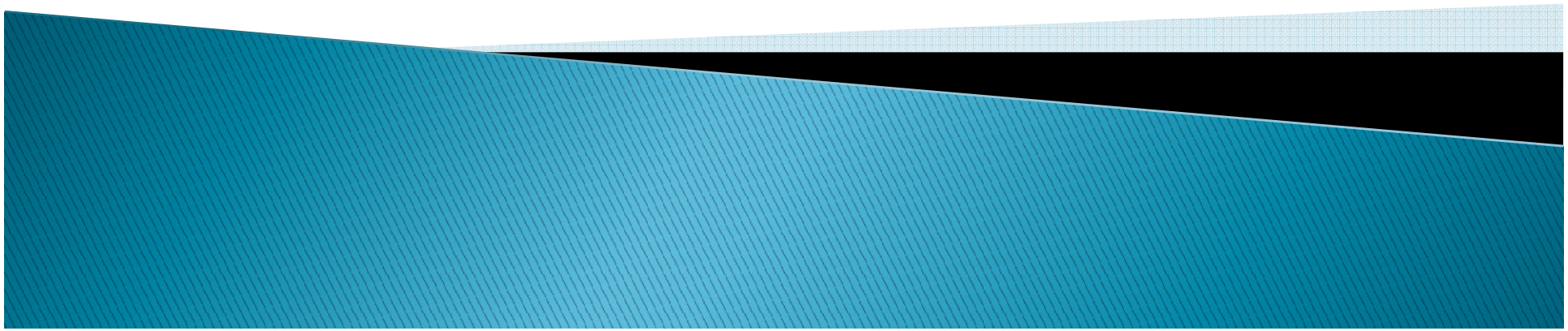


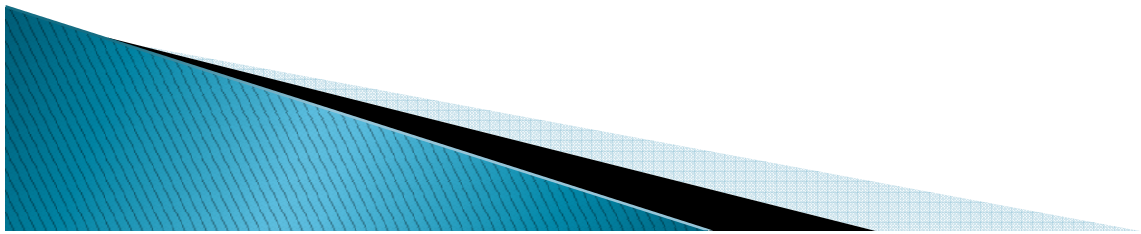
RENAL CHANGES

- Renal vasodilatation increases renal blood flow early during pregnancy.
- Increased Cardiac output leads to Increased GFR & Increased renal plasma flow by 50% which increases clearance of urea, uric acid and Creatinine.
- Increased Renin & Aldosterone level promotes Na+ retention leading to volume overload.
- Decreased Renal tubular threshold for glucose & amino acids → mild glycosuria & proteinuria (< 300mg/d).
- Progesterone mediated ueretetic smooth muscle relaxation can lead to urinary stasis making pregnant women prone to urinary tract infections.

There is increase in the volume of distribution for drugs and may have to be given in higher than normal dosages.

Renal disease in pregnancy

Urinary tract infection
Chronic kidney disease
Acute renal failure
Pregnancy with kidney transplantation



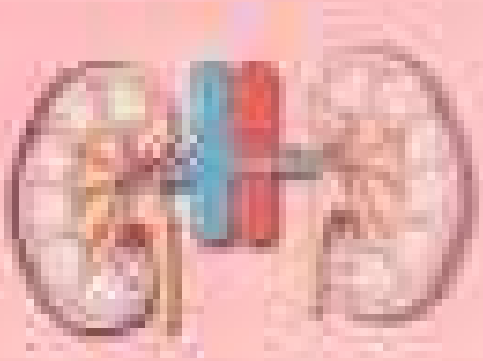
URINARY TRACT INFECTION IN PREGNANCY

- In pregnant women the incedence of asymtomatic bacteriuria is 2-5% if not treated 39% of them will develop symptomatic infection

- Predisposing factors includes
  - Urine stasis during pregnancy due to compression of the ureter by the gravid uterus against the pelvis the pelvic brim paticularly on the rt. Side.So infection is more common on the rt. Side.
  - Increased urinary excretion of glucose and aminoacids favours the growth of bacteria.

