ESAN FAITH

PHARMACOLOGY

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PHS 212

DISCUSS THE DISEASE OF THE RENAL SYSTEM

Kidney disease

Kidney disease, or renal disease, also known as nephropathy, is damage to or [disease](https://en.wikipedia.org/wiki/Disease) of a [kidney](https://en.wikipedia.org/wiki/Kidney). [Nephritis](https://en.wikipedia.org/wiki/Nephritis) is an [inflammatory](https://en.wikipedia.org/wiki/Inflammation) kidney disease and has several types according to the location of the inflammation. Inflammation can be diagnosed by [blood tests](https://en.wikipedia.org/wiki/Blood_test). [Nephrosis](https://en.wikipedia.org/wiki/Nephrosis%22%20%5Co%20%22Nephrosis) is non-inflammatory kidney disease. Nephritis and nephrosis can give rise to [nephritic syndrome](https://en.wikipedia.org/wiki/Nephritic_syndrome) and [nephrotic syndrome](https://en.wikipedia.org/wiki/Nephrotic_syndrome%22%20%5Co%20%22Nephrotic%20syndrome) respectively. Kidney disease usually causes a loss of [kidney function](https://en.wikipedia.org/wiki/Kidney_function) to some degree and can result in [kidney failure](https://en.wikipedia.org/wiki/Kidney_failure), the complete loss of kidney function. Kidney failure is known as the end-stage of kidney disease, where [dialysis](https://en.wikipedia.org/wiki/Dialysis) or a [kidney transplant](https://en.wikipedia.org/wiki/Kidney_transplantation) is the only treatment option.

[Chronic kidney disease](https://en.wikipedia.org/wiki/Chronic_kidney_disease) causes the gradual loss of kidney function over time. Acute kidney disease is now termed [acute kidney injury](https://en.wikipedia.org/wiki/Acute_kidney_injury) and is marked by the sudden reduction in kidney function over seven days. Primary renal cell carcinomas as well as metastatic cancers can affect the [kidney](https://en.wikipedia.org/wiki/Kidney).

**Kidney failure***:* [Kidney failure](https://en.wikipedia.org/wiki/Kidney_failure) is defined by functional impairment of the kidney, that is when the kidneys are functioning at 15% or less than normal capability. It is divided into [acute kidney failure](https://en.wikipedia.org/wiki/Acute_kidney_injury) (cases that develop rapidly) and [chronic kidney failure](https://en.wikipedia.org/wiki/Chronic_kidney_disease) (those that are long term  Symptoms may include [leg swelling](https://en.wikipedia.org/wiki/Pedal_edema), feeling tired, [vomiting](https://en.wikipedia.org/wiki/Vomiting), loss of appetite, and [confusion](https://en.wikipedia.org/wiki/Confusion). Complications of acute disease may include [uremia](https://en.wikipedia.org/wiki/Uremia%22%20%5Co%20%22Uremia), [high blood potassium](https://en.wikipedia.org/wiki/High_blood_potassium), and [volume overload](https://en.wikipedia.org/wiki/Volume_overload). Complications of chronic disease may include [heart disease](https://en.wikipedia.org/wiki/Cardiovascular_disease), [high blood pressure](https://en.wikipedia.org/wiki/High_blood_pressure), and [anemia](https://en.wikipedia.org/wiki/Anemia%22%20%5Co%20%22Anemia).

Pre-renal kidney failure refers to impairment of supply of blood to the functional [nephrons](https://en.wikipedia.org/wiki/Nephrons%22%20%5Co%20%22Nephrons) including [renal artery stenosis](https://en.wikipedia.org/wiki/Renal_artery_stenosis). Intrinsic kidney diseases are the classic diseases of the kidney including drug toxicity and [nephritis](https://en.wikipedia.org/wiki/Nephritis). Post-renal kidney failure is outlet obstruction after the kidney, such as a [kidney stone](https://en.wikipedia.org/wiki/Kidney_stone) or [prostatic bladder outlet obstruction](https://en.wikipedia.org/wiki/Urinary_retention). [Kidney failure](https://en.wikipedia.org/wiki/Kidney_failure) may require [medication](https://en.wikipedia.org/wiki/Medication), dietary lifestyle modifications, and [dialysis](https://en.wikipedia.org/wiki/Dialysis).

