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Thank you for entrusting in the compounding services at Madison Medical Compounding Pharmacy to help meet the unique medication needs of your patients. We are excited to share our monthly newsletter with you and look forward to working with you. Please don't hesitate to let us know how we can assist you and your practice.

*LeAnn Chambers, Pharm.D. and Matthew Chambers, Pharm.D.*

## Vaginal DHEA May Improve Sexual Function in Women With Breast/Gynecologic Cancer

Breast and gynecologic cancer patients can experience a range of symptoms associated with sexual dysfunction, among them vaginal dryness and dyspareunia. Vaginal estrogen is the gold standard for treatment of vaginal symptoms, but it is a last resort in women with cancer due to safety concerns. There is a need for effective treatment without systemic estrogenic effects.

Vaginal dehydroepiandrosterone (DHEA) may improve sexual function, without negative systemic effects, in women with breast and gynecologic cancer with vaginal and sexual-related complaints. DHEA is a prohormone that is converted in target tissue. Previous work with DHEA has supported the hypothesis that when used vaginally it does not produce systemic effects.



Barton et al. of the University of Michigan conducted a study on postmenopausal women with a history of breast/gynecologic cancer who had completed chemotherapy and radiation and had no evidence of disease. Women were eligible if they reported at least moderately severe vaginal complaints present for no less than 2 months. 441 women were randomized to study arms of 3.25 versus 6.5 mg of DHEA versus plain moisturizer (PM). DHEA was compounded into a bioadhesive vaginal moisturizer gel, which was designed to adhere to the vaginal wall. Women inserted the DHEA using a prefilled syringe nightly for 12 weeks, just before sleep and subsequent to any sexual activity. Laboratory tests, maturation index, and vaginal pH were evaluated at baseline and again at 12 weeks.

Vaginal cell maturation was observed in 100% receiving DHEA 3.25 mg, 86% with DHEA

6.5 mg, and 64% with PM. In all arms, a significant reduction in the primary symptom was observed compared with baseline, with severity reduced by almost half, and there were no significant differences between the study arms. “However, the 2 doses of DHEA did significantly improve sexual function, with the 6.5-mg dose improving every single subscale of sexual function except for orgasm,” Barton noted. Systemic DHEA levels increased in each DHEA arm, but were consistent with the normal range for women in that age group. Based on these data, Barton and her colleagues concluded that DHEA improved physiological vaginal health and overall female sexual function more than PM alone.

#### *Reference*

<https://www.theoncologynurse.com/issue-archive/2014-issues/september-october-vol-7-no-5/16248-vaginal-dhea-may-improve-sexual-function-in-women-with-breast-gynecologic-cancer-ton>

## Kojic Acid Applications in Cosmetic and Pharmaceutical Preparations

Kojic acid (KA) and its derivatives have anti-oxidant, anti-proliferative, anti-inflammatory effects, and KA has the ability to protect the skin from UV light, suppress hyperpigmentation, and decrease melanin formation, due to its tyrosinase inhibitory activity. The lightening effect on visible sun damage, age spots, or scars that lead to anti-aging outcomes on the skin are the main therapeutic effect of KA.

Some adverse reactions and disadvantages are associated with KA in cosmetic application. The main side effect reported is contact dermatitis (especially for sensitive skin) which can be accompanied by irritation, rashes, inflamed skin, itchiness, and pain. Side effects are more likely when KQ is used in a concentration higher than 1%. Long-term use of KA may make skin more susceptible to sunburn. KA should not be used on damaged or injured skin.

Kojic acid works as a lightening agent by reducing melanin production. The amino acid tyrosine is needed to support the production of melanin. Kojic acid inhibits tyrosinase thereby blocking tyrosine from forming. KA has also exhibited antimicrobial properties that can eradicate some common types of bacterial strains (e.g. acne caused bacteria) even in small dilutions. Studies also have shown that KA potentially has antifungal effects, and KA use to treat yeast infections, candidiasis, and ringworm has been reported. Kojic acid is commonly used in cosmetic products, such as creams, lotions, and serums. It is safe to be used in cosmetics in concentration of 1% according to the Cosmetic Ingredient Review Expert Panel (CIREP). Use of higher concentrations and prescription medications should be monitored by a physician. Ask our compounding pharmacist for more information about customized kojic acid preparations.

#### References

<Biomed Pharmacother. 2019 Feb;110:582-593>  
<https://www.medicalnewstoday.com/articles/319599>

## Compounding Solves Medication Problems

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