The high incidence of breast cancer observed in young African-American women (1) and the apparent aggressiveness of the disease in this ethnic group (2) might be because of biologic differences, such as genetic susceptibility to environmental factors and/or hormonal levels. We have recently shown (3) that a polymorphism in the CYP1A1 gene, which is involved in estrogen metabolism, is significantly associated with breast cancer in African-American, but not in Caucasian, women. The endogenous metabolism of estrogens is primarily oxidative and involves hydroxylation of the steroid at either C2 (2-OHE1) or C16α (16α-OHE1). While the 2-OHE1 metabolites are essentially devoid of peripheral biologic activity, 16α-OHE1 is an estrogen agonist (4,5). There is evidence of an inverse association between the 2-OHE1/16α-OHE1 metabolite ratio and breast cancer risk (6). We present here the basal urinary estrogen metabolite ratios of 33 healthy women aged 18-73 years (7). Women taking oral contraceptives or who were pregnant or lactating were excluded. African-American women had significantly lower 2-OHE1/16α-OHE1 urinary metabolite ratios than did Caucasian women (Table 1). No effect of age, weight, smoking status, or CYP1A1 genotype was observed.

The observed differences in the estrogen metabolite ratio between Caucasian and African-American women might be due to unknown genetic factors, diet, physical activity, or exogenous exposures, such as exposures to dioxins or pesticides (4,5). A larger study to address this question is planned. The confirmation of our results has important public health implications. The measurement of urinary estrogen metabolites might become a useful marker for identifying groups of women for whom preventive health strategies are likely to be most beneficial; these prevention efforts could potentially involve dietary changes, increased physical activity, or chemopreventive interventions aimed at modulating the 2-OHE1/16α-OHE1 metabolite ratio.

Table 1. Baseline ratios of urinary estrogen metabolites (2-OHE1/16α-OHE1) according to ethnicity

<table>
<thead>
<tr>
<th>Ethnicity (n)</th>
<th>2-OHE1/16α-OHE1*</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caucasian (15)</td>
<td>2.25 ± 0.89</td>
<td>1.20-3.84</td>
</tr>
<tr>
<td>African-American (18)</td>
<td>1.42 ± 0.61</td>
<td>0.44-2.86</td>
</tr>
</tbody>
</table>

*P = .0089 (two-sided t test/Cochran-Cox approximation for unequal variances); values are expressed as means ± standard deviation.

**References**


**Notes**

Correspondence to: Emanuela Taioli, M.D., Department of Environmental Medicine, Epidemiology Program, New York University Medical Center, 341 E. 25th St., New York, NY 10012. Supported by Public Health Service grants ES00260 and ES04895 (National Institute of Environmental Health Sciences) and CA16087 (National Cancer Institute), National Institutes of Health, Department of Health and Human Services; and by a grant from the Tiger Foundation.