



## ORIGINAL ARTICLE

# Effect of cross-sex hormone treatment on cardiovascular risk factors in transsexual individuals. Experience in a specialized unit in Catalonia



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### KEYWORDS

Transsexualism;  
Lipids;  
Cardiovascular risk

### Abstract

**Background and aims:** Since the onset of cross hormone therapy (CHT) in transsexual individuals, there has been concern about possible chronic side effects. Our objective was to assess baseline differences in lipid profile in individuals with gender identity disorder in relation to prior CHT, and changes in the lipid profile and other cardiovascular (CV) risk factors after 24 months of treatment.

**Methods:** Retrospective longitudinal study including all individuals assisted for the first time in the Gender Identity Unit of Catalonia from 2006 to 2010. Socio-demographical, anthropometric and laboratory data were collected.

**Results:** We evaluated 247 transsexuals, 150 male to female (MtF: 60.7%) and 97 female to male (FtM; 39.3%). At baseline, FtM transsexuals were younger and had started prior CHT less often than MtF (13.4% vs. 64.7%;  $p < 0.001$ ). During follow up, in MtF weight and BMI increased significantly, as well as systolic and diastolic blood pressure, though these latter remained within normal range. No significant differences in lipid profile were observed. FtM transsexuals also presented an increase in weight and BMI, without differences in blood pressure. A general worsening in lipid profile was observed in this group, with increased total cholesterol ( $166.0 \pm 35.1$  vs.  $175.6 \pm 38.2$  mg/dL;  $p = 0.001$ ), triglycerides ( $70.6 \pm 30.7$  vs.  $102.3 \pm 68.5$  mg/dL;  $p < 0.001$ ) and LDL cholesterol ( $103.8 \pm 28.7$  vs.  $112.8 \pm 30.3$  mg/dL;  $p = .013$ ) and decreased HDL cholesterol ( $52.2 \pm 12.2$  vs.  $45.4 \pm 13.8$  mg/dL;  $p = 0.001$ ), even though final levels were all within normal range.

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**Conclusion:** There is no detectable increase in CV risk factors in MtF transsexuals who were treated with currently prescribed estrogenic compounds, while a slight worsening in lipid profile takes place in the FtM group, though within normal limits.

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## PALABRAS CLAVE

Transexualidad;  
Lípidos;  
Riesgo cardiovascular

## Efecto del tratamiento hormonal cruzado sobre el riesgo cardiovascular en individuos transexuales. Experiencia en una unidad especializada en Cataluña

### Resumen

**Antecedentes y objetivos:** Desde la introducción del tratamiento hormonal cruzado (CHT) en los individuos transexuales existe preocupación sobre sus posibles efectos secundarios a largo plazo. Nuestro objetivo fue evaluar las diferencias en el perfil lipídico basal de individuos transexuales en relación con haber realizado o no CHT previo, y los cambios en dicho perfil y en otros factores de riesgo cardiovascular (FRCV) tras 24 meses de tratamiento.

**Métodos:** Estudio longitudinal retrospectivo incluyendo todos los pacientes atendidos como primera visita en nuestra unidad entre 2006 y 2010. Se recogieron datos socio-demográficos, antropométricos y de laboratorio.

**Resultados:** Se evaluaron 247 transexuales, 150 de hombre a mujer (MtF: 60.7%) y 97 de mujer a hombre (FtM: 39.3%). Basalmente, los transexuales FtM eran más jóvenes y habían realizado CHT previamente con mayor frecuencia (13.4% vs. 64.7%;  $p < 0.001$ ). Durante el seguimiento el peso y el IMC aumentaron en MtF de forma significativa, así como la tensión arterial sistólica y diastólica, aunque estos dos últimos se mantuvieron dentro de la normalidad. No se objetivaron diferencias significativas en el perfil lipídico. Los transexuales FtM también presentaron un incremento de peso e IMC, sin diferencias en la tensión arterial. Se observó un empeoramiento generalizado del perfil lipídico en este grupo, con aumento del colesterol total ( $166.0 \pm 35.1$  vs.  $175.6 \pm 38.2$  mg/dL;  $p = 0.001$ ), triglicéridos ( $70.6 \pm 30.7$  vs.  $102.3 \pm 68.5$  mg/dL;  $p < 0.001$ ) y colesterol LDL y empeoramiento del colesterol HDL ( $52.2 \pm 12.2$  vs.  $45.4 \pm 13.8$  mg/dL;  $p = 0.001$ ).

**Conclusión:** No se produce un incremento significativo en los FRCV en los transexuales MtF tratados con los compuestos estrogénicos actuales, mientras que se observa un discreto empeoramiento en el perfil lipídico en los transexuales FtM, aunque los valores se mantienen dentro de la normalidad.

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## Introduction

Transsexualism makes reference to a discrepancy between a person's gender identity and that person's sex assigned at birth according with his or her primary and secondary sex characteristics. This discrepancy, together with the distress it generates, leads to an irresistible urge to live in the other gender, and modify the own body by hormonal therapy and breast and genital surgery, together with legal and psychosocial adaptations. Sex-reassignment treatment is recommended to be conducted by a multidisciplinary team involving mental health professionals, endocrinologists and surgeons among others. Long term cross-sex hormone treatment (CHT) is necessary to acquire and maintain secondary sexual characteristics.

Available data related to hormonal therapy are extrapolated from other settings, such as male or female subjects with normal gonadal function, different types of sex hormone disorders, or under hormonal therapy, or obtained

from historical series of estrogenic therapy in male to female (MtF) transsexuals.

In general terms, a potential protective effect of estrogens on cardiovascular system was assumed due to the lower incidence of cardiovascular (CV) disease observed in premenopausal women compared to men, together with the higher incidence in women with hyperandrogenism. However, it has been shown that postmenopausal exogenous estrogens did not provide this cardioprotective effects<sup>1</sup>; years later, increased risk of thromboembolic disease,<sup>2,3</sup> and even of CV mortality were associated with synthetic estrogens such as ethinylestradiol<sup>4</sup>. For that reason, recent guidelines recommend avoiding ethinylestradiol and using transdermal estrogen preparations after 40 years of age.<sup>5</sup>

If we focus on MtF subjects on estrogenic therapy, some studies show an impairment of lipid profile and blood pressure on estrogenic treatment<sup>6-9</sup>; possibly, these effects are reduced if ethinylestradiol is excluded. However, results are still inconclusive due to the retrospective and limited nature of all the studies.

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