URINARY TRACT INFECTION IN PREGNANCY

- Asymptomatic Bacteriuria in Pregnancy
- Acute Cystitis in Pregnancy
- Acute Pyelonephritis in Pregnancy

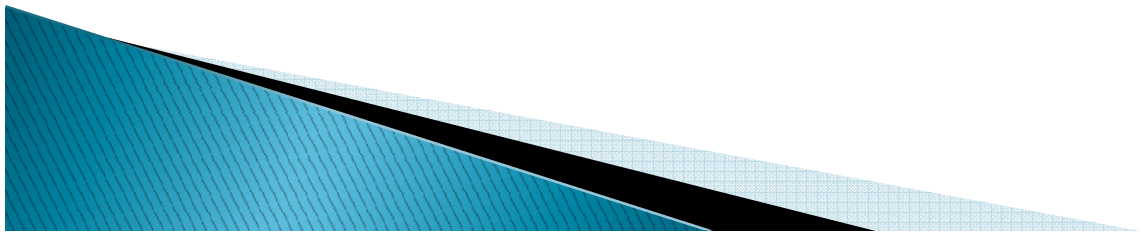


Asymptomatic Bacteruria

definition
Colonization of urine with more than 10^5 bacterial
colonies / ml with absence of symptoms

Incidence
Affect 3-5 % of pregnant ladies

Diagnosis
Urine culture



Causes

the usual organism responsible is E. coli (over 90%).

Other possible organisms include Proteus, Klebsiella, Staphylococci and Pseudomonas

Clinical significance

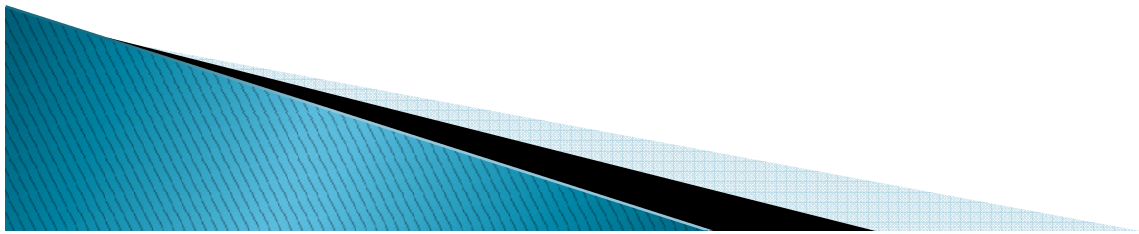
If untreated it leads to pyelonepphritis in 40%

Also associated with preterm labour and low birth weight

Treatment

Antibiotic according to culture and sensitivity for 3 days

urological follow-up is usually only for women who develop acute recurrent symptomatic infections, or, in women in whom the bacteriuria persists despite treatment, or, in those women who develop recurrence post-partum



Cystitis & pyelonephritis

Cystitis affect 1% of pregnant ladies
Pyelonephritis affect 1-2 %

Risk factors
Previous history of UTI
Diabetic patient
Immuncompromised patient
Polycystic kidney
Reflux uropathy
Neuropathic bladder
Renal calculi
Renal congenital anomalies

Signs & Symptoms: *Cystitis & Pyelonephritis*

• Dysuria • Increased frequency & urgency of urination	• Retropubic/ suprapubic pain during or after urination • Lower abdominal pain (radiating form flanks to loin)	**Cystitis**
• Above **PLUS** • Spiking Fever/Chills • Abdominal pain	• Retropubic/ suprapubic pain during or after urination • Loin pain/ Tenderness • Tenderness in the rib cage • Anorexia • Nausea/ Vomiting	**Acute Pyelonephritis**

