Chapter 1

Introductory Chapter: Introduction to Pituitary Disease Management

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1. Introduction

Pituitary diseases are serious systemic condition reported most likely in patients with an adenoma of the pituitary gland because of systemic changes resulting from hyper- or hypofunction of the pituitary gland. Both medical and surgical treatments have been used in the last decades; however, the prediction of post medical and postsurgical treatment is still controversial, even though different criteria for a cure have been suggested, especially the relationship between these criteria and the long-term control of the disease [1–3].

The current main treatment options available for pituitary diseases are transsphenoidal microsurgical surgery, medical treatment, and radiotherapy. Surgical outcome depends on the expertise of the surgeon, tumor size, and extension of the adenoma. Despite surgical removal is still the main treatment of pituitary adenomas; however, some patients are not cured by surgical treatment and need additional interventions. The main aim of treatment is to remove the tumor mass, control the disease by suppressing hormone hyperactivity to normal values, reduce morbidity and mortality (especially in acromegaly and Cushing's patients), and eliminate secondary comorbid complications. Such control may be achieved through either single or combined surgery, radiotherapy, and/or medical treatment. Continuous and long-term monitoring of the disease activity postoperatively, post medical treatment, or post radiotherapy is of high priority. However, the prediction of postoperative disease activity is a major challenge, and even though different criteria for a cure have been suggested, the relationship between these criteria and long-term disease control is still controversial. Morbidity and mortality rates in untreated and uncontrolled patients are very high due to the effect of raised hormone as well as the mass effect in the macroadenomas. Effective and aggressive long-term treatment is needed in some cases to normalize these rates. Delay in diagnosis and subsequent comorbidities are the main factors influencing the prognosis [3–8].

Several consensus documents have been published on various aspects of pituitary disease management. In the last 20 years, there is a consensus group in each kind of pituitary adenoma that reevaluates and updates the guidelines on criteria for cure. One of the important problems is the lack of reliable assays, assay standardization, and adequate normative data, which are major issues in the interpretation of these biochemical measures; especially these factors can lead to major discrepancies in the values obtained in different laboratories [9–12].

The reasons for the heterogeneity among hormone immunoassay results include variable calibration, epitope specificity of the chosen antibody, and differences in the specificity of antibody recognition of different hormone isoforms circulating in the serum. As a first step to improving the interpretation of GH assays, it is strongly recommended that the World Health Organization (WHO) international standard (WHO IS 98/574) be used, and the results be expressed in mass units (micrograms per liter) [13, 14].

This book provides detailed update on current diagnostic and therapeutic techniques useful in the management of pituitary diseases. The contents reflect the multidisciplinary approach needed for patients with pituitary diseases with contribution from neurosurgeons, endocrinologists, neurologists, radiologists, ophthalmologists, pathologists, and radiation oncologists. The book focuses on some pituitary diseases especially the most controversial subjects in the medical and surgical treatment like dedicated surgical technique by huge pituitary adenomas; moreover there is a special chapter about transoral robotic surgery (TORS) with the da Vinci system, other important subjects such as management of celiac patients with growth failure, pituitary apoplexy, neuro-ophthalmology findings in pituitary disease, and hormone secretion in pituitary adenomas: immunohistochemical studies.

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