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SERUM PROSTATE SPECIFIC ANTIGEN IS SIGNIFICANTLY ELEVATED AFTER TESTOSTERONE ADMINISTRATION IN FEMALE TO MALE TRANSSEXUALS.

Christina V. Obiezu,[1,2] Erik J. Giltay,[3] He Yu,[4] Angeliki Magklara,[1,2] Antoninus R. Soosaipillai,[1] Louis J.G. Gooren,[3] Eleftherios P. Diamandis.*[1,2] [1]Dept. of Pathology and Laboratory Medicine, Mount Sinai Hospital, Toronto, Ontario, Canada, [2]Dept. of Laboratory Medicine and Pathobiology, University of Toronto, Toronto, Ontario, Canada, [3]Dept. of Endocrinology, Hospital Vrije Universteit, Amsterdam, The Netherlands, [4]Dept. of Medicine, Louisiana State University Medical Center, Shreveport, LA

Prostate specific antigen (PSA) is a well-established tumor marker of prostatic adenocarcinoma. Contrary to earlier reports, PSA is now known to be produced not only by the male prostate but also by the female breast and other tissues. The PSA gene is upregulated by androgens and progestins. Previously, we have shown that serum PSA levels in women are very low but still detectable by ultrasensitive PSA techniques. We have also demonstrated that women with hyperandrogenic syndromes have elevated serum PSA levels. (*J Clin Endocrinol Metab* 1997; 82:777-780). However, there are no published studies indicating that administration of androgens in women can lead to elevation of PSA levels in serum. Female to male transsexuals are usually treated with testosterone. We have measured serum PSA levels before and at 4 and 12 months post- testosterone treatment in 32 female transsexuals, ages 19-39. While the median pre-treatment serum PSA was 0, this rose to 8.3 ng/l. at 4 months and then to 16.1 ng/l. at 12 months post-treatment. These changes were statistically highly significant in comparison to baseline levels. In addition to PSA, we measured other parameters in serum of these women with the following results: body mass index (statistically significant increase post testosterone administration), estradiol (decrease), testosterone (increase), LH (decrease), FSH (decrease), androstenedione (no significant change), DHEA-S (no significant change), dihydrotestosterone (increase), growth hormone (no change), insulin (no change), sex hormone binding globulin (decrease), urinary free cortisol (no change), prolactin (no change), TSH (no change) and thyroxine (decrease).

These data clearly demonstrate upregulation of the PSA gene by testosterone in women. The source of PSA in female serum post-testosterone treatment is still unknown but based on our previous studies, we speculate that it is the female breast.