Non-renal urinary tract disease]

Structural and or traumatic changes in the urinary tract can lead to [hemorrhage](https://en.wikipedia.org/wiki/Hemorrhage%22%20%5Co%20%22Hemorrhage), functional blockage or [inflammation](https://en.wikipedia.org/wiki/Inflammation). [Colonization](https://en.wikipedia.org/wiki/Colonization) by [bacteria](https://en.wikipedia.org/wiki/Bacteria), [protozoa](https://en.wikipedia.org/wiki/Protozoa) or [fungi](https://en.wikipedia.org/wiki/Fungi) can cause infection. Uncontrolled cell growth can cause [neoplasia](https://en.wikipedia.org/wiki/Neoplasia%22%20%5Co%20%22Neoplasia). The term "uropathy" refers to a disease of the urinary tract, while "[nephropathy](https://en.wikipedia.org/wiki/Nephropathy)" refers to a disease of the kidney. For example:

* [Urinary tract infections](https://en.wikipedia.org/wiki/Urinary_tract_infection) (UTIs) are [infections](https://en.wikipedia.org/wiki/Infection) that affect part of the [urinary tract](https://en.wikipedia.org/wiki/Urinary_system). When it affects the lower urinary tract it is known as a bladder infection (cystitis) and when it affects the upper urinary tract it is known as a kidney infection ([pyelonephritis](https://en.wikipedia.org/wiki/Pyelonephritis%22%20%5Co%20%22Pyelonephritis)). Symptoms from a lower urinary tract infection include pain with [urination](https://en.wikipedia.org/wiki/Urination), frequent urination, and feeling the need to urinate despite having an empty bladder. Symptoms of a kidney infection include [fever](https://en.wikipedia.org/wiki/Fever) and [flank pain](https://en.wikipedia.org/wiki/Abdominal_pain) usually in addition to the symptoms of a lower UTI. Rarely the urine may appear [bloody](https://en.wikipedia.org/wiki/Hematuria).  In the very old and the very young, symptoms may be vague or non-specific.
* [Interstitial cystitis](https://en.wikipedia.org/wiki/Interstitial_cystitis) (IC), also known as bladder pain syndrome (BPS), is a type of [chronic pain](https://en.wikipedia.org/wiki/Chronic_pain) that affects the [bladder](https://en.wikipedia.org/wiki/Urinary_bladder). Symptoms include [feeling the need to urinate right away](https://en.wikipedia.org/wiki/Urinary_urgency), [needing to urinate often](https://en.wikipedia.org/wiki/Urinary_frequency), and [pain with sex](https://en.wikipedia.org/wiki/Pain_with_sex).  IC/BPS is associated with [depression](https://en.wikipedia.org/wiki/Depression_%28mood%29) and lower [quality of life](https://en.wikipedia.org/wiki/Quality_of_life).[]](https://en.wikipedia.org/wiki/Urologic_disease#cite_note-AUA2015-13) Many of those affected also have [irritable bowel syndrome](https://en.wikipedia.org/wiki/Irritable_bowel_syndrome) and [fibromyalgia](https://en.wikipedia.org/wiki/Fibromyalgia).
* [Incontinence](https://en.wikipedia.org/wiki/Urinary_incontinence) (UI), also known as involuntary urination, is any uncontrolled [leakage of urine](https://en.wikipedia.org/wiki/Urination). It is a common and distressing problem, which may have a large impact on [quality of life](https://en.wikipedia.org/wiki/Quality_of_life). It has been identified as an important issue in geriatric health care.[]](https://en.wikipedia.org/wiki/Urologic_disease#cite_note-15) The term [enuresis](https://en.wikipedia.org/wiki/Enuresis) is often used to refer to urinary incontinence primarily in children, such as [nocturnal enuresis](https://en.wikipedia.org/wiki/Nocturnal_enuresis) (bed wetting).
