

Electrolyte Imbalances and Diuretics

Although diuretics may relieve congestion by removing excess fluid from the body, they can have a devastating effect on the patient's electrolyte balance. To function properly, the body needs electrolytes: sodium (Na), potassium (K), calcium (Ca), and magnesium (Mg). Potassium, for example, is a vital electrolyte and plays a major role in maintaining a proper heart rhythm. With thiazides and loop diuretics, potassium is lost along with the sodium and water. Any time a diuretic is prescribed, the patient must be monitored to make sure that it is not adversely affecting the electrolyte levels. IV infusion therapy may be needed to replenish lost electrolytes; alternatively, electrolytes can be taken orally in supplements or through dietary changes to prevent imbalances. Patients with moderate hypertension may be prescribed a potassium-sparing diuretic instead of thiazides or loop diuretics.

Potassium-Sparing Diuretics

Potassium-sparing diuretics are frequently prescribed instead of or in combination with loop or thiazide diuretics to minimize the risk for potassium imbalances. These drugs block the reabsorption of water and sodium back into the bloodstream, but they allow potassium to be reabsorbed. Examples include amiloride hydrochloride, spironolactone (Aldactone), and triamterene (Dyrenium), which are all given orally.

Osmotic Diuretics

Osmotic diuretics such as mannitol are used for patients who have increased intracranial pressure as a result of head trauma, a brain tumor, or other illness affecting the brain. These diuretics help to lower the pressure exerted on the brain by swelling. In addition, osmotic diuretics may be given to those patients suffering from high intraocular pressure and those who are in the anuric (no urine output) stage of acute renal failure, to lower the amount of edema. These diuretics may also be administered in cases of toxic overdose, to flush the toxins from the body more rapidly. Osmotic diuretics function by pulling more fluid out of the body tissues and into the circulation, where it is then filtered through the kidneys and excreted. Osmotic diuretics such as mannitol (Osmitrol) are given by the IV route only in a controlled setting because the patient must be closely monitored during the administration. Side effects include dizziness, eye pain, anorexia, confusion, and dehydration.

Other Medications for Urinary Disorders

Other common disorders of the urinary system include infection, gout, urinary incontinence, and benign prostatic hypertrophy.

Many older men suffer from **benign prostatic hypertrophy (BPH)**, a nonmalignant growth of the prostate gland that constricts the urethra and impedes the outflow of urine (Fig. 20-4). During its early stages, BPH can be treated with alpha-adrenergic blockers, such as alfuzosin (Uroxatral), doxazosin (Cardura, Carduran, Cascor, Doxadura), dutasteride (Avodart), finasteride (Propecia, Proscar), tamsulosin (Flomax), or terazosin (Hytrin). These drugs relax smooth muscle in the prostate gland and decrease blockage of the urethra, thus allowing urination to occur. For a close look at Avodart, see Drug Spotlight 20.1.

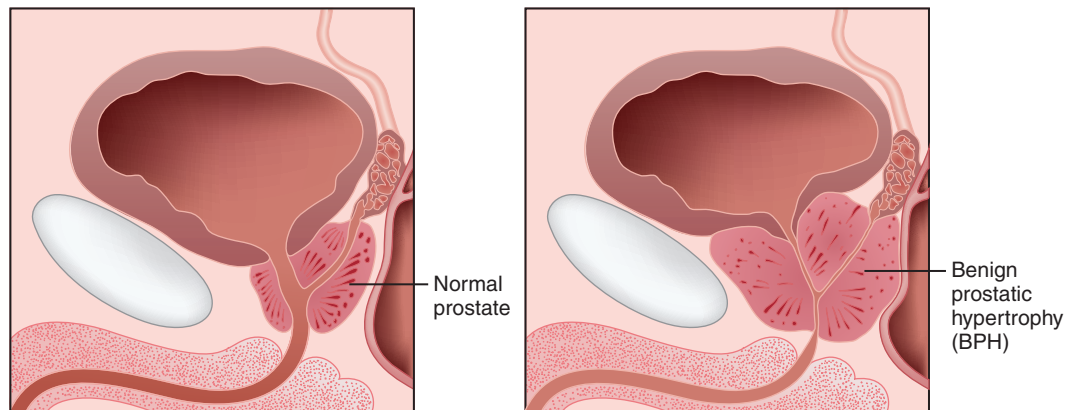


FIGURE 20-4: Benign prostatic hypertrophy.