# Key References in Endocrinology

## AN ANNOTATED GUIDE

PERRY J. BLACKSHEAR,

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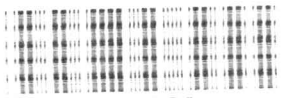

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# Preface

One of the questions most frequently asked of a subspecialty consultant, at least by the medical housestaff and medical students, is: "Have you got any good references on ———?" The idea for this series arose when, as house officers, we did not always get satisfactory answers to this question. We thought that a collection of key references in internal medicine, selected by recent graduates of subspecialty fellowship programs, might be of value, especially to busy house officers and medical students who rarely have the time for a careful literature search. Instead of a simple list of references, we decided to include brief annotations to give the reader some idea of each article's content; the number of references cited in each paper is noted at the end of each annotation, to give the reader some idea of whether or not it is worth looking up for further literature sources. Finally, we wished to include a few references on even the most obscure topics, rather than concentrate exclusively on common diseases, since the literature pertaining to rare subjects is often rather obscure itself.

As the project progressed, it became apparent that each author had his own idea about how to interpret Dr. Klausner's and my initial general guidelines. This is one of the reasons for the considerable heterogeneity among the sections in length and content of annotation, writing style, and selection and number of references. These concerns have all been left up to the individual author; our function as editors has been largely one of correcting spelling and grammar, suggesting the addition of topics of interest, and haranguing the contributors about deadlines. In general, they are responsible for the content of their volumes.

In *Key References in Endocrinology,* I have tried to collect what I believe to be the most interesting, useful, or, in other ways, "key" references in the subspecialty. The most recent references are from early 1982; however, my experience was that many of the most useful papers were written several years ago. No attempt has been made to establish chronological priorities, and, in general, the most recent complete reviews of a subject are listed. I apologize in advance for any omissions and welcome (polite!) suggestions about key references that could have been listed. Finally, although pertinent data from the

papers often are described in the annotations, these data are not meant to supplant a trip to the library to look up the original.

I would like to thank Lewis Reines of Churchill Livingstone for his enthusiasm and encouragement as the project progressed; the other authors of this series, who worked long and hard and eventually did finish their volumes; Kathy O'Neill for typing the manuscript; and my wife for putting up with me during many long stints in the library.

Perry J. Blackshear, M.D., D.Phil.

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# HYPOTHALAMIC-PITUITARY DISORDERS

## Physiology and Diagnosis

**Edwards CRW and Besser GM: Diseases of the hypothalamus and pituitary gland.** ***Clin Endocrinol Metab,*** **3:475–505, 1974.**
A practical guide to the diagnosis of several common disorders of the pituitary gland, including acromegaly, hypopituitarism, dwarfism, galactorrhea and diabetes insipidus. 77 refs.

**Locke W: Control of anterior pituitary function.** ***Arch Intern Med,*** **138:1,541–1,545, 1978.**
A nice, short review of drugs, conditions and hormones affecting anterior pituitary secretion. 15 refs.

**Reichlin S: Regulation of the hypophysiotropic secretions of the brain.** ***Arch Intern Med,*** **135:1,350–1,361, 1975.**
A brief and readable review of this complex topic. 75 refs.

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# HYPOTHALAMIC-PITUITARY DISORDERS

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A brief and readable review of this complex topic. 75 refs.

**Vale W, Rivier C and Brown M: Regulatory peptides of the hypothalamus.** ***Ann Rev Physiol,*** **39:473–527, 1977.**
A detailed review of hypothalamic releasing factors and related peptides. 537 refs.

**VanWyk JJ and Underwood LE: Relation between growth hormone and somatomedin.** ***Ann Rev Med,*** **26:427–441, 1975.**
A detailed review of what was known of the somatomedins in 1975. 96 refs.

**Root AW, Reiter EO and Weisman Y: Current status and clinical application of the hypothalamic hormones.** ***Adv Pediatr,*** **23:151–211, 1976.**
A detailed review of the physiology and clinical applications of the hypothalamic releasing hormones, not only in children. 349 refs.

**Sinding C and Robinson AG: A review of neurophysins.** ***Metabolism,*** **26:1,355–1,370, 1977.**
A brief review of what is known about these substances with comments on the absence of a known biologic function for them. 94 refs.

