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## **Influences of percutaneous administration of estradiol and progesterone on human breast epithelial cell cycle in vivo.**

Chang KJ<sup>1</sup>, Lee TT, Linares-Cruz G, Fournier S, de Lignières B.

### **Abstract**

#### **OBJECTIVE:**

To study the effect of E2 and P on the epithelial cell cycle of normal human breast in vivo.

#### **DESIGN:**

Double-blind, randomized study. Topical application to the breast of a gel containing either a placebo, E2, P, or a combination of E2 and P, daily, during the 10 to 13 days preceding breast surgery.

#### **PATIENTS:**

Forty premenopausal women undergoing breast surgery for the removal of a lump.

#### **MAIN OUTCOME MEASURES:**

Plasma and breast tissue concentrations of E2 and P. Epithelial cell cycle evaluated in normal breast tissue areas by counting mitoses and proliferating cell nuclear antigen immunostaining quantitative analyses.

#### **RESULTS:**

Increased E2 concentration increases the number of cycling epithelial cells. Increased P concentration significantly decreases the number of cycling epithelial cells.

#### **CONCLUSION:**

Exposure to P for 10 to 13 days reduces E2-induced proliferation of normal breast epithelial cells in vivo.