

BASIC RESEARCH

Green tea catechin can improve symptoms of menopause-induced overactive bladder

Postmenopausal women experience a number of age-related changes, including urological problems such as overactive bladder (OAB), stress incontinence and recurrent UTI. For a study recently published in *BJU International*, a team of researchers used a rat model of postmenopause to demonstrate that epigallocatechin gallate (EGCG)—an antioxidant polyphenol flavonoid present in green tea—can reverse OAB symptoms in a dose-dependent manner.

Investigators surgically removed the ovaries of 36 Sprague-Dawley rats to mimic the human menopause. Subsequently, subgroups of rats were given a daily intraperitoneal injection of either 1 $\mu\text{M}/\text{kg}$ EGCG ($n = 12$), 10 $\mu\text{M}/\text{kg}$

EGCG ($n = 12$), or saline ($n = 12$), over a period of 6 months. A sham group of 12 rats underwent surgery and manipulation of the ovaries without removal.

Cystometric studies revealed that ovariectomized rats did indeed demonstrate symptoms of OAB (increased voiding frequency, lower bladder compliance and decreased voiding volumes compared to their sham counterparts), and that EGCG injection could alleviate these symptoms in a dose-dependent manner. Rats that received 10 $\mu\text{M}/\text{kg}$ EGCG had voiding patterns similar to the control group.

Furthermore, expression studies revealed that treatment with EGCG was able to reverse the oxidative damage, interstitial fibrosis and cell death observed in the bladders of ovariectomized animals.

The authors are keen to emphasize the difference between injection of EGCG and daily consumption of green tea. Intestinal



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bioavailability of EGCG is reportedly poor, so the team intend to expand their experiments to examine the effects of various EGCG concentrations.

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Original article Juan, Y. S. *et al.* Green tea catechins decrease oxidative stress in surgical menopause-induced overactive bladder in a rat model. *BJU Int.* doi:10.1111/j.1464-410X.2012.11258.x