



## **Title: Perioperative use of NSAID might prevent early relapses in breast and other cancers: An upstream approach**

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**Abstract:** A bimodal pattern of hazard of relapse among early stage breast cancer patients has been identified in multiple databases from US, Europe and Asia. Colleagues are surgeons, medical oncologists, anesthesiologists, general scientists and physicists. We are studying these data to determine if this can lead to new ideas on how to prevent relapse in breast cancer. Using computer simulation and access to a very high quality database from Milan for patients treated with mastectomy only, we proposed that relapses within 3 years of surgery are stimulated somehow by the surgical procedure. Most relapses in breast cancer are in this early category. Retrospective data from a Brussels anesthesiology group suggests a plausible mechanism. Use of ketorolac, a common NSAID analgesic used in surgery was associated with far superior disease-free survival in the first 5 years after surgery. The expected prominent early relapse events in months 9-18 are reduced 5-fold. Transient systemic inflammation accompanying surgery (identified by IL-6 in serum) could facilitate angiogenesis of dormant micrometastases and proliferation of dormant single cells resulting in early relapse and could have been effectively blocked by the perioperative anti-inflammatory agent. If this observation holds up to further scrutiny, it could mean that the simple use of this safe, inexpensive and effective anti-inflammatory agent at surgery might eliminate early relapses. We suggest this would be most effective for triple negative breast cancer and be especially valuable in low and middle income countries. Similar bimodal patterns have been identified in other cancers suggesting a general effect. This mechanism has been confirmed by animal model studies from MIT and Harvard.

**Biography:** Michael Retsky (PhD in Physics from University of Chicago 1974) made a career change to cancer research 35 years ago. He is on staff at Harvard TH Chan School of Public Health. He was Prof of Biology at University of Colorado - Colorado Springs. He was Visiting Prof at several universities. He was on Judah Folkman's staff at Harvard Medical School for 12 years. Retsky is Editor of a Nature/Springer book on the breast cancer project that was published in 2017. He was the first person to use what is now called metronomic adjuvant chemotherapy and was a founder and on the Board of Directors of the Colon (now Colorectal) Cancer Alliance. He has published more than 100 papers in physics and cancer. Most recent publication is Retsky et al, Breast Cancer and the Black Swan 2020 - available open access on PubMed.