INTRODUCTION
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Near constancy of composition of internal environment of the body, including the volume, tonicity, and compartmental distribution of body fluids and electrolytes is essential to survival. The kidneys regulate the composition and volume of plasma which in turn determines the composition of volume of intra and extracellular compartments.

Renal diseases may present to physicians in several ways depending upon the nature of the illness and timing of presentation. Some patients present with advanced renal disease, having signs and symptoms of uraemia with unremarkable urinanalysis, while others have urinary abnormalities, but few if any disturbances in renal functions.

SYMPTOMATIC RENAL DISEASE:

Can be of 3 Types:
1. Patients complaining of symptoms or signs which directly or indirectly indicate underlying renal disease.
2. Patients having systemic disease know to be associated with renal involvement.
3. Patients having family history of inherited renal disorders.

Symptomatic renal disease most commonly presents as disorders of micturition, urine volume, urine composition, pain, edema, symptoms of uraemia or symptoms of various disorders involving the kidney secondarily.
(A) DISORDERS OF MICTURITION:

Most common disorder of micturition is frequency. Frequency means that the bladder is emptied more often than normal. Frequency may be associated with increased urine volume (polyuria) or normal urine volume. Frequency with normal urine volume can be due to irritation of the bladder by inflammation, stone, tumor or fibrosis. It can also be due to a pelvic mass or gravid uterus. It is important also to determine whether there is normal or decreased volume per void. The former indicates increased urine formation while the latter indicates diminished bladder capacity. Middle aged and older men with prostate enlargement sometimes present with increased urine volume that results from diminished flow rate in nephrons and impaired concentrating. Ability of the kidney due to obstructive back pressure.

(B) DYSURIA:

Dysuria is pain, discomfort or burning sensation during micturition, it is usually described by the patient as burning or tingling sensation felt at the urethral meatus or in the suprapubic area during or immediately after micturition. It usually arises as a consequence of bladder, prostatic or urethral inflammation. In younger patients it should be suspected if the child cries during micturition or unexplained fever.

(C) DISORDERS OF URINE VOLUME:

Disorders of urine volume can be divided into polyuria (increased volume), oliguria (diminished volume) and anuria (absence of urine).

(a) Polyuria can be due to:
   i. excessive compulsive drinking
ii. increase in tubular solute load (urea in CRF, glucose in Diabetes mellitus or low molecular weight proteins in melanoma)

iii. A diminution in ADH production (in head trauma, tumor or infections of hypothalamus or pituitary or sleep disorder)

iv. Disordered medullary concentrating ability as a consequence of medullary disease (Analgesic nephropathy, renal papillary necrosis, medullary cystic disease, sickle cell anemia and nephrocalcinosis).

(b) Oliguria describes a reduction in urine volume to less than that required for the excretion of residues from normal daily metabolic function. In adults under extreme conditions, homeostasis can be maintained with urine output of 500ml per day (1.0 ml / kg / hour in young children). Volume less than this is called oliguria. It usually indicates underlying acute renal failure.

(c) Anuria is absence of renal output and indicates obstruction of urinary tract and rarely renal infarction or cortical necrosis.

(D) DISCOLORATION OF URINE:

Red / Brown discoloration of urine can be due to certain causes like hematuria, haemoglobinuria, Myoglobinuria, porphyrias, urates, alkaptonuria, drugs and dyes. Blood arising from the glomerulus gives urine a smoky appearance or tea / coca cola appearance. Blood arising from the urethra usually appear at the beginning of urinary stream while that from the bladder or prostate is commonly noticed at the end of micturition.
(E) PAIN:

Pain is an inconsistent symptom of urinary disease but when present is commonly due to obstruction or inflammation. pyelonephritis usually causes pain at renal angle. A perirenal abscess can give symptoms related to diaphragmatic irritation. Glomerular inflammation can be associated with dull lumbar ache. Pain arising from an acute obstruction is usually sudden in onset, severe colicky in nature and radiates from loin to groin.

(F) Oedema:

May arise due to hypoproteinemia which is a consequence of significant proteinuria. The edema is usually most noticed around the eyes in the morning and in the ankles and feet in the evening. Edema may also arise as a consequence of salt and water retention in cases of acute or chronic renal failure.

