LABRIX Newsletter

Estrogen Replacement: Choices, choices everywhere, but which one should I choose?

Transdermals and orals and pellets oh my! When it comes to offering estrogen supplementation to your female patients the choices are abundant, but how do you know which one to choose? Are there advantages of one administration route over another? While one specific form of estrogen therapy may not be appropriate for *every* patient, research demonstrates a clear victor when it comes to bioavailability, metabolism, clinical efficacy, potential side effects and risk profile - **transdermal** estrogen.

While some women elect subcutaneous pellet or intramuscular injection of their estrogen therapy, these routes of administration are more invasive than other choices and, once administered, the dosage potency cannot be easily adjusted. Oral and transdermal estrogen (in cream, gel, spray or patch form) tend to be more widely used routes of administration. A recent review article suggests that, among the two, transdermal estrogen offers multiple advantages in several areas:

- Lipid profile: Studies of estrogen's effect on the lipid profile of postmenopausal women utilizing estrogen therapy suggest that estrogen may assist in increasing HDL and decreasing LDL however, oral estrogen may increase triglycerides where transdermal estrogen appears to have a favorable effect on triglycerides while maintaining estrogen supplementation's positive benefit on HDL and LDL.

- Inflammatory markers: Oral estrogen, but **not transdermal estrogen,** increases inflammatory proteins, namely C reactive protein (CRP) and matrix metalloproteinases (MMPs)

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- IGF-1: Vital for maintaining bone density, muscle mass and lipid metabolism, oral administration of estradiol has been found to lower IGF1 levels which may worsen insulin resistance and weight gain in women as well as accelerate the aging process.

- Sexual effects: Oral estrogen increases hepatic production of sex hormone binding globulin (SHBG), thus increasing the bound amount of testosterone and decreasing the amount of biologically available testosterone. This decrease in bioavailable testosterone is negatively associated with libido, energy, mood, vaginal dryness and heart disease.

In addition to the advantages above, transdermal administration of estradiol produces therapeutically appropriate levels of estradiol with lower circulating levels of estrone and requires lesser potencies than oral dosing.

While not all patients have a need for estrogen replacement, understanding the variable risk factors associated with different routes of administration will allow you to prescribe this important therapy with minimal side effects for those who do.

Resources

- Goodman M. Are all estrogens created equal? A review of oral vs. transdermal therapy. J of Women's Health. 2012 Feb; 21(2):161-9

- Shifren JL, Desindes S, McIlwain M, Doros G, Mazer NA. A randomized, open-label, crossover study comparing the effects of oral versus transdermal estrogen therapy on serum androgens, thyroid hormones, and adrenal hormones in naturally menopausal women. Menopause. 2007 Nov-Dec; 14(6):985-94.

- Vongpatanasin W, Tuncel M, Wang Z, Arbique D, Mehrad B, Jialal I. Differential effects of oral versus transdermal estrogen replacement therapy on C-reactive protein in postmenopausal women. J Am Coll Cardiol. 2003 Apr 16;41(8):1358-63.

- Menon DV, Vongpatanasin W. Effects of transdermal estrogen replacement therapy on cardiovascular risk factors. Treat Endocrinol. 2006;5(1):37-51.

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