The Effects of Nonsteroidal Anti-Inflammatory Agents on Cancer Cells

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Breast cancer continues to be a very common cancer diagnosed in U.S. females, with potentially devastating consequences as a result. This is due to the lack of ideal treatments for a significant portion of these patients. One problem with current treatments, such as chemotherapy and radiation, is that they effectively kill cancer cells, but also eradicate noncancerous cells. Thus, a new treatment that selectively kills only breast cancer cells could greatly increase the survival of breast cancer patients in the future. Nonsteroidal anti-inflammatory drugs (NSAIDs), which are agents currently used to treat pain and arthritis, are potentially an ideal treatment for these patients. Recent studies have hinted at their effectiveness in cancer treatment and prevention, but these studies have not been extensively pursued in breast cancer. In this study, the hypothesis is that NSAIDs can effectively kill metastatic breast cancer cells. The justification for this research is that NSAIDs could be utilized as a novel anti-cancer treatment or they can be used to prevent cancer in the future. In the studies, diclofenac sodium, a widely utilized NSAID for arthritis and pain, was evaluated on its ability to kill metastatic breast cancer cells. It was discovered that diclofenac, as well as several structurally similar compounds, caused a dose-dependent increase in the killing of breast cancer cells. Thus it is concluded that the results supported the hypothesis, and that this study represents an initial step toward the discovery of new and improved treatments for breast cancer patients.

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