In the past, pituitary tumours that produce one or more of the glycoproteins (TSH, LH, FSH and alpha subunit) were thought to be rare. However, using modern immunocytochemical and molecular biology techniques, these tumours are being recognized with increasing frequency. Many of these tumours produce glycoprotein alpha and beta subunits in addition to intact glycoproteins. Hormone production is often low compared with tumour size, and serum hormone levels may not be elevated in these patients. Tumours that produce the gonadotrophins (LH or FSH) or alpha subunit account for the majority of clinically Non-Functioning Pituitary Neuroendocrine Tumors. They do not cause a specific clinical syndrome, and usually present with symptoms of a large mass lesion and/or hypopituitarism. Optimal treatment of these tumours is often difficult. The initial approach is usually transsphenoidal surgery, followed by radiation therapy if there are symptoms due to residual tumour. Medical therapy of gonadotrophin and alpha subunit tumours may include the use of dopamine agonists or somatostatin analogues, although neither has been shown to consistently decrease tumour size. Preliminary trials with experimental GnRH antagonists suggest that these agents may be useful as adjuvant therapy of gonadotrophin tumours. Tumours that produce TSH are rare. Patients present with hyperthyroidism, which is often misdiagnosed as Graves' disease, as well as with symptoms of a pituitary mass lesion. Almost all TSH tumours secrete excess amounts of free alpha subunit. Optimal treatment of these tumours includes transsphenoidal surgery, followed by radiation therapy for residual tumour. The somatostatin analogue octreotide is effective in reducing excess TSH secretion from these tumours, and causes a reduction in tumour volume in a significant minority of patients [1].

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Samuels MH, Ridgway EC. Glycoprotein-secreting pituitary neuroendocrine tumors. Baillieres Clin Endocrinol Metab. 1995 Apr;9(2):337-58. Review. PubMed PMID: 7625988.