Clinical Endocrinology

Diagnosis and Management of "Endocrine Impotence"

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Aetiologically speaking impotence may be predominantly "constitutional," "psychogenic," or "organic." To summarize the main characteristics, "constitutional" impotence is usually associated with persisting evidence of low sexual drive and responsiveness; some extreme cases, because of profound sexual indifference, will neither have engaged in self masturbation nor have sought out heterosexual or homosexual contacts during their entire lives. There is no demonstrable organic pathology in these cases. Unless constitutional factors are dominant or the condition is congenital, "organic impotence" will have developed from previous competence in association with some pathological lesion. Clinically, "organic" impotence is stated to be constant and persists unchanged irrespective of the nature of any sexual stimulation which might be provided. By contrast "psychogenic" impotence is alleged to be selective and transient, occurring in certain situations and at certain times.

These, then, are the theoretical differences between the three postulated aetiological types of impotence. Nevertheless, in practice the distinction is not always easy or even possible. Simpson¹ reminds us that aetiological overlap may occur; thus, though impotence may be predominantly "constitutional," "organic," or "psychogenic," in some cases the three factors may co-exist and complicate each other to a greater or lesser degree.

The clinician's task is to institute the relevant investigations and to determine any aetiology in the individual case, so that he can institute rational treatment.

Organic Impotence

"Organic impotence," which is usually considered to account for only about 5% of all cases, may occur with any debilitating disease, metabolic disorders, disorders of the central nervous system, cardiovascular diseases, after the use of some drugs, and diseases of the endocrine system.

This article is concerned with the diagnosis and management of "endocrine disease impotence." The following disorders may be associated with difficulty or failure to achieve erection: acromegaly, Addison's disease, adrenal neoplasms (with or without Cushing's syndrome), castration, chromophobe adenoma, craniopharyngioma, diabetes mellitus, eunuchoidism (including Klinefelter's syndrome), feminizing interstitial-cell tumour, infantilism, ingestion of female hormones and antiandrogen substances (both iatrogenic), myxoedema, obesity, and thyrotoxicosis. This diverse list of endocrine causes of impotence has been taken from the published work.* It is, in

*In some cases the cause can be only presumed, since only a few clinical reports are available in the literature.

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many cases, of academic interest only, since the comparative rarity of some of the syndromes together with the fact that impotence may be a feature in only a small percentage of cases, would make it unlikely that most doctors would come across more than one or two cases in a lifetime of practice.

IMPOTENCE IN DIABETES MELLITUS

Diabetes mellitus, which is probably as common as all the rest of the endocrine diseases put together, deserves special mention: with few exceptions the clinical descriptions that follow hold for other endocrine causes of impotence. The association between impotence and diabetes was first made in 1798, but has become well recognized only during the past two decades. It has been estimated that between 30% and 60% of all diabetic men will develop impotence of varying degrees at some stage of their sexual lives. This translates into the conservative figures of some 750,000 American and 200,000 British male diabetics suffering from impotence at the present time—a problem of no small magnitude.

Clinically the impotence of diabetes takes three main developmental forms. Firstly, the usual pattern is for impotence to develop after diabetes has been (biochemically) established for several years. Secondly, impotence may be the first symptom, or one of the earliest of a group of manifestations of diabetes, present before the diagnosis is conclusively made. The third form occurs in any diabetic whose diabetes gets out of control, who may become impotent temporarily—as might any man seriously ill from almost any cause. In the overwhelming majority of cases the impotence of diabetes is secondary ("late

Clinical Features Distinguishing Predominantly "Endocrine" from Predominantly "Psychogenic" Impotence