**Robinson AG: The neurophysins in health and disease.** ***Clin Endocrinol Metab,*** **6:261–275, 1977.**
A concise review of these mysterious posterior pituitary hormones. 42 refs.

**Edwards CRW: Vasopressin and oxytocin in health and disease.** ***Clin Endocrinol Metab,*** **6:223–259, 1977.**
An extensive review of physiology and pathology of these posterior pituitary hormones. About 240 refs.

**Robertson GL: The regulation of vasopressin function in health and disease.** ***Recent Prog Horm Res,*** **33:333–385, 1977.**
An extensive review of the regulation of vasopressin secretion and its physiological actions in man, with brief comments on diabetes insipidus and syndrome of inappropriate antidiuretic hormone secretion (SIADH). 98 refs.

**Besser GM and Mortimer CH: Hypothalamic regulatory hormones: A review.** ***J Clin Pathol,*** **27:173–184, 1974.**
A brief review of the 1974 status of the hypothalamic releasing factors, by two prominent workers in the field. 99 refs.

**Guillemin R and Gerich JE: Somatostatin: Physiological and clinical significance.** ***Ann Rev Med,*** **27:379–388, 1976.**
A very brief review of the possible clinical significance of somatostatin with special emphasis on its usefulness as a sup-

pressor of growth hormone, insulin and glucagon secretion. 81 refs.

**Wurtman RJ and Moskowitz MA: The pineal organ. *N Engl J Med*, 296:1,329–1,333; 1,383–1,386, 1977.**
A review of what little is known of this tiny organ, with emphasis on the regulation and importance of melatonin secretion. 83 refs.

**Frohman LA: Clinical neuropharmacology of hypothalamic releasing factors. *N Engl J Med*, 286:1,391–1,397, 1972.**
A brief, readable, but now somewhat dated review of this subject. 76 refs.

**Frohman LA and Stachura ME: Neuropharmacologic control of neuroendocrine function in man. *Metabolism*, 24:211–234, 1975.**
An extensive review of the peptidergic regulation of pituitary hormone secretion, with emphasis on the possible role of neurotransmitters in both hypothalamic and pituitary hormone release. 160 refs.

**Weitzman ED: Circadian rhythms and episodic hormone secretion in man. *Ann Rev Med*, 27:225–243, 1976.**
An interesting review of the biologic rhythms of pituitary hormone secretion, emphasizing the physiologic utility of these rhythms, and their abnormalities in pathologic states. 112 refs.

**Cohen KL: Metabolic, endocrine and drug-induced interference with pituitary function tests: A review. *Metabolism*, 26:1,165–1,177, 1977.**
A brief but important review of factors which can interfere with pituitary function testing, including endocrine and psychiatric disorders and drugs. 90 refs.

**Spark RF: Simplified assessment of pituitary-adrenal reserve. Measurement of serum 11-deoxycortisol and cortisol after metyrapone. *Ann Intern Med*, 75:717–723, 1971.**
This modification of the standard metyrapone test was successful in delineating subnormal ACTH responses in patients with hypopituitarism (15) or acromegaly (12) as well as patients on long-term steroid therapy (13). The response was normal in eight patients with enlarged sellas but no endocrinopathies. 18 refs.

**Harsoulis P, Marshall JC, Kuku SF et al.: Combined test for assessment of anterior pituitary function. *Br Med J*, 4:326–329, 1973.**

A brief description of what has become an extremely useful and timesaving test in assessing anterior pituitary function: The combined TRH/insulin/LHRH test, here performed in 24 subjects. No differences were found when the tests were performed separately or together. 23 refs.

**Eddy RL, Gilliland PF, Ibarra JD et al.: Human growth hormone release: Comparison of provocative test procedures.** ***Am J Med*****, 56:179–185, 1974.**
L-dopa and insulin tolerance tests were more effective in evoking a normal growth hormone response than arginine, glucagon or vasopressin in 20 normal volunteers. 39 refs.

**Weisberg LA, Zimmerman EA and Frantz AG: Diagnosis and evaluation of patients with an enlarged sella turcica.** ***Am J Med*****, 61:590–596, 1976.**
Of 100 patients referred for evaluation of an enlarged sella, 75 had no visual symptoms. Of these, 27 had intrasellar tumors, 25 had empty sellas and 13 had an extrasellar process. 10 further patients had no pneumoencephalogram but had no symptoms up to 3 years later. 27 refs.

