

Disorders of the Thyroid Gland

1. Anatomy

The thyroid gland is a butterfly shaped gland normally weighing less than an ounce and located in the lower front of the neck just below the Adam's apple.

2. Function

The main function is to control the body's metabolism (the rate at which cells perform activities essential to proper living). The thyroid exerts this influence by releasing thyroid hormones into the blood. The most commonly known thyroid hormone is called thyroxine. Another gland (the pituitary gland located in the skull below the brain) modulates the production of thyroid hormone by telling the thyroid when to produce its hormone by sending a messenger of its own called thyroid stimulating hormone (TSH).

If the thyroid produces excess thyroid hormone (T3 & T4), the result is a condition known as hyperthyroidism. If this thyroid gland makes too little hormone, the result is hypothyroidism. Body metabolism regulation includes such things as the rate at which the heart beats and the rate at which the body burns up fat and protein calories.

3. Epidemiology

- a. about 30 million Americans have some form of thyroid disease
- b. people of all ages & races are affected
- c. women are affected 5-8 times more than men

4. Symptoms

Hyperthyroidism

- a. irritability/nervousness
- b. tremors (shaking of extremities)
- c. weight loss
- d. trouble sleeping
- e. heat sensitivity
- f. vision problems or eye irritation/protrusion

Hypothyroidism

- a. fatigue
- b. weight gain
- c. hoarse voice
- d. forgetfulness
- e. dry, coarse skin/hair
- f. intolerance to cold

5. Specific thyroid diseases

- a. Goiter - this involves general enlargement of the thyroid gland
 - condition may be associated with low, high or normal T3,T4 (hormone levels)
- b. Graves' disease – extreme overactive thyroid gland
- c. Nodules – these are palpated by doctor or seen by scans
 - 90-95 % of nodules are benign (non-cancerous)
- d. Thyroid inflammation (thyroiditis)
- e. Thyroid cancer – associated with family history or previous radiation (in neck or chest area)
 - 20,000 new cases/year in USA

6. Diagnosis

- a. hormone blood level test – T3/T4 & TSH (thyroid stimulating hormone) (from pituitary gland)
- b. blood antibody test- (Hashimoto's disease)
- c. ultrasound test (size of gland & nodularity)
- d. thyroid scan (radioactive isotope)
- e. needle biopsy

7. Treatment

- a. medications – synthroid, levothyroid (underactive gland)
- b. surgery – thyroidectomy
- c. radioactive iodine – (overactive gland)