Plasma Testosterone Levels and Female Transsexualism

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There has been speculation that male hormone levels (specifically testosterone) are elevated in women who want to become men (female transsexuals). This study reports the levels of plasma testosterone, urinary 17-ketosterone, and urinary 17-ketogenic steroid in three female transsexuals and compares these levels with those of normal females and normal males. The study also reports plasma and urine levels during adrenal and ovarian stimulation and suppression studies. By these procedures, the endocrinological status of the female transsexuals was found to be the same as that of the typical female. Thus female transsexualism cannot be simply ascribed to altered levels of testosterone during adulthood.

INTRODUCTION

Plasma testosterone determinations provide an excellent method for the assessment of androgenicity in the female. Elevated levels of plasma testosterone have been observed in the polycystic ovary syndrome (Lloyd et al., 1966; Bardin et al., 1968), congenital adrenal hyperplasia and arrhenoblastoma (Mahesh et al., 1970). The finding of high levels of circulating testosterone in patients with testicular feminization was certainly the most important step in developing the concept of an "end-organ deficit" in this syndrome of male pseudohermaphroditism.

The following report describes our experiences with plasma testosterone in three female transsexual patients.

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^1 This study was carried out in conjunction with the Clinical Research Center Grant from the National Institutes of Health (1M01RR00318) and the Research Foundation of the State University of New York. This paper was presented at the Second International Symposium on Gender Identity in Elsinore, Denmark, September 1971, sponsored by the Erickson Educational Foundation.

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MATERIALS AND METHODS

Normal Subjects

The control subjects were 22 student nurses whose menstrual patterns were known to be regular and in whom there was no clinical evidence of altered adrenal or ovarian steroidogenesis.

The male control subjects were ten normal male laboratory workers. All samples were obtained between 8 and 9 a.m.

Ovarian vein plasma samples were obtained from two subjects, ages 26 years (subject A) and 28 years (subject B) at the time of hysterectomy for cervical carcinoma in situ. Neither patient had any clinically discernible gynecological endocrinopathy.

Transsexual Subjects

The three female transsexual patients studied were patients of the Gender Identity Service of the State University of New York, Downstate Medical Center. Control plasma testosterone levels were determined in all three patients, and in two (M.D. and G.R.) plasma testosterone concentrations and urinary steroid excretion studies were carried out before and during ovarian and adrenal suppression and stimulation. The latter dynamic testings were performed as outlined in Fig. 1.

Ovarian vein plasma samples were obtained from one of the female transsexual patients (G.R.) at the time of hysterectomy and bilateral salpingoophorectomy as the first stage of surgical sex conversion.

All female transsexual patients had been receiving testosterone enanthate, 200 mg, IM, every 2 weeks for 1 to 3 years prior to the present studies. All medication had been discontinued 8 weeks prior to the testings.

![Fig. 1. Methodology used in obtaining urinary and plasma steroids before and during adrenal and ovarian suppression and stimulation.](image-url)