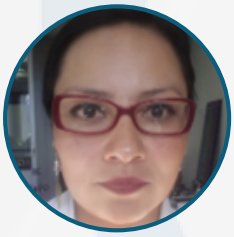

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Cross - sex hormonal replacement: mitochondria as bad boys

Cross - hormonal treatments are used in “transgender” individuals. Transgender is used to define individuals whose gender identity differs from the sex assigned at birth. The hormones administered have effect after months, with maximal results after some years.

A collateral effect occurs over the cardiovascular system; as diverse longitudinal studies in Europe suggest, showing that feminizing hormone therapy may be associated with high cardiovascular disease incidence.

Also in postmenopausal women, where estrogens absence is a hallmark, testosterone therapy has been linked with ischemic arterial disease and coronary disease and at least in animal models we have reported that administration of hormones from the opposite gender may promote cardiovascular dysfunction. Until this moment the role of mitochondria, the organelle that has been reported fail before the cardiovascular condition is manifested, is unknown.

In animal models previously we have shown that oophorectomy in female rats modifies gradually heart mitochondrial functions, such as ATP production, oxygen consumption, calcium retention capacity, among other parameters. In this work our efforts were to elucidate if hormones of the contrary gender have some effect over mitochondrial functions. For this purpose we used oophorectomized female rats + testosterone and castrated male rats + estrogens, after 4 months of treatment, hormonal levels were measured, a surface electrocardiogram (ECG) was performed (DII), heart mitochondria were isolated and oxygen consumption, calcium uptake, mitochondrial transmembrane potential, thiobarbituric acid reactive species (TBARs), mitochondrial superoxide manganese activity were measured. Except for ECG all the parameters measured changed in non a favorable way.

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Biography

Dr. Natalia Pavón graduated in Chemistry Bacteriology and Parasitology at the National School of Biological Sciences in Mexico City, received her MD and PhD degrees from the Autonomous National University of Mexico. She completed her training in the University of Bio-Bio (Chile). As an independent researcher in the Department of Pharmacology in the National Institute of Cardiology "Ignacio Chávez" she is interested in the effects of sexual hormones, specially estrogens and their metabolites over cardiovascular function and energetic metabolism (mitochondrial function). Her recent papers include one, where for the 1st time the presence of estrogenic compounds is possibly linked with cardiovascular disease in menopausal women.

She has published 59 articles in reputed journals and belongs to the National System of Researchers (SNII) in México, level 1. She is a passionate of nature and native plants of Mexico, where her volunteer work has made her part of the "Tigridia network" and different collectives of the society, in social media you can find this part of her work as a member of "Chaponeros"

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