

Endocrinological Aspects of Aging

Yaşlanmanın Endokrinolojik Yönü

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ABSTRACT The population over 65 became the fastest growing part of the people in the civilized countries. This fact is very essential for endocrinological studies analyzing hormonal changes in the aging process.

Aging itself is connected with gradual decrease in the physiologic functions of endocrine organs, but since their reserve capacity is substantial, it is markedly difficult to recognize clinically some disturbances.

In pituitary function there is considerable evidence for a state of relative ADH excess in healthy aging humans. Nocturnal pulsatile GH secretion declines progressively after 40 years of age, such that by 70 to 80 years of age about 50% of all individuals have no significant GH secretion at night. No clinically significant changes occur in basal prolactin levels. No significant age-related changes occur in basal ACTH levels, or in its responses to secretagogues. Serum TSH levels remain constant, and TSH release remains pulsatile, but the nocturnal rise in serum TSH appears to be blunted with age.

The prevalence of thyroid disease in the aging people is approximately twice that in younger individuals. Hypothyroidism is ranging around 5% with its subclinical form with estimates of 4 -14% in the aging population. Hyperthyroidism affects up to 2% of elder individuals. Hypothyroidism in the aging population is most often due to Hashimoto's thyroiditis. With age the occurrence of Graves disease decreases and the prevalence of multinodular goiter and toxic nodules increases. Thyroid antibodies are common, mostly in aging women with prevalence up to 32%.

The fasting blood glucose levels exhibit little change with normal aging, but after challenge with a glucose load, glucose levels increase much more in the healthy aging people compared with younger adults. Every tenth elder person has some degree of glucose intolerance. The major contribution appears to be a decrease in insulin-mediated uptake of glucose in peripheral tissues. The body fat increases with aging, which is correlated positively with fasting levels of serum glucose, insulin and glucagon. The prevalence of diabetes mellitus (mostly type II) increases with age, affecting around 17% of persons over age 65. This disease may be difficult to diagnose in the aging population because of its often atypical and asymptomatic presentation.

With aging, calcium homeostasis is preserved at the expense of elevated serum PTH levels and a consequent reduction in bone mass. Primary hyperparathyroidism is common in older adults, particularly in women, with an annual incidence of 2 per 1000 women older than 60 years of age.

Serum cortisol and corticosteroid-binding globulin change little with age, because of equivalent decreases in secretion and clearance. The morning peak of cortisol secretion occurs several hours earlier in the aging people. Aldosterone secretion and clearance rates are decreased with aging. In contrast to serum cortisol, basal serum aldosterone levels are declining in the aging people. Adrenal androgen secretion declines progressively beginning in the third decade, with plasma levels of DHEA declining to 5% - 30% of those found in young men.

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