

Ivermectin Could Be a 'Powerful Drug' for Fighting Cancer—Here's Why

Different from many conventional cancer therapies, ivermectin kills cancer cells by enhancing immune response.

By Marina Zhang

Apr 10, 2024 09:05 PM · 8 min. read ·
[View original](#)

Rick Alderson was a retired sawmill worker who was diagnosed with terminal colon cancer in November 2020.

He experienced excruciating pain in his bowels for months; then, a gastroenterologist found a large tumor in his rectum and told him and his wife that he only had six months to live.

Rick Alderson and his wife, Eve Alderson, after Mr. Alderson developed colon cancer. (Courtesy of Joshua Treadway)

To the oncologist, Mr. Alderson “was a dead man walking,” Mr. Alderson’s wife, Eve Alderson, told The Epoch Times.

Doctors were against starting him on treatment because of Mr. Alderson's age and the severity of his cancer, but Mr. and Mrs. Alderson determined that their fate was in God's hands and decided to do whatever they could.

Mr. Alderson got started with 10 rounds of radiation therapy. Initially, his carcinoembryonic antigen (CEA), a marker for tumor activity, was significantly elevated at 480 nanograms per milliliter (ng/mL). A month later, he started chemotherapy. By then, his CEA levels had risen to 1,498 ng/mL.

By the time he started treatment, his colon cancer had metastasized and spread to his liver, where he had 25 tumors.

"I was off their charts," Mr. Alderson said in an interview with The Cancer Box, a cancer diagnosis blog.

Due to concerns about COVID-19 and the ongoing pandemic, he started looking into preventive medication and found ivermectin.

Further research showed that the drug could likely enhance the effectiveness of his chemotherapy and radiation therapy and was relatively safe. In February 2021, he began taking ivermectin.

Ten days later, his CEA levels had dropped to 184 ng/mL.

Come March, the number was 47.9 ng/mL. By April 7, it was 20.7; by April 21, it had dropped to 13.9 ng/mL. By midsummer, it had fallen into the normal range. Of the 25 tumors in his liver, only three remained.

Mr. Alderson went on to live another two years before succumbing to liver failure because of the progression of his three remaining liver tumors.

“His life was definitely extended,” Mrs. Alderson said, reflecting on Mr. Alderson’s cancer journey.

She attributes Mr. Alderson’s survival beyond his prognosis to his success with ivermectin and the chemotherapy drug fluorouracil. “Ivermectin was instrumental,” she said.

Multiple Anti-Cancer Effects

“There are at least nine perfectly defined cancer targets affected by ivermectin,” Dr. Alfonso Dueñas-González, an oncologist and senior researcher at the National Autonomous University of Mexico, told The Epoch Times.

The first reports of ivermectin’s anti-cancer properties [came in 1995](#). Two French researchers found that ivermectin—a Nobel Prize-winning anti-parasite drug—could reverse multidrug resistance in tumors. The drug targets tumor stem cells—a driver of cancer

tumors and relapses—and promotes cancer death.

Ivermectin also enhances the effects of chemo and radiation therapy. It has a broad impact on the immune system, increasing immune offense against cancers.

It also inhibits cancer cell cycles, helping prevent the formation of new cancer cells. The drug promotes the killing of cancer cells by inducing mitochondrial stress and prevents cancer survival by preventing new blood vessels, which transport energy and fuel to cancers, from forming near cancer cells.

Ivermectin won the 2015 Nobel Prize for its anti-parasitic benefits. (HJBC, Jarun Ontakrai/Shutterstock)

While many studies have found that ivermectin has impressive potential as an anti-cancer drug, there are few clinical studies of ivermectin use for cancer. [One study](#) followed three children with acute myeloid leukemia, an aggressive cancer that progresses quickly if not treated. After conventional chemo failed, all three children were put on a combination therapy with ivermectin. While all patients eventually succumbed to the disease, two children saw temporary improvement in their symptoms, which was noteworthy given the cancer's rapid progression. The third patient had no response to ivermectin.

Another [Japanese study](#) followed three patients with different cancers—breast, bone, and lung—who were on a combination of ivermectin and other drugs, including an anti-cancer hormonal therapy.

For two patients, ivermectin was added last in the therapeutic combination, with doctors observing significant improvements in symptoms. Soon after ivermectin was added, “all the symptoms were relieved,” the authors noted about one patient.

The other patient was prescribed ivermectin alongside other drugs. After one treatment cycle, he could come to the clinic “on foot by himself.”

An Immune Booster

Dr. Peter P. Lee, chair of immuno-oncology at the City of Hope, is a leading researcher in the United States on ivermectin as an immunotherapeutic drug for cancer.

Conventional anti-cancer therapeutics, such as chemotherapy and radiation therapy, focus on damaging the DNA of cancer cells and killing them. At the same time, the treatments also kill immune cells and suppress the immune system.

“Ivermectin can kill cancer cells in a way that drives the host immune response—what we call immunogenic cell death (ICD),” Dr. Lee said.

His [research found](#) that when mice with breast cancer received ivermectin, immