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Racial Differences in the Effects of Hormone Therapy on Incident Open-Angle Glaucoma in a Randomized Trial

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Purpose: We conducted a secondary analysis of a randomized, placebo-controlled trial to test if hormone therapy (HT) altered the risk of open-angle glaucoma (OAG), and if the risk reduction varied by race. **Design:** Secondary analysis of randomized controlled trial data **Methods:** We linked Medicare claims data to 25,535 women in the Women's Health Initiative. Women without a uterus were randomized to receive either oral conjugated equine estrogens (CEE 0.625mg/day) or placebo, and women with a uterus received oral CEE and medroxyprogesterone acetate (CEE 0.625mg/day+MPA 2.5mg/day) or placebo. We used Cox proportional hazards models to calculate hazard ratios (HR) and 95% confidence interval. **Results:** After excluding women with prevalent glaucoma or without claims for eye-care provider visits, the final analysis included 8,102 women (mean age=68.5±4.8 years). The OAG incidence was 7.6% (mean follow-up=11.5±5.2 years; mean HT duration=4.4±2.3 years). Increased age (p-trend=0.01) and African-American race (HR=2.69, 95%CI=2.13 to 3.42; Caucasian as a reference) were significant risk factors for incident OAG. We found no overall benefit of HT in reducing incident OAG (HR=1.01, 95%CI=0.79-1.29 in the CEE trial, and HR=1.05, 95%CI=0.85-1.29 in the CEE+MPA trial). However, race modified the relationship between CEE use and OAG risk (p-interaction=0.01), and risk was reduced in African-American women treated with CEE (HR=0.49, 95%CI=0.27-0.88), compared to placebo. Race did not modify the relation between CEE+MPA use and OAG risk (p-interaction=0.68). **Conclusions**: Analysis suggests that HT containing estrogen, but not a combination of estrogen and progesterone, reduces the risk of incident OAG among African-American women. Further investigation is needed.