* [Benign prostatic hyperplasia](https://en.wikipedia.org/wiki/Benign_prostatic_hyperplasia) (BPH), also called prostate enlargement, is a noncancerous increase in size of the [prostate gland](https://en.wikipedia.org/wiki/Prostate_gland).[]](https://en.wikipedia.org/wiki/Urologic_disease#cite_note-NIH20144-17) Symptoms may include frequent urination, trouble starting to urinate, weak stream, [inability to urinate](https://en.wikipedia.org/wiki/Urinary_retention), or [loss of bladder control](https://en.wikipedia.org/wiki/Urinary_incontinence). Complications can include [urinary tract infections](https://en.wikipedia.org/wiki/Urinary_tract_infection), [bladder stones](https://en.wikipedia.org/wiki/Bladder_stone), and [chronic kidney problems](https://en.wikipedia.org/wiki/Chronic_kidney_problems).
* [Prostatitis](https://en.wikipedia.org/wiki/Prostatitis) is [inflammation](https://en.wikipedia.org/wiki/Inflammation) of the [prostate](https://en.wikipedia.org/wiki/Prostate) gland. The affliction is classified into acute, chronic, [asymptomatic inflammatory prostatitis](https://en.wikipedia.org/wiki/Asymptomatic_inflammatory_prostatitis), and [chronic pelvic pain syndrome](https://en.wikipedia.org/wiki/Chronic_pelvic_pain_syndrome). It may occur as an appropriate physiological response to an infection, or it may occur in the absence of infection. In the [United States](https://en.wikipedia.org/wiki/United_States), prostatitis is diagnosed in 8 percent of all [urologist](https://en.wikipedia.org/wiki/Urologist) visits and 1 percent of all [primary care physician](https://en.wikipedia.org/wiki/Primary_care_physician) visits.
* [Urinary retention](https://en.wikipedia.org/wiki/Urinary_retention) is an inability to completely empty the [bladder](https://en.wikipedia.org/wiki/Bladder).[]](https://en.wikipedia.org/wiki/Urologic_disease#cite_note-NIH2014UR-21) Onset can be sudden or gradual.[]](https://en.wikipedia.org/wiki/Urologic_disease#cite_note-NIH2014UR-21) When of sudden onset, symptoms include an inability to urinate and lower abdominal pain. When of gradual onset, symptoms may include [loss of bladder control](https://en.wikipedia.org/wiki/Urinary_incontinence), mild lower abdominal pain, and a weak urine stream. Those with long term problems are at risk of [urinary tract infections](https://en.wikipedia.org/wiki/Urinary_tract_infection).[[](https://en.wikipedia.org/wiki/Urologic_disease#cite_note-NIH2014UR-21)  Causes include blockage of the [urethra](https://en.wikipedia.org/wiki/Urethra), nerve problems, certain medications, and weak bladder muscles.[]](https://en.wikipedia.org/wiki/Urologic_disease#cite_note-NIH2014UR-21) Blockage can be caused by [benign prostatic hyperplasia](https://en.wikipedia.org/wiki/Benign_prostatic_hyperplasia) (BPH), [urethral strictures](https://en.wikipedia.org/wiki/Urethral_stricture), [bladder stones](https://en.wikipedia.org/wiki/Bladder_stones), a [cystocele](https://en.wikipedia.org/wiki/Cystocele), [constipation](https://en.wikipedia.org/wiki/Constipation), or [tumors](https://en.wikipedia.org/wiki/Tumors%22%20%5Co%20%22Tumors). Nerve problems can occur from [diabetes](https://en.wikipedia.org/wiki/Diabetes), trauma, [spinal cord problems](https://en.wikipedia.org/wiki/Spinal_cord_injury), [stroke](https://en.wikipedia.org/wiki/Stroke), or [heavy metal poisoning](https://en.wikipedia.org/wiki/Heavy_metal_poisoning). Medications that can cause problems include [anticholinergics](https://en.wikipedia.org/wiki/Anticholinergic%22%20%5Co%20%22Anticholinergic), [antihistamines](https://en.wikipedia.org/wiki/Antihistamines), [tricyclic antidepressants](https://en.wikipedia.org/wiki/Tricyclic_antidepressants%22%20%5Co%20%22Tricyclic%20antidepressants), [decongestants](https://en.wikipedia.org/wiki/Decongestants), [cyclobenzaprine](https://en.wikipedia.org/wiki/Cyclobenzaprine), [diazepam](https://en.wikipedia.org/wiki/Diazepam), [NSAIDs](https://en.wikipedia.org/wiki/NSAIDs), [amphetamines](https://en.wikipedia.org/wiki/Amphetamine), and [opioids](https://en.wikipedia.org/wiki/Opioid%22%20%5Co%20%22Opioid). Diagnosis is typically based on measuring the amount of urine in the bladder after urinating. Treatment is typically with a [catheter](https://en.wikipedia.org/wiki/Urinary_catheterization) either through the urethra or [lower abdomen](https://en.wikipedia.org/wiki/Suprapubic_catheter).