<i>Psychogenic Impotence</i>	<i>Endocrine (Diabetic Impotence)*</i>
Acute onset	Insidious onset from previous competency (90%-95% of cases) with (usually) or without diagnosis of diabetes; or acute onset, if previously diagnosed diabetes become uncontrolled
Temporal relationship to specific stress—for example, bereavement, marriage, fatigue, etc.	Develops in association with diabetes
Selective, intermittent, and transient—for example, present on some occasions and situations but not others	Generally persistent and progressively worsening (60% of diabetics who develop impotence do so within five years) ¹⁴
Evidence of potential to respond erotically—e.g. (a) the exhibition of alternative sexual outlets to orgasm and ejaculation, such as masturbation, etc., (b) regular morning erections on awakening, and/or spontaneous erections to sexually stimulating fantasies, etc., (c) presence of erotic desire in sexual situations	Evidence of relentlessly progressive, generalised waning of sexual interest and activity; thus, (a) absence of, or only rarely practised alternative sexual outlet; i.e. masturbation becomes impossible, (b) absence of, or reduced, morning and/or spontaneous erections and absence or diminished erotic desire in sexual situations. (The capacity to feel sexually aroused (psychologic response) is retained much longer than the ability to become erect and ejaculate (physiologic response)).

*In essential detail applicable to other chronic endocrinopathies.

onset"—that is, developing in a man who was previously sexually competent.)

The most frequently encountered clinical picture of diabetic impotence is summarized in the Table, which, by way of contrast, shows the usual clinical features of "psychogenic impotence."

The precise underlying causes of impotence in diabetic men remains, as yet, unknown. Nevertheless, it has been postulated that at least three mechanisms may be responsible.

Firstly, impotence may be a type of diabetic neuropathy. Alternatively, it may be due to arteriosclerotic changes in the penile blood vessels, which impair the pooling and trapping of blood in the corpora of the penis (which underly the process of erection.) Thirdly, it may be due to disruption of "biochemical and hormonal" homeostasis. Finally, two or three of these conditions may coexist. Nevertheless, it should be emphasized that at present there is no hard evidence to support these causal speculations.

RELATIONSHIP OF TESTOSTERONE TO POTENCY AND IMPOTENCE

Though it is established in many animal species, the functional significance of testosterone, the most potent naturally occurring androgen in mediating male sexual response remains enigmatic in man.

The initial therapeutic enthusiasm for testosterone in impotence, which was prompted by the isolation and subsequent synthesis of various androgenic steroids in the 1930's, did not stand the test of time. As it became more apparent that for human beings "sex" was primarily cortical, rather than gonadal in the late 1950's and early 1960's treatments for impotence once more became psychologically biased—though on this occasion the approach tended to be behavioural and not analytical. But today, with the advent of advanced biochemical analyses (which for the first time have allowed minute concentrations of various hormones to be measured accurately in body fluids) the emphasis once more has swung towards an endocrinological approach.

In man the role of testosterone in health and disease is complicated and subtle. In the specific areas of potency and impotence there are few hard facts currently available. A representative summary of some of the most recent human data on the relationship of potency to testosterone levels in blood and urine follows. Some of these are in apparent conflict.

SUPPORTIVE DATA

Data, which are in accord with "a significant functional role" for testosterone in potency include the following:

(1) A significant reduction in urinary testosterone levels (presumably reflecting reduced synthesis) in impotent men, as compared with matched controls.²

(2) Failure in some men with markedly reduced testosterone levels to respond with a rise in urinary testosterone levels to stimulation with human chorionic gonadotrophin. This may suggest impaired synthesis of testosterone.³

(3) Reduction of, or abolition of, potency after anti-androgen treatment (cyproterone acetate), with a concomitant reduction in plasma testosterone. Both of these features are reversible on stopping the drug.¹

(4) Clinical improvement with slight concomitant reduction in abnormally raised plasma testosterone levels using antiandrogen treatment with cyproterone acetate in precocious puberty.⁵

(5) A rise in plasma testosterone after coitus⁶ and during R.E.M. sleep, when erections and seminal emissions are known to occur.⁷