**Doyle F and McLachlan M: Radiological aspects of pituitary-hypothalamic disease.** ***Clin Endocrinol Metab*****, 6:53–81, 1977.**
An informative review of useful radiologic procedures in the evaluation of pituitary lesions, including CT scans and angiography. A brief discussion of other space-occupying pituitary lesions is included. 83 refs.

**DiChiro G and Nelson KB: The volume of the sella turcica.** ***Am J Roentgenol*****, 87:989–1,008, 1962.**
An early but still useful study of radiographic determination of sellar volume, compared with pituitary gland and sellar volume in 66 cadavers. 57 refs.

**Naidich TP, Pinto RS, Kushner MJ et al.: Evaluation of sellar and parasellar masses by computed tomography.** ***Radiology*****, 120:91–99, 1976.**
CT scans from 65 patients with parasellar masses (including 26 pituitary adenomas) were evaluated. The authors feel that . . . "CT has proved completely reliable for detecting or ruling out the presence of a suprasellar mass. . . ." 15 refs.

**Gross CE, Binet EF and Esguerra JV: Metrizamide cisternography in the evaluation of pituitary adenomas and the empty sella syndrome.** ***J Neurosurg*****, 50:472–476, 1979.**
A brief description of the use of metrizamide cisternography in the evaluation of pituitary mass lesions in three patients.

Because of its convenience and lack of side effects, this test is rapidly replacing the pneumoencephalogram. 9 refs.

**Nabarro JDN: Pituitary surgery for endocrine disorders.** ***Clin Endocrinol,*** **13:285–298, 1980.**
The author reviews the indications for various types of pituitary surgery in the treatment of pituitary adenomas. He includes comments on preoperative radiologic evaluation, as well as on intraoperative steroid coverage and postoperative endocrine assessment. 79 refs.

**Wilson CB and Dempsey LC: Transsphenoidal microsurgical removal of 250 pituitary adenomas.** ***J Neurosurg,*** **48:13–22, 1978.**
The authors present the results of 250 transsphenoidal procedures in patients with pituitary adenomas. There was one postoperative death. Major or minor CSF rhinorrhea was noted in 6.4 percent; bacterial meningitis in 2 percent; mental change in 1.6 percent; and persistent total or partial diabetes insipidus in 5.6 percent. 26 refs.

**Teears RJ and Silverman EM: Clinicopathologic review of 88 cases of carcinoma metastatic to the pituitary gland.** ***Cancer,*** **36:216–220, 1975.**
In 88 patients with carcinoma metastatic to the pituitary, the anterior lobe alone was involved in only 13.6 percent. The posterior lobe was involved in 69 percent, although only 7 percent of patients had diabetes insipidus. Most common primaries were breast (66 percent), lung (13 percent) and stomach (7.5 percent) in women; lung (63 percent), prostate (9 percent) and bladder (6 percent) in men. 11 refs.

## Galactorrhea-Amenorrhea Syndromes

**Frantz AG: Prolactin.** ***N Engl J Med,*** **298:201–207, 1978.**
A concise review of prolactin physiology and pathophysiology. 17 refs.

**Kleinberg DL, Noel GL and Frantz AG: Galactorrhea: A study of 235 cases, including 48 with pituitary tumors.** ***N Engl J Med,*** **296:589–600, 1977.**
An excellent discussion of the causes of galactorrhea in 235 patients. 20 percent had pituitary tumors; 34 percent of patients with associated amenorrhea had tumors. 32 percent had "idiopathic" galactorrhea with menses. 58 refs.

**Franks S, Murray MAF, Jequier AM et al.: Incidence and significance of hyperprolactinemia in women with amenorrhea.** ***Clin Endocrinol,*** **4:597–607, 1975.**

Prolactin levels were normal in 106 amenorrheic patients with primary ovarian failure, anorexia nervosa, marked obesity and post-pill amenorrhea. Elevated prolactins were found in 13 patients (12 percent) with pituitary tumors; 8 of 40 patients with "functional" amenorrhea had elevated prolactins. 40 refs.

**Gomez F, Reyes FI and Faiman C: Non-puerperal galactorrhea and hyperprolactinemia: Clinical findings, endocrine features and therapeutic responses in 56 cases.** ***Am J Med,*** **62:648–660, 1977.**

Of 56 patients studied, 5 had elevated prolactin levels and normal skull x-rays; they later developed abnormal sellar films within 5 years, indicating enlargement of a pituitary adenoma. 78 refs.

