

## **Circadian rhythm chaos: a new breast cancer marker.**

*Keith LG, Oleszczuk JJ, Laguens M.; Department of Obstetrics and Gynecology, Northwestern University Medical School, Chicago, Illinois, USA.* The most disappointing aspect of breast cancer treatment as a public health issue has been the failure of screening to improve mortality figures. Since treatment of late-stage cancer has indeed advanced, mortality can only be decreased by improving the rate of early diagnosis. From the mid-1950s to the mid-1970s, it was expected that thermography would hold the key to breast cancer detection, as surface temperature increases overlying malignant tumors had been demonstrated by thermographic imaging. Unfortunately, detection of the 1-3 degrees C thermal differences failed to bear out its promise in early identification of cancer. In the intervening two-and-a-half decades, three new factors have emerged: it is now apparent that breast cancer has a lengthy genesis; a long-established tumor-even one of a certain minimum size-induces increased arterial/capillary vascularity in its vicinity; and thermal variations that characterize tissue metabolism are circadian ("about 24 hours") in periodicity. This paper reviews the evidence for a connection between disturbances of circadian rhythms and breast cancer. Furthermore, a scheme is proposed in which circadian rhythm "chaos" is taken as a signal of high risk for breast cancer even in the absence of mammographic evidence of neoplasm or a palpable tumor. **Recent studies along this line suggest that an abnormal thermal sign, in the light of our present knowledge of breast cancer, is ten times as important an indication as is family history data.**