Maternal Health Division
Ministry of Health & Family Welfare
Government of India

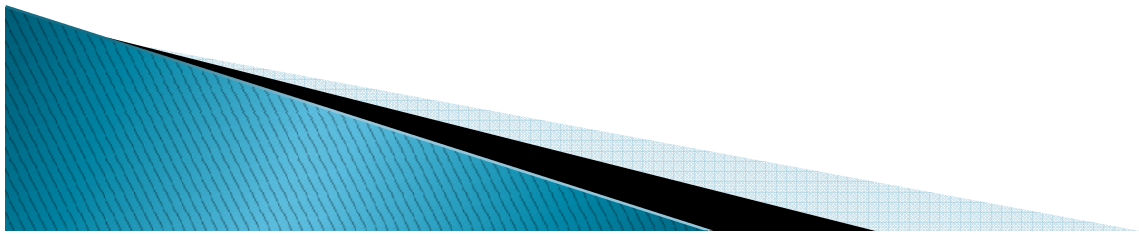
Etiology

- **Infection**
  - *E coli* : most common cause of UTI, 80-90% originates from fecal flora colonizing the periurethral area: ascending infection.
  - Other pathogens:

Klebsiella pneumoniae (5%)
Proteus mirabilis (5%)
Enterobacter species (3%)
Staphylococcus saprophyticus (2%)
Group B beta-hemolytic *Streptococcus* (GBS; 1%)
Proteus species (2%)

Management

History
Clinical examination
Investigation
MSU exam
Urine culture
Urine nitrate and protien
Renal function test
Imaging



Treatment

Cystitis

Oral antibiotics according to culture and senstivity for at least 7 days

Pyelonephritis

Hospitalization

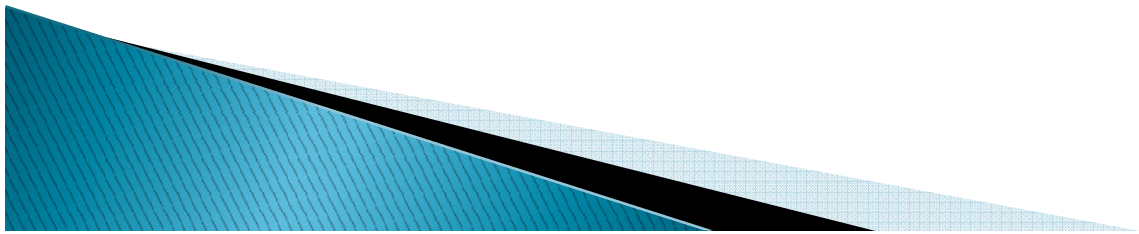
i.v fluid ,antipyretic , anti emetics

Antibiotic immediately the change according to C&S

Duration of treatment 10-14 days

Prophylactic antibiotics indicated in:

More than one risk factors
Patient with kidney transplantation
Two or more confirmed UTI by culture



Antibiotics in pregnancy

Pencilline and cephalosporine are safe

Co amoxiclav associated with neonatal necrotizing enterocolitis

Trimethoprim should be avoided during 1st trimester of pregnancy

Nitrofurantoin should be avoided in 3rd trimester

Gentamycin associated with 8th nerve damage

Tetracycline and chloromphenicol are contraindicated

UTI in Pregnant women

- **Complications:**
  - Persistent bacteriurea
    - UTI during pregnancy may be the result of preexisting asymptomatic bactriurea
    - Urine culture is recommended at first prenatal visit
  - Acute or chronic pyelonephritis
  - premature delivery.
  - low birth weight infant.
  - Increased newborn mortality