**Davajan V, Kletzky O, March CM et al.: The significance of galactorrhea in patients with normal menses, oligomenorrhea and secondary amenorrhea.** ***Am J Obstet Gynecol,*** **130:894–900, 1978.**

149 women with galactorrhea were studied, 32 of whom had normal menses. Three had hypothyroidism. 62 percent had elevated prolactins. 9 women with abnormal sellar tomograms had normal prolactins; of 32 patients with normal menses, 19 had elevated prolactins. 18 refs.

**Jacobs HS, Franks S, Murray MAF et al.: Clinical and endocrine features of hyperprolactinaemic amenorrhoea.** ***Clin Endocrinol,*** **5:439–454, 1976.**

Studies were performed on 35 women with amenorrhea and hyperprolactinemia. 12 had x-ray evidence of pituitary tumors. Galactorrhea was present in 30 percent. Withdrawal bleeding after a progestin occurred in only 2 of 21 patients, indicating a low estrogen status. Responses to TRH were flat in all patients. 33 refs.

**Boyd AE III, Reichlin S and Turksoy RN: Galactorrhea-amenorrhea syndrome: Diagnosis and therapy.** ***Ann Intern Med,*** **87:165–175, 1977.**

Patients with amenorrhea and galactorrhea (7 with known pituitary adenomas and 18 with normal x-rays) were compared with 8 normal women. Several patients with the "idiopathic" syndrome had elevated prolactins. Most (but not all) patients with adenomas had flat TRH responses. 50 refs.

**Swanson JA, Jacoby CG, Sherman BM et al.: Evaluation of the pituitary. Patients with suspected prolactin-producing tumors.** ***Obstet Gynecol,*** **52:67–72, 1978.**

27 of 100 patients referred for the evaluation of galactorrhea/amenorrhea had suspicious skull films; 22 of these had hyperprolactinemia. This paper provides a nice discussion of pituitary radiology and anatomy. 13 refs.

**Cowden EA, Ratcliffe JG, Thomson JA et al.: Tests of prolactin secretion in diagnosis of prolactinomas. *Lancet*, 1:1,155–1,158, 1979.**

14 patients with histologically proven prolactinomas were studied. All had amenorrhea; 29 percent had galactorrhea. Half the patients had normal sellar tomograms; but all displayed a flat response to TRH and metoclopramide stimulation. 24 refs.

**Healy DL, Pepperell RJ, Stockdale J et al.: Pituitary autonomy in hyperprolactinemic secondary amenorrhea: Results of hypothalamic pituitary testing. *J Clin Endocrinol Metab*, 44:809–819, 1977.**

27 patients with secondary amenorrhea were studied. Nine had normal responses to TRH and metoclopramide, and normal baseline prolactin levels. 18 had high baseline prolactin levels, and were unresponsive to TRH and metoclopramide; 15 of these had galactorrhea. Bromocryptine, L-dopa and LHRH tests were equivocal. 36 refs.

**Friesen HG and Tolis G: The use of bromocryptine in the galactorrhea-amenorrhea syndromes: The Canadian cooperative study. *Clin Endocrinol*, suppl., 6:91S–99S, 1977.**

Bromocryptine was used to treat 79 women with galactorrhea-amenorrhea, diagnosed as "functional" (44 patients), or secondary to microadenomas (18 patients), macroadenomas (7 patients) or stalk surgery (9 patients). Bromocryptine caused sustained decreases in prolactin in all patients; principal side effects were nausea, vomiting, headache and dizziness. 13 refs.

**Thorner MO, McNeilly AS, Hagan C et al.: Long-term treatment of galactorrhea and hypogonadism with bromocryptine. *Br Med J*, 2:419–422, 1974.**

The authors treated 17 women and 4 men with galactorrhea and hypogonadism with bromocryptine. Prolactin levels decreased; 18 patients developed normal gonadal status. Side effects of bromocryptine were dyspepsia and nausea in five patients. 27 refs.

**Thorner MO, Martin WH, Rogol AD et al.: Rapid regression of pituitary prolactinomas during bromocriptine treatment. *J Clin Endocrinol Metab*, 51:438–445, 1980.**