Addressing Endogenous Elevated Estrogen Levels

Elevated estrogen levels, in both men and women, are a common concern among providers. Increased estrogen levels can contribute to an increased risk of estrogen dependent cancers including breast, uterine and prostate and exacerbate estrogen dominance.

Synthesized in the periphery by adipose tissue, endogenous estrogen is continually produced throughout the lifespan. Recall that there are three known estrogens in the human body:

- Estrone (E1) is the dominant estrogen produced in postmenopausal women due to its peripheral conversion from androstenedione.

- Estradiol (E2) is the most biologically active of the estrogens and is also produced in peripheral tissues in addition to the ovaries.

- Estriol (E3) is the weakest of the three estrogens and is the main estrogen of pregnancy. E1 & E2 have more potent proliferative effects, inter-convert to each other and both can convert to E3.

E3 is the least potent of the three estrogens, does not convert to E1 or E2 and has been demonstrated to offer protection against the proliferative properties of E1 and E2. Though the only time it is produced in significant quantity is during pregnancy, there is considerable individual variation in the production of estriol. Women with higher estriol levels have been shown to have reduced risk of breast cancer and for this reason a slightly elevated E3 level is not a cause for concern. The same cannot be said for elevations in E1 and E2 levels and an important aspect of treatment for many patients involves balancing the proliferative effects of estrone and estradiol with adequate estriol and progesterone as well as manipulating various metabolic pathways to enhance metabolism and reduce production of these stronger estrogens.

Counseling patients on the importance of an organic diet high in fruits and vegetables as well as regular exercise will address many of the underlying contributors to elevated E1 & E2 levels but these lifestyle changes often have poor initial compliance and may take prolonged time to demonstrate desired results. What can be done to address these levels in the meantime?

- Progesterone supplementation: Maintaining an optimal progesterone to estradiol ratio not only reduces the risk of estrogen-dependent cancers, but reduces the risk of osteoporosis, Alzheimer's disease and cardiovascular disease as well.

- Estriol supplementation: Because it is significantly less active than E1 and E2, yet competes for the same estrogen receptors, E3 serves to govern the action of the more potent estrogens. Optimizing the estrogen quotient (a ratio of E1 and E2 to E3) reduces the risk of breast cancer by limiting the potency of E2.

- Indole-3-Carbinol (I3C) or Diindolylmethane (DIM) supplementation: A compound found in cruciferous vegetables, I3C forms the dimer DIM when it comes in contact with stomach acid. These compounds affect estrogen metabolism, shifting the breakdown of E1/E2 toward the less carcinogenic of their metabolites. These are also thought to induce CYP450, support apoptosis and have estrogenic receptor agonist and antagonist activity.

- Calcium D-glucarate: While I3C and DIM work to optimize estrogen metabolism, calcium d-glucarate works by reducing absorption of estrogen in the intestine, thus decreasing circulating levels.

- Fiber: Just as it binds to and removes cholesterol, the backbone of steroid hormones, soluble fiber is an important component to promote the metabolism and clearance of hormones such as estrone and estradiol.

- Aromatase inhibitors: Aromatase is the enzyme that converts androstenedione to estrone and testosterone to estradiol. Several bioflavonoids including chrysin, luteolin, and resveratrol have been shown to partially block the action of this enzyme, therefore reducing the production of the estrogens.

If you suspect that your patients are suffering from elevated estrogen levels the best place to start is with a full salivary analysis of their hormones. A comprehensive treatment plan that includes hormone replacement (if needed) as well as lifestyle counseling and nutritional support for proper hormone metabolism will not only address their symptoms, but reduce their risk of hormone dependent cancers and associated diseases.

References

- Naturaldatabase.therapeuticresearch.com