Chronic kidney disease and pregnancy

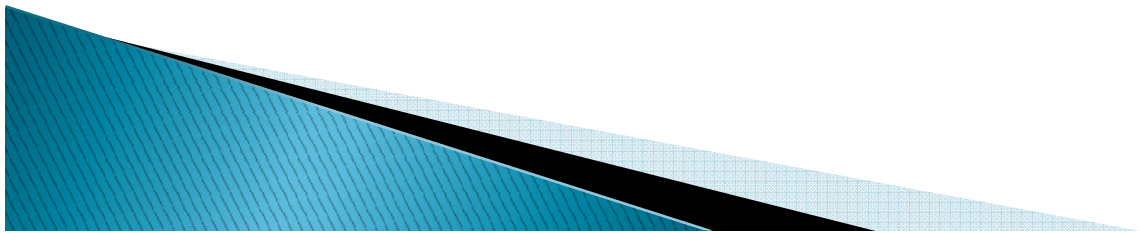
Most common causes of CKD are

Reflux nephropathy , SLE , GN ,adult polycstic kidney

Most patient are infertile but pregnancy could occur

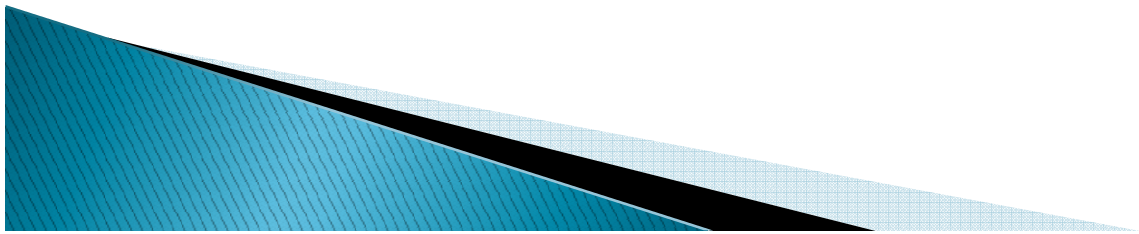
KCD classified into 5 stages according to GFR (unreliable in pregnancy)

So depend on serum creatinin for determination of severity



Stage 1-2 & serum creatinine less than 125 micromol/l can tolerate pregnancy

Stage 3-5 & creatinin > 180 pregnancy may be associated with perminant loss of renal function



Relationship between pregnancy and kidney disease.

- **Effects of pregnancy on kidney disease**

- Worsening proteinuria
- Loss of kidney function
- Hypertension and preeclampsia

- **Effects of kidney disease on pregnancy**

- Infertility
- Preterm delivery
- IUGR
- Decreased fetal survival
- Preeclampsia

Management

Should be by multidisplinary team

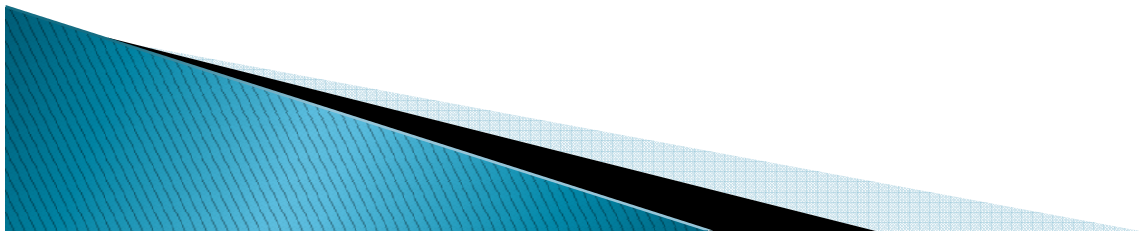
Start preconceptionaly to detect baseline renal function

Early detection of UTI

Tight control of BP

Prophylactic aspirin to reduce preeclampsia

Hospilization if worsening H.T ,protienuria and creatinine



Fetal monitoring of growth and exclude renal anomaly

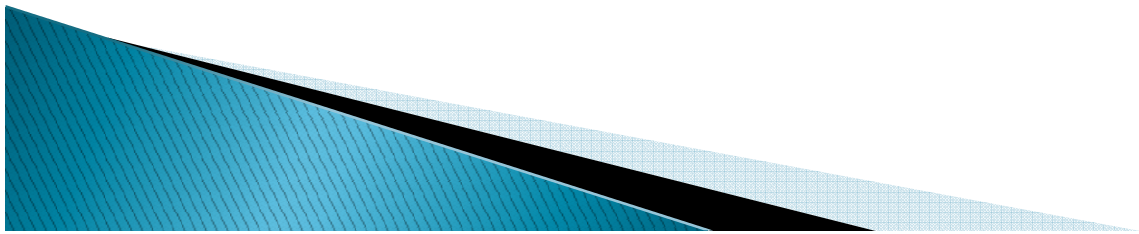
If renal disease 1stly diagnosed during pregnancy exclusion of D.M , SLE ,Polycystic kidney should be done