* Transitional cell carcinoma or [bladder cancer](https://en.wikipedia.org/wiki/Bladder_cancer) is any of several types of [cancer](https://en.wikipedia.org/wiki/Cancer) arising from the [tissues](https://en.wikipedia.org/wiki/Tissue_%28biology%29) of the [urinary bladder](https://en.wikipedia.org/wiki/Urinary_bladder).[[23]](https://en.wikipedia.org/wiki/Urologic_disease#cite_note-NCI2017Pt-23) It is a disease in which cells grow abnormally and have the potential to [spread to other parts of the body](https://en.wikipedia.org/wiki/Metastasize). Symptoms include [blood in the urine](https://en.wikipedia.org/wiki/Hematuria), [pain with urination](https://en.wikipedia.org/wiki/Dysuria), and low back pain.
* [Renal cell carcinoma](https://en.wikipedia.org/wiki/Renal_cell_carcinoma) (RCC) is a [kidney cancer](https://en.wikipedia.org/wiki/Kidney_cancer) that originates in the lining of the [proximal convoluted tubule](https://en.wikipedia.org/wiki/Proximal_tubule), a part of the very small tubes in the kidney that transport primary urine. RCC is the most common type of kidney cancer in adults, responsible for approximately 90–95% of cases.[[](https://en.wikipedia.org/wiki/Urologic_disease#cite_note-MSR-26)
* [Prostate cancer](https://en.wikipedia.org/wiki/Prostate_cancer) is the development of [cancer](https://en.wikipedia.org/wiki/Cancer) in the [prostate](https://en.wikipedia.org/wiki/Prostate), a [gland](https://en.wikipedia.org/wiki/Gland) in the [male reproductive system](https://en.wikipedia.org/wiki/Male_reproductive_system).[[]](https://en.wikipedia.org/wiki/Urologic_disease#cite_note-27) Most prostate cancers are slow growing; however, some grow relatively quickly. The cancer cells may [spread](https://en.wikipedia.org/wiki/Metastasis) from the prostate to other areas of the body, particularly the [bones](https://en.wikipedia.org/wiki/Bone) and [lymph nodes](https://en.wikipedia.org/wiki/Lymph_node) It may initially cause no symptoms In later stages, it can lead to difficulty [urinating](https://en.wikipedia.org/wiki/Urination), [blood in the urine](https://en.wikipedia.org/wiki/Hematuria) or [pain in the pelvis](https://en.wikipedia.org/wiki/Pelvic_pain), back, or when urinating A disease known as [benign prostatic hyperplasia](https://en.wikipedia.org/wiki/Benign_prostatic_hyperplasia) may produce similar symptoms. Other late symptoms may include feeling tired due to [low levels of red blood cells](https://en.wikipedia.org/wiki/Anemia).
* [Urinary tract obstruction](https://en.wikipedia.org/wiki/Urinary_tract_obstruction) is a urologic disease consisting of a decrease in the free passage of [urine](https://en.wikipedia.org/wiki/Urine) through one or both [ureters](https://en.wikipedia.org/wiki/Ureter%22%20%5Co%20%22Ureter) and/or the [urethra](https://en.wikipedia.org/wiki/Urethra). It is a cause of [urinary retention](https://en.wikipedia.org/wiki/Urinary_retention). Complete obstruction of the urinary tract requires prompt treatment for renal preservation. Any sign of infection, such as fever and chills, in the context of obstruction to urine flow constitutes a urologic emergency.