ORIGINAL RESEARCH—MEN'S SEXUAL HEALTH

Sexual Dysfunctions in Men Affected by Autoimmune Addison's Disease Before and After Short-Term Gluco- and Mineralocorticoid Replacement Therapy

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ABSTRACT

Introduction. There is evidence suggesting that autoimmune Addison's disease (AD) could be associated with sexual dysfunctions probably caused by gluco- and mineralocorticoid deficiency; however, no study has yet treated this subject in males.

Aim. To evaluate male sexuality and psychological correlates in autoimmune AD before and after gluco- and mineralocorticoid replacement therapy.

Methods. Twelve subjects with a first diagnosis of autoimmune AD were studied before (baseline) and 2 months after (recovery phase) initiating hormone replacement therapy.

Main Outcome Measures. Erectile function (EF), orgasmic function (OF), sexual desire (SD), intercourse satisfaction (IS), overall satisfaction (OS), depression, and anxiety were studied using a number of questionnaires (International Index of Erectile Function, Beck Depression Inventory, and Spielberger State-Trait Anxiety Inventory); clinical, biochemical, and hormone data were included in the analysis.

Results. At baseline, low values were found for EF, OF, SD, IS, and OS and high values for depression and anxiety; all of these parameters improved significantly in the recovery phase compared with baseline. EF variation between the two phases correlated significantly and positively with the variation of serum cortisol, urinary free cortisol, systolic blood pressure, and diastolic blood pressure and inversely with that of upright plasma renin activity. Multiple linear regression analysis using EF variation as dependent variable confirmed the relationship of the latter with variation of serum cortisol, urinary free cortisol, and upright plasma renin activity but not with variation of systolic and diastolic blood pressure.

Conclusions. Our study showed that onset of autoimmune AD in males is associated with a number of sexual dysfunctions, all reversible after initiating replacement hormone therapy; cortisol and aldosterone deficiency seems to play an important role in the genesis of erectile dysfunction although the mechanism of their activity is not clear.

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Key Words. Sexual Dysfunction; Addison's Disease; Physiopathology; Corticosteroids

#A.G. and G.T. contributed equally and are both to be considered as first authors.

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Introduction

Autoimmune Addison's disease (AD) is the most common cause of primary adrenocortical insufficiency and its pathogenesis consists of a pathological process of the adrenal cortex leading to insufficient production of glucocorticoids,mineralocorticoids, and sex steroids [1]; its onset is often gradual and may go undetected until an illness or some other stressful situation precipitates an adrenal crisis [2,3]. Fatigue, weakness, anorexia, weight loss, nausea, vomiting, abdominal pain, hypotension, and electrolyte abnormalities (namely, hyponatremia and hyperkalemia) are the most common and important clinical characteristics of the disease [4,5]; however, the disease can also manifest itself exclusively with psychiatric symptoms, among which are mood and behavior disorders and, more rarely, psychosis [6].

Symptoms linked to this disorder also include a decline in sexual desire (SD) [7]; however, data present in the literature regarding this aspect are scarce and contradictory. As far as we know, few studies, concentrated nearly exclusively on women, have deeply addressed the sexuality of patients affected by AD, moreover with no results of impaired sexuality in the patients compared with controls [8,9]. These findings, however, could be due to the fact that the subjects studied were evaluated during gluco- and mineralocorticoid replacement therapy and not in the initial phase of the disease in which clinical consequences linked to cortisol and aldosterone deficiency are evident.

Aims

Given this premise, our aim was to carry out a clinical study in autoimmune AD before and after gluco- and mineralocorticoid replacement therapy in order to address some aspects of male sexuality and its psychological correlates in the two phases and also to identify which clinical and/or hormone factors can influence the possible sexual dysfunctions present.

Methods

Subjects

Twelve males (mean age: 40.5; age range: 21–59) with a first diagnosis of autoimmune AD, visited in our department between 2005 and 2010, were prospectively recruited. Inclusion criteria were the following: (i) a first diagnosis of autoimmune AD on the basis of clinical and biochemical data [1]; (ii) age between 20 and 60 years; (iii) not investigated and not treated for sexual dysfunction before the onset of adrenocortical insufficiency symptoms; (iv) sexual relationship since at least 1 year before enrollment and continued during the study period; (v) complete follow-up (a visit after 2 months ascertaining recovery from adrenal insufficiency); (vi) absence of hyperprolactinemia, diabetes mellitus, and neurogenic diseases such as multiple sclerosis; and (vii) absence of previous psychiatric history.

Study Protocol

Subjects underwent clinical and biochemical evaluation before beginning replacement therapy for AD (baseline) and after 2 months (recovery phase). Sexual and psychological evaluation was carried out before or immediately after replacement therapy for AD ("baseline") and at recovery phase. All patients were treated with suitable doses of gluco- and mineralocorticoid replacement therapy (cortisone acetate 37.5–50 mg daily, hydrocortisone 20–40 mg daily, and fludrocortisone 0.05–0.15 mg daily) to achieve rapid normalization of the clinical and biochemical picture. During the study period, none of the patients received medication for sexual dysfunctions. All patients reported a progressive worsening of the clinical features and none complained of an acute occurrence of the referred symptoms.

The study was performed according to the Declaration of Helsinki and approved by the institutional ethics committee. All subjects undergoing testing at our center are asked to sign an informed consent form at admission; adhesion to the study protocol required signing an additional consent form.

Main Outcome Measures

Clinical Evaluation

Among the measured clinical parameters, weight, systolic blood pressure (SBP), and diastolic blood pressure (DBP) were considered in the analysis. Subjects were weighed without shoes and wearing light clothing. SBP and DBP were measured in a quiet room; the average of the second and third measurements was recorded as the resting blood pressure.

Biochemical and Hormone Evaluation

The following biochemical and hormone parameters were considered in the analysis: plasma glucose, sodium, potassium, adrenocorticotropic