During labour

Strict monitoring for both mother anf fetus

Carful use of i.v fluid and drugs

Mode of delivery determined obstetrically



Pregnancy and kidney transplantation

The rate of succesful pregnancy oucome is similar to that of general population

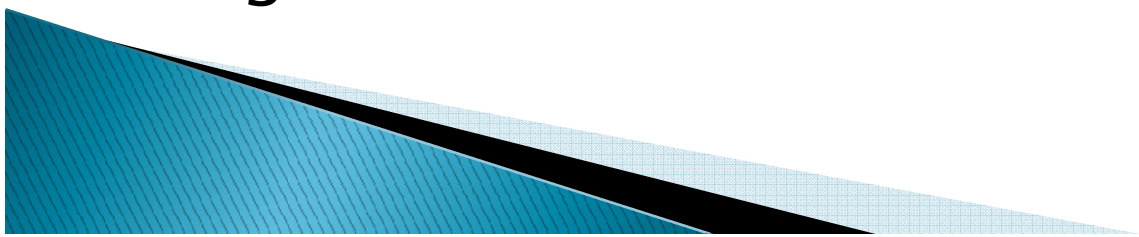
Although there is 24% risk of PE & SGA

Complications depends on prepregnancy renal function and severity of H.T

Pregnancy should be delayed 1-2 years after transplantation

risk of graft rejection is less

Lowest dose of immunosuppressive drugs



Management during pregnancy

Multidisci[linary team required
More frequent antenatal visits
Frequent monitoring of renal function
Strict control of H.T
Early detection of pre eclampsia and Prophylactic aspirin
Early detection and treatment of UTI and prophylactic antibiotics
Early detection and treatment of anemia
Fetal wellbeing and growth monitoring
Mode of delivery determined obstetrically although there is small risk of injury to transplanted kidney during C/S

Immunosupressive drugs and pregnancy

Predinsolone

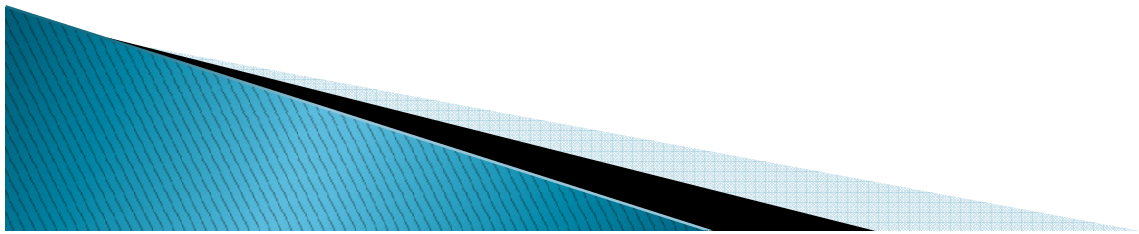
Azothioprim

Cyclosporine

Tacrolimus

All are class C and can be given during pregnancy

Mycophenolate mofitil (MMF)is teratogenic



Dialysis and pregnancy

Pregnancy should be avoided in patient on dialysis , outcome similar in both haemo and peritoneal dialysis

<u>Complications</u>

Infection

Hemmorrhage

Polyhydramnios

PROM and PTL

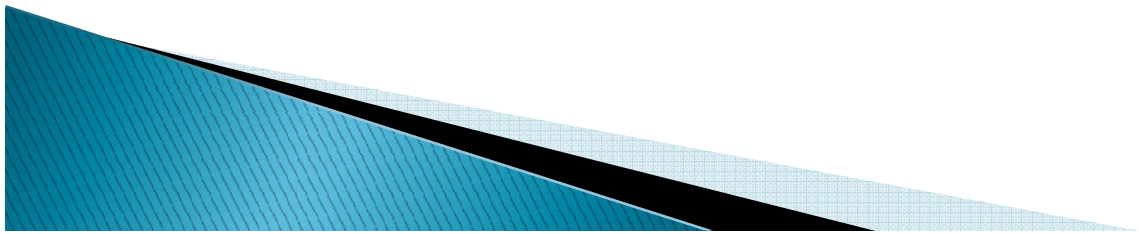
Sepsis

Preeclampsia

If pregnancy occur more frequent sessions required

Acute renal faiulure

Unusual during pregnancy
Causes
Hemmorrhage
Preeclampsia and related complications as HELLP syndrom
Obstructive uropathy
Hemolytic uremic syndrom (mainly postpartum)
Drugs as NSAID
Steroid may be associted with elevated blood urea only
Management usually conservative by multidisciplinary team



Thank you