CUSHING'S DISEASE IN HUMANS

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In 1912 Harvey Cushing described a clinical syndrome characterized by polyglandular involvement including "lunar facies", truncular obesity, hyperandrogenism, hypertension, osteoporosis, nephrolithiasis, diabetes and neuropsychiatric problems in humans. Cushing's syndrome is determined by hypercorticism whereas the term Cushing's disease is employed when caused by a pituitary ACTH-secreting adenoma. Hypercorticism can be ACTH-dependent (pituitary adenoma, ectopic neoplastic ACTH and/or CRH secretion) or ACTH-independent (iatrogenic hypercorticism, adrenal hyperplasia, adrenal adenoma, adrenal cancer). The differential diagnosis of Cushing's disease may be a very challenging problem. High clinical suspicion is necessary and biochemical confirmation is needed. Currently, three first line diagnostic tests to establish hypercorticism: urine free cortisol, ACTH levels, late night salivary dexamethasone test, CRH test. Bilateral inferior petrosal sinus and/or cavernous sinus sampling might allow distinction of pituitary from non pituitary ACTH-dependent hypercorticism, whereas pituitary MRI is useful to localize the adenoma. In difficult cases pituitary PET scan can be employed. Cushing's disease affects essentially women, and a pituitary micro-adenoma (less than 10 mm) can be found in nearly 90% of cases. If untreated, Cushing's disease is associated with a high mortality rate, mostly because of chronic disease complications and/or infections. Trans-sphenoidal resection is the treatment of choice for ACTH-secreting adenomas. Patients with persistent hypercorticism have options of pituitary radiation, medical therapy or bilateral adrenalectomy.

References:

1. Valdés-Socin H, Bataille Y, Meurisse N, Flandroy P, Stevenaert A et Beckers A.
   Le cathétérisme bilatéral des sinus pétreux avec dosages multihormonaux dans la maladie de Cushing: corrélations radiologiques, chirurgicales et pathologiques.
   Annales d'Endocrinologie (Paris) 2002 Feb;63(1):23–30.

2. Beckers A, Valdés-Socin H, Betea D, Stevenaert A.
   Diagnostic différentiel et traitement dans la maladie de Cushing.
   Annales de Neurochirurgie (Paris) 2002 48:163–167.

3. Martin D, Valdés-Socin H, Beckers A, et Stevenaert A.
   Diagnostic de la maladie de Cushing et adénome corticotrope. Fonctions antéhypophysaires avant et après microchirurgie transsphénoïdale.
   Annales de Neurochirurgie (Paris) 2002;48:226–233.

4. Petrossians P, Ronci H, Valdés-Socin A, Kalife A, Stevenaert B, Bloch J, Tabarin A and Beckers.
   ACTH silent adenoma shrinking under cabergoline.
   Eur J Endocrinol. 2001 Jan;144(1):51–7.

5. Vallette-Kasic S, Dufour H, Mugnier M, Trouillas J, Valdés-Socin H, Caron P, Morange S, Girard N, Grisoli F, Jaquet P, Brue T. Markers of tumor invasion are major predictive factors for the long term outcome of corticotrope microadenomas treated by transsphenoidal adenomectomy. *Eur J Endocrinol* 2000 Dec;143(6):761–8.