(G) CLINICAL ABNORMALITIES IN URAEMIA:

Uremia refers to the retention of nitrogenous wastes as renal insufficiency develops and causes multiorgan system derangements which become clinically manifest.

a. Fluid electrotye and acid base disorder -
Can develop and lead to volume expansion/contraction; hypo/hypernatremia; hypo/hyperkalemia; metabolic acidosis; hypocalcaemia and hyper phosphate.

b. Endocrine metabolic disturbances -
Include secondary hyperparathyroidism; vit-D deficiency; Carbohydrate intolerance; hypertriglyceridemia; protein calorie malnutrition; impaired growth; infertility; amenorrhea & sexual dysfunction.
c. Neuromuscular disturbances-
Caused due to uremia are fatigue; sleep disorder, headache, impaired mentation, asthenias, seizures, cramps, peripheral neuropathy, myopathy & comes.

d. Cardiovascular & pulmonary disturbance-
arterial hypertension; CHF; pulmonary edema; pericarditis; hypertension and arrhythmia.

e. Dermatologic disturbances-
Pruritis ; ecchymosed ; hyperpigmentation.

f. Gastrointestinal disturbances-
Include anorexia; nausea ; vomiting ; Gastroenteritis ; peptic ulcer ; G.I. bleeding ; peritonitis ; hepatitis.

g. Hematologic & immunologic disturbances-
Includes anemia; lymphocytopenia ; bleeding diathesis; infection; splenomegaly.

ASYMPTOMATIC RENAL DISEASE

Is most commonly detected following routine investigations such as urine analysis, blood pressure or blood chemistry analysis after hospitalization for non renal causes, or as part of health screening programs. In a number of patients renal disease is detected during clinical and laboratory test for pregnancy, occupational purposes or health insurance. A considerable number of neonates are diagnosed as having renal disorders because of routine USG screening of mothers during pregnancy. In a small number of cases there is regular screening in view of a known employment and development of renal disease (aniline due workers have a greater incidence of urothelial tumors)
PERSISTING URINARY ABNORMALITIES WITH NO OR FEW
SYMPTOMS.

The finding of hematuria, proteinuria, bacteriuria, crystalluria and
Pyuria in absence of readily identifiable disease are familiar and vexing
clinical problems.

(A) ASYMPTOMATIC HEMATURIA:

Determining the morphology of erythrocytes in freshly voided urine is
useful to separate glomerular form nonglomerular hematuria (fragmented
distorted poorly hemoglobinized or dysmorphic RBC with a volume of less
than 72 fl are usually glomerular). Glomerular hematuria is frequently
accompanied by proteinuria (non nephritic range). Patients with isolated
hematuria with minimal urinary symptoms are likely to have no or minimal
glomerular changes on electron microcopy and are usually caused by SLE,
Wegner’s granulomatosis, Goodpasteur’s syndrome, Alport’s syndrome,
idiopathic hypercalcemia, thin basement membrane, silent Nephrolithiasis
or malignancies.

(B) ASYMPTOMATIC PROTEINURIA:

Is defined by the pressure of mild glomerular proteinuria (principally
albumin) usually less than 2 gm/day with normal urinary sediments in the
absence of symptomatic systemic disease. Asymptomatic essential
hypertension and mild or latent Diabetic Nephropathy, Idiopathic
membranous glomerulonephritis, Focal glomrulosclerosis, IgA
nephropathy, and Amyloidosis may all present initially with mild or
moderate proteinuria. Other uncommon causes are Postural proteinuria,
Over flow proteinuria and Tubular proteinuria.
(C) ASYMPTOMATIC PYURIA:

Upto 400,000 cells / hour may be excreted in normal urine, corresponding to 10 WBCs / ml in an unspun urine sample. Many times present of pus cells in the urine can be detected in the absence of clinical symptoms. This is known as asymptomatic pyuria. Common causes of asymptomatic pyuria are infection, Diabetes mellitus, NSAID Nephropathy, Renal tuberculosis, Interstitial nephritis, Nephrolithiasis and prostatic enlargement in males.

(D) ASYMPTOMATIC GLY COSURIA:

Presence of even small amounts of glucose in the urine sample is an abnormality. Asymptomatic glycosuria in individuals is almost always due to diabetes mellitus which has not clinically manifested or detected.

(E) ASYMPTOMATIC CRYSTALLURIA:

Except for the cystine crystals and a few others, the majority of crystals found in the urinary sediment are of limited value. It is tempting to associate crystals with a risk of Nephrolithiasis. In a majority of cases, the crystals found in the urine are not present in freshly voided sample. Some of the common causes of asymptomatic crystalluria are urolithiasis, infection, primary hyperparathyroidism, excessive bone resorption, ethylene glycol toxicity, renal tubular acidosis, chronic diarrhoea and drugs.