INCONSISTENT DATA

Data which are not consistent with a functionally significant role for testosterone impotency include the following:

(1) The generally poor therapeutic results using methyl testosterone, various esters, and newer synthetic androgens such as mesterolone and "testosterone aphrodisiac mixtures," even when the recipients have appreciably reduced urinary testosterone levels.⁸

(2) Failure to produce clinical improvement in chronically impotent men, despite doubling endogenous testosterone levels to above "normal" values by using clomiphene.⁹

POSSIBLE ROLE OF TESTOSTERONE

Despite the apparent inconsistency of some of the data in man, it is perhaps worthwhile to speculate on the possible role of testosterone in potency. Firstly, provided a certain minimum level is available at receptor-sites (and probably the concentrations can vary widely from individual to individual) potency per se is not specifically testosterone-dependent. Testosterone is probably much more importantly concerned with fertility and anabolism generally. The second point to make is more arguable; but ultimately the crux of the whole matter is the relationship between sexual arousal, the response to this, and the levels of testosterone in the blood and urine. I believe that it is more likely that a rise in the blood level of testosterone is secondary to sexual arousal and response; though it remains entirely feasible that the steroid has a subordinate feedback role in facilitating and/or maintaining sexual arousal and response, once these are initiated via the central nervous system.

In practical, clinical terms, this means that the reduction in the plasma testosterone level, which may be found in chronically impotent men, probably reflects sexual apathy rather than causes it. This is in accord with the generally disappointing results using androgen replacement. Nevertheless, it is still possible that the "lesion in impotence" lies at the receptor-site level, and that testosterone levels per se are largely irrelevant.

In summary, therefore, at present there is no conclusive evidence that potency, once established in men, depends on testosterone. Consequently, androgen replacement, even in impotent people with very low levels of blood or urinary testosterone, or both, is unlikely to succeed.

Male Climacteric

Unlike the definite menopause in women, the existence of the climacteric in men is disputed. Certainly, though with ageing there is a gradual reduction both in sexual power and apparently in the levels of testosterone, this is not as dramatic as the cessation of menses, which marks the end of female reproductive life. Physiologically speaking, erect capacity is retained in the male until death. The high incidence of impotence in old age is not according to Kinsey *et al.*¹⁰ hormonal in origin. On the contrary, they believe, firstly, that "psychophysiological fatigue"—that is, the constant repetition of the same sort of sexual activity with the same partner over long periods of time—or, secondly, the unavailability of a sympathetic sexually attractive partner, or both, are much more important causes. Notwithstanding, if there is a place for androgen supplements, probably it is in older men. Undoubtedly some ageing men complaining of reduced potency or frank impotence benefit enormously from small doses of androgens. Nevertheless, the general improvement in wellbeing and physical performance is probably due to either the anabolic effects of the steroid, or the expectation of improvement consequent upon receiving a "powerful drug," or both, rather than on any specific action on potency.

Diagnosis and Management of Endocrine (Diabetic) Impotence

During the initial examination the fact that the patient is taking any of the following drugs, which have been noted to cause impotence, should be excluded: narcotics, alcohol, alpha-

methyl-dopa, amphetamines, atropine, chlorthalidopoxide, chlorprothixene, guanethidine, imipramine, methanthelinebromide, mono-amine-oxidase inhibitors, phenothiazines (particularly thioridazine), reserpine, nicotine (rare), digitalis (rare). The medical history is then followed by a detailed psychosexual history from both marital partners, in particular to see whether the impotence, whatever its antecedents, has been exacerbated or perpetuated by factors such as feelings of sexual inferiority, fear, or anxiety.

