

### Nursing Diagnoses

- Deficient Knowledge: Drug administration and effects
- Altered Growth and Development
- Anxiety related to multiple injections
- Risk for Injury: Adverse drug effects

### Planning/Goals

*The client will:*

- Experience relief of symptoms without serious adverse effects
- Take or receive the drug accurately
- Comply with procedures for monitoring and follow-up

### Interventions

- For children receiving growth hormone, assist the family to set reasonable goals for increased height and weight and to comply with accurate drug administration and follow-up procedures (periodic x-rays to determine bone growth and progress toward epiphyseal closure, recording height and weight at least weekly).
- For clients with diabetes insipidus, assist them to develop a daily routine to monitor their response to drug therapy (eg, weigh themselves, monitor fluid intake and urine output for approximately equal amounts, or check urine specific gravity [should be at least 1.015] and replace fluids accordingly).

### Evaluation

- Interview and observe for compliance with instructions for taking the drug(s).
- Observe for relief of symptoms for which pituitary hormones were prescribed.

## PRINCIPLES OF THERAPY

1. Hypothalamic hormones are rarely used in most clinical practice settings. The drugs should be prescribed by physicians who are knowledgeable about endocrinology and administered according to current manufacturers' literature.
2. Most drug therapy with pituitary hormones is given to replace or supplement naturally occurring hormones in situations involving inadequate function of the pituitary gland (hypopituitarism).

Conditions resulting from excessive amounts of pituitary hormones (hyperpituitarism) are more often treated with surgery or irradiation.

3. Diagnosis of suspected pituitary disorders should be thorough to promote more effective treatment, including drug therapy.
4. Even though manufacturers recommend corticotropin for treatment of disorders that respond to glucocorticoids, corticotropin is less predictable and less convenient than glucocorticoids and has no apparent advantages over them.
5. Dosage of any pituitary hormone must be individualized because responsiveness of affected tissues varies.
6. Because the hormones are proteins, they must be given by injection or nasal inhalation. If taken orally, they would be destroyed by proteolytic enzymes in the GI tract.
7. An increasing concern is inappropriate use of growth hormone. Young athletes may use the drug for body building and to enhance athletic performance. If so, they are likely to use relatively high doses. In addition, the highest levels of physiologic hormone are secreted during adolescence. The combination of high pharmacologic and high physiologic amounts increases risks of health problems from excessive hormone. Also, there is little evidence that hormone use increases muscle mass or strength beyond that achieved with exercise alone.

Middle-aged and older adults may use growth hormone to combat the effects of aging, such as decreased energy, weaker muscles and joints, and wrinkled skin. One source of the product is apparently "anti-aging" clinics. Although it is not illegal for physicians to prescribe growth hormone for these populations, such use is unproven in safety and effectiveness. Endocrinologists emphasize that optimal adult levels of growth hormone are unknown and using the drug to slow aging is unproven and potentially dangerous because the long-term effects are unknown.

Possible adverse effects, especially with high doses or chronic use, include acromegaly, diabetes, hypertension, and increased risk of serious cardiovascular disease (eg, heart failure). There is also concern about a possible link between growth hormone, which stimulates tumor growth, and cancer. Growth hormone stimulates the release of insulin-like growth factor-1 (IGF-1, also called somatomedin), a substance which circulates in the blood and stimulates cell division. Most tumor cells have receptors that recognize IGF-1, bind it, and allow it to enter the cell, where it could trigger uncontrolled cell division. This concern may be greater for middle-aged and older adults, because malignancies are more common in these groups than in adolescents and young adults.

### Nursing Notes: Apply Your Knowledge

After surgery for a brain tumor, you note that Mr. Willis has excessive, dilute urine output (8000 mL/24 h). The physician diagnoses deficient antidiuretic hormone production and prescribes lypressin (Diapid), a synthetic vasopressin. What assessment data will indicate that this medication is effective?