

SOUTHWESTERN NEWS

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ESTROGEN PATCH COMPARED TO PILL MINIMIZES CARDIOVASCULAR RISK FACTOR IN POSTMENOPAUSAL WOMEN

DALLAS – April 16, 2003 – Administering estrogen replacement therapy via a skin patch rather than a pill minimizes a cardiovascular risk factor in postmenopausal women, according to researchers at UT Southwestern Medical Center at Dallas.

Recent studies have suggested that oral estrogen replacement therapy and combined hormone replacement therapy resulted in an increase in C-reactive protein (CRP). CRP is a marker for inflammation in the blood vessels and is the strongest independent predictor of adverse cardiovascular events in otherwise healthy postmenopausal women.

In findings reported in today's issue of the *Journal of the American College of Cardiology*, researchers at UT Southwestern showed that oral administration of estrogen therapy "caused a robust increase in CRP," while patch-administered doses at nearly twice the strength as those taken orally had no effect on CRP levels.

"Our research shows that oral estrogen preparations resulted in a twofold increase in CRP," said Dr. Wanpen Vongpatanasin, assistant professor of internal medicine and lead author of the study. "We also found that there was no change in CRP levels in the same women taking transdermal estrogen (skin patch). This leads us to believe that the route of administration may be an important consideration in minimizing the adverse effects of estrogen replacement therapy on cardiovascular outcomes."

Vongpatanasin said that when estrogen is given orally, it has to go through the liver, where it is converted to a less active form of estrogen before it reaches the bloodstream. When the hormone is given in the form of a patch, it is directly absorbed into the bloodstream before it goes through the liver.

"In order to have similar blood levels of estrogen as those with transdermal estrogen replacement therapy, a much higher dose of oral estrogen is needed," she said. "This may contribute to the increased risk for adverse cardiovascular events in postmenopausal women

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ESTROGEN PATCH - 2

receiving combined hormone replacement therapy as shown in large clinical trials.”

A national clinical trial called the Women’s Health Initiative was cut short in 2002 because of a reported heightened risk of heart and other health problems. In March, additional results from the federally funded Women’s Health Initiative concluded that estrogen pills were an effective treatment for short-term relief from hot flashes and night sweats, but did not improve quality of life.

“A significant proportion of women can’t stop taking estrogen because of severe menopausal symptoms,” Vongpatanasin said. “If they have to take estrogen, our study shows transdermal, not oral, estrogen may be safer.”

In this latest study, UT Southwestern researchers compared the effects of transdermal estrogen therapy as well as oral estrogen therapy on CRP levels in 21 postmenopausal women. Participants, in three eight-week cycles, were given regimens in random order: 100 micrograms of transdermal estrogen and an oral placebo; 0.625 milligrams of an estrogen pill along with a placebo patch; and placebo patch and pills.

The researchers also reported a decrease in a protein that plays a role in reducing inflammation called insulin-like growth factor, or IGF-1.

“Because both CRP and the insulin-like growth factor are produced by the liver, we believe that the undesirable effects of oral estrogen on the CRP and IGF-1 are due to changes in metabolism in the liver,” Vongpatanasin said. “The increase in CRP and the decrease observed in the IGF-1 protein may be avoided by a transdermal route of administration.”

Other researchers involved in the study were: Debbie Arbique, senior registered nurse in internal medicine; Dr. Borna Mehrad, assistant professor of internal medicine; Dr. Meryem Tuncel, an intern in internal medicine, and Dr. Zhongyun Wang, a postdoctoral researcher in internal medicine. Dr. Ishwarlal Jialal, formerly of UT Southwestern and currently with the University of California, Davis, School of Medicine, was the senior author on the study.

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