The sexual history is best taken from each partner individually, and then jointly. All aspects of sexual development and experiences should be covered. Topics are best dealt with chronologically somewhat as follows:

- (1) Time of first awareness of sex and sexuality.
- (2) Puberty data—for example, time of initial ejaculation in males, time of development of secondary sexual characteristics, attitudes to this, etc.
- (3) Masturbation history, including frequencies, attitudes, fantasies, specific method of stimulation, etc.
- (4) Types and extent of premarital sexual experience—homosexual (if relevant) and heterosexual—including extent of sexual experiences and activities up to the initial episode of impotence.
- (6) Detailed circumstances, and type of initial failure—for example, prematurity, impotence, delayed or absent ejaculation.
- (7) Subsequent sexual history up to present referral, including the presence of alternative sexual outlets, such as masturbation.
- (8) Current relationship between the sexual partners.
- (9) Patient's and spouse's own views as to the cause.

PHYSICAL EXAMINATION

Physical examination of the genitalia together with appropriate laboratory investigations of the endocrine glands, should conclude the examination. It cannot be stressed forcibly enough that with the possible exception of examination of the urine for glycosuria, together with a glucose tolerance test, complex endocrine tests should only be carried out if there is prima-facie evidence (other than the impotence) which suggests such a disorder. The fact that the laboratory investigations may turn out to be superfluous (negative) is in itself comparatively unimportant, if economically wasteful. Of much greater significance is the potentially deleterious effects that a multiplicity of clinical investigations may have on an impotent patient's psyche. Many impotent men have a great need to rationalize their sexual incompetence as due to a physical disease. It is an extremely common occurrence for doctors, even the most experienced, to acquiesce to the relentless pressure of the determined patient, since it is far easier to order yet another specialized investigation than to have an abrasive exchange with the patient. Unwittingly, or even collusively sometimes, the physician may encourage the patient to see his complaint as "endocrine." Thus, investigations should be carried out only if unequivocally indicated and then, generally speaking, only once. There is a very slight risk of missing an endocrinopathy. Nevertheless, I believe that this is well worth taking since it is infinitely preferable that the doctor should manage the patient, not the patient manage the doctor.

TREATMENT

If an endocrine disorder is confirmed in the laboratory then treatment consists of: (1) specific replacement measures, aimed to restore maximum physical health; (2) psychophysiological

therapy directed at the impotence itself. This second component is essential in every case, since very often, even in those in whom optimum medical control of the endocrine disorder is achieved the impotence persists.

If the existence of an endocrine disorder cannot be confirmed then the patient should be clearly told this and psychophysiological treatment instituted. Basically treatment, which must actively involve both sexual partners, aims at establishing frank communication between them.² The practical objective is to provide optimal sexual stimulation for each, in a slow, but progressive programme. In some patients in whom appreciable anxiety has developed the doctor may have to treat this independently first, using relaxation techniques.^{11 12} Unless it becomes clear that one or other or both of the sexual partners are seriously disturbed emotionally, when psychiatric intervention is indicated both medical and psychophysiological treatments are best provided by the same doctor.

PROGNOSIS

Provided good medical control of the endocrine disease can be maintained; the present outcome for the impotence is approximately the same as in the "non-organic" variety—that is, about 40% may be expected to improve¹³ though Masters & Johnson¹⁴ claim a 65% rate (but see Cooper¹⁵). A better outcome in therapy is associated with the following: "late onset" impotence—i.e., prior sexual competency; impotence of shorter duration; heterosexual sex-drive; a good relationship between the sexual partners; and willingness and ability of the wife to co-operate fully in treatment.

If there is no improvement in the impotence after six months of technically satisfactory treatment (fortnightly sessions) then further *practical* measures, however prolonged, are likely to be fruitless. At this point brief supportive psychotherapy aimed to help the sufferer (or partner, or both) accept his incompetency is indicated. In summary, the main objectives of this are, firstly, to encourage (as far as is acceptable to both) non-coital stimulations (most often masturbation) to reduce tension and to provide a measure of sexual satisfaction, (especially for the wife); secondly, to reassure the wife that her husband's disability is in no way caused by her; and, thirdly, to support and bolster the male's ego during the readjustment period.

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