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Breast cancer and the perioperative window

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Abstract

Most current research in cancer is attempting to find ways of preventing patients from dying after metastatic relapse. Driven by data and analysis, this project is an approach to solve the problem upstream, i.e., to prevent relapse. This project started with the unexpected observation of bimodal relapse patterns in breast and a number of other cancers. This was not explainable with the current cancer paradigm that has guided cancer therapy and early detection for many years. After much analysis using computer simulation and input from a number of medical specialists, we eventually came to the conclusion that the surgery to remove the primary tumor produced systemic inflammation for a week after surgery. This systemic inflammation apparently caused exits of cancer cells and avascular micrometastases from dormant states and resulted in relapses in the first 3 years post-surgery. Two animal studies agreed with these findings. It was determined in two retrospective studies that the common inexpensive perioperative NSAID ketorolac could curtail the early relapse events after breast cancer surgery. Ketorolac is routinely used at the surgeon's option either before or after breast cancer surgery at Beth Israel Deaconess Medical Centre (Harvard). Based on what we now know, surgeons and anesthesiologists should take extra efforts to reduce systemic inflammation during the perioperative window using ketorolac.

Biography

Dr Michael Retsky received a PhD in experimental physics from University of Chicago in 1974. His thesis project was to build a scanning transmission electron microscope that could resolve single atoms of silver, mercury and uranium and measure their elastic cross-sections. While doing electron optics research at Hewlett-Packard in 1982, a friend's wife was diagnosed with cancer. This friend organized an informal research group to study cancer and possibly help his wife. Retsky got more interested in cancer research than physics research and gradually made a career change over a period of 5 years. HP did not object as long as Retsky got his work done. He read every paper he could find at Penrose Cancer Hospital. His first publication in oncology (Speer et al Cancer Research 1984) predicted that breast cancer growth included occasional periods of dormancy. This paper studied clinical data using computer simulation. Retsky had developed skills in computer simulation at U of C and especially at H-P. He later became Prof of Biology at University of Colorado, Visiting Prof at University of Texas (in Wm. McGuire's laboratory) and on Judah Folkman's staff at Harvard Medical School. He is now Honorary Associate Professor at University College London.

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