

**Public release date: 1-Mar-2010**

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## **HRT and cataract risk; smoking and uveitis**

### ***March Ophthalmology research highlights***

SAN FRANCISCO, CA—Intriguing findings on hormone replacement therapy (HRT) and cataract risk, and on smoking and uveitis risk are reported in this month's *Ophthalmology*, the journal of the American Academy of Ophthalmology.

#### **Does HRT Use Raise Women's Cataract Risk?**

An eight-year prospective study of more than 30,000 postmenopausal Swedish women found that those who were using or had used HRT had significantly higher rates of cataract removal, compared with women who had never used HRT. Alcohol consumption seemed to increase HRT's harmful effect. The HRT study was led by Birgitta E. Lindblad, MD, Sundsvall Hospital, Sweden as part of the Swedish Mammography Cohort (SMC), established to study lifestyle factors and chronic diseases.

"If future studies confirm the associations we found, increased risk for cataract removal should be added to the list of potential negative HRT outcomes," Dr. Lindblad said.

More than 4,300 cataract removal surgeries were performed in participants between 1997 and 2005. The risk for cataract removal was increased by 14 percent in women who had ever used HRT and by 18 percent in current HRT users, compared with women who never used HRT. Longer duration of HRT use correlated with increased risk. Current HRT users who also reported having more than one alcoholic drink per day had 42 percent increased risk compared with women who used neither HRT nor alcohol. Smoking status did not significantly affect risk. Data were adjusted for exposure to external (exogenous) estrogens such as birth control pills, as well as reproductive and other health factors.

"Cataract is more prevalent in postmenopausal women than in men at similar ages; this implies that hormonal differences are involved and suggests a possible role for estrogen," Dr. Lindblad

explained. She described how HRT may act to promote cataracts and also compared her project's findings with earlier studies.

Estrogen receptors have been detected in the eye's lens, the area that becomes cloudy and inflexible when a cataract develops. Naturally occurring (endogenous) estrogen appears to protect the eye from cataract, along with guarding cardiovascular and other body systems before menopause. Exogenous estrogens like those used in HRT do not function the same way. For example, HRT increases C-reactive protein levels, associated with cataract development in other studies. Dr. Lindblad's study also describes how alcohol and HRT may interact to raise estradiol levels, which appears to affect cataract risk.

In contrast to the SMC, earlier large HRT and cataract risk studies in the United States, Australia and Europe reported mixed results; importantly, some of these studies included women who were premenopausal and so possibly protected by endogenous estrogen. Results of the Swedish study may have been impacted by factors unique to this population: for example, nearly all participating women shared the same ethnicity, and all had equal access to care. The study did not identify type of HRT, type of cataract, or measure exposure to excess sunlight (a risk factor for cataract, although unlikely to impact residents of northern Europe).

### **Another Serious Eye Disease Linked to Smoking**

Smoking is already a known risk factor for age-related macular degeneration, cataract and thyroid eye disease. Now, the first study to specifically examine the impact of smoking on uveitis—inflammation of the eye's middle layer of tissue—indicates that tobacco smoke likely plays a role in this serious eye disease, as well. In the United States about 10 percent of blindness is caused by uveitis.

Researchers led by Nisha Acharya, MD, analyzed medical records for smoking status and the type and cause of inflammation for all uveitis clinic patients seen at the University of California, San Francisco's F.I. Proctor Foundation between 2002 and 2009. Results for this patient group were compared with a matched control group and the data were adjusted for differences in age, race, gender, and median income. Smokers were 2.2 times more likely to have uveitis than those who had never smoked. Smoking correlated with higher risk of uveitis for all anatomical locations within the eye and for both infectious and non-infectious disease types. A particularly strong relationship was found between smoking and inflammatory central macular edema (swelling of the central area of the retina) in patients with certain types of uveitis.

"Cigarette smoke includes compounds that stimulate inflammation within the blood vessels, and this may contribute to immune system disruption and uveitis," Dr. Acharya said. If other research replicates the UCSF findings, uveitis risk would be another reason for healthcare providers to advise people to stop smoking.

If uveitis symptoms such as eye redness, blurred vision, pain and sensitivity to light occur, people should seek medical care right away. Uveitis can harm important structures like the iris in the front of the eye, and the retina, the light-sensitive tissue at the back of the eye where images are focused and relayed to the optic nerve. The condition can develop in people with systemic diseases such as multiple sclerosis or juvenile arthritis or be part of the body's response to an infection like herpes simplex or tuberculosis. Often, though, uveitis has no apparent cause.

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Eds: Full texts of the studies are available from the Academy's media relations department.

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