




CHRONIC RENAL FAILURE

DEFINITION

- CRF is an irreversible loss of kidney function that occurs over months to years.
- Chronic kidney disease (CKD) is characterized by an irreversible deterioration of renal function that gradually progresses to end-stage renal disease (ESRD). ie
- CRF progresses to ESRD, which is permanent , irreversible loss of kidney function
- Dialysis or transplantation is required to treat ESRD


ETIOLOGY

- Glomerulonephritis
- Reflex nephropathy
- Obstructive uropathy -pelvic-ureteric junction obstruction, renal stones
- Developmental anomalies-Bilateral renal hypoplasia, dysplasia

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- Hemolytic uremic syndrome
 - Others-Amyloidosis, renal vein thrombosis, renal cortical necrosis




Incidence

- Approx 12 in 1 million
 - Higher in adolescence, in boys
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Pathophysiology & Manifestations

- Loss of urinary concentrating abilities- polyuria, nocturia & increased thirst
- Anemia-Reduced renal erythropoietin production
- Resistance to the action of growth hormone- growth failure
- Osteodystrophy results from a lack of renal formation of 1,25dihydroxyvitamin D₃, deficiency of calcium & chronic acidosis

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- Hypertension
 - Hypertensive retinopathy
 - Infections
 - Failure to thrive
 - Growth retardation
 - Anemia
 - Bony deformities


Diagnostic tests


- Blood count
- Serum urea & creatinine (elevated), sodium, potassium, chloride, Ph, bicarbonate, calcium (decreased), phosphate (elevated), alkaline phosphates, Protein & albumin
- X-ray films of the hands, knees, pelvis & spine to detect bony abnormalities

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- Voiding cystourethrogram
 - Renal USG
 - Renal biopsy
 - Creatinine clearance test

MANAGEMENT

- Salt & fluid restriction-to prevent fluid overload & hypertension
- Protein (0.8-1g/kg/day)& potassium restriction-kidney unable to remove waste products
- Restrict phosphorus-to prevent bone diseases
- Diuretics-to control fluid balance
- Antihypertensive-Beta-adrenergic blockers(atenolol,propranolol), calcium channel antagonist(nifedipine, amlodipine)

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- Sodium bicarbonate-to maintain acid-base balance
 - Vitamin D& Phosphorus –binding medications-to prevent bone diseases
 - Calcium supplements-calcium carbonate or acetate
 - Iron & folic acid supplements
 - Packed red cell transfusion


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- Vitamin B₁, b₂, pyridoxine & B₁₂ are supplemented
 - Immunizations
 - Recombinant erythropoietin & recombinant growth hormone
 - Dialysis & Kidney transplantation

Kidney Transplantation

- Two types : donor-living donors & cadaveric donor
- Blood & tissue types of the donor & recipient need to be compatible
- Life long immunosuppressive medications- cyclosporins, azathioprine & prednisone
- Monitor s/s of infection

NURSING MANAGEMENT


- Monitor BP, Hb, Hct
- Assess fluid status for fluid overload & dehydration by obtaining weight, Monitoring BP& HR, & Observing & recording edema, skin turgor, mucus membranes & fontanel
- Adequate nutritional intake within dietary restrictions

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- Small, frequent meals
 - Diet supplements
 - Recombinant growth hormone
 - Maintain hydration
 - Health education



Nursing Diagnosis

- Imbalanced nutrition; less than body requirement related to decreased appetite & dietary restrictions
- Deficient knowledge about disease process, treatment, or dietary restrictions related to anxiety or incomplete information
- Risk for imbalanced fluid volume related to fluid & electrolyte shifts secondary to renal dysfunctions

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- Delayed growth & development related to restricted diet, chronic illness & anemia
 - Interrupted family process related to having a child with a chronic & potentially life-threatening disease
 - Risk for impaired skin integrity related to edema & poor nutrition