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Short Communication

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# Method to prevent early and late relapses in breast cancer; possible collaboration with Sensors

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## Abstract:

My colleagues and I were confronted in 1993 with an unexpected bimodal relapse pattern in breast cancer. Data showed that in patients treated only with surgery, 50 to 80% of all relapses occurred in an early sharp wave in the first 3 years post-surgery. We eventually determined that surgery to remove a primary tumor causes systemic inflammation for a week. During that time, dormant single malignant cells and avascular deposits escape from dormancy and appear as relapses within 3 years. The multi-national authors of our reports include medical oncologists, surgeons, anaesthesiologists, physicists, and other scientists. A solution seems to exist based on our analysis. That therapy is the common nonsteroidal anti-inflammatory drug (NSAID) analgesic ketorolac administered as iv at the time of surgery and perhaps orally for a few days after surgery. Three animal models and two retrospective clinical trials support our findings. All has been reported in a recent review.

It was recently reported that a prospective trial of a different perioperative NSAID is planned in Japan to treat lung cancer (Sakamaki K, Watanabe K, Woo T, et al. Multicentre randomised phase II study of the perioperative administration of flurbiprofen axetil in patients with non-small cell lung cancer: study protocol of the FLAX Study. BMJ Open 2020;10:e040969. doi:10.1136/ bmjopen-2020-0409692).

Another paper suggests a way to prevent at least some late relapses. There are two situations where late relapses can be prevented. One is for planned surgery for cosmetic or health reasons. In that case the surgeon can make sure the patient is given the proper anti-inflammatory drug just before surgery. The other situation is for unplanned events such as after a sudden injury from a fall or a car accident. In that case it would be important to know the current level of systemic inflammation and patient medical history so a proper anti-inflammatory can be used. Timing is critical since it would be needed to treat within about two hours. A method to determine the level of systemic inflammation is needed without a blood draw. Perhaps someone from Sensors can help.

## Biography

Michael Retsky received PhD in experimental physics from University of Chicago in 1974. While working at Hewlett-Packard in Colorado Springs in 1982, a friend started an informal cancer research project since his wife was being treated for cancer. Over the next years, Retsky made a career change into cancer research. His first paper in oncology (Speer et al Cancer Research 1984) predicted that tumor growth included periods of dormancy. He eventually became Prof of Biology at Univ of Colorado and later on staff of Judah Folkman at Harvard Medical School.

Retsky was diagnosed with Stage IIIc colon cancer in 1994. Based on his knowledge of tumor kinetics he used low-dose, long-term chemotherapy instead of maximum tolerated chemotherapy. This became the first use of metronomic chemotherapy.

**Publication of speakers**

1. Retsky M, Demicheli R, Hrushesky W, James T, Rogers R, Baum M, Vaidya J, Erhabor O, Forget P. 2020
2. Retsky M. It may be possible to prevent both early and late relapses in breast cancer. Sensors 2020. doi: 10.3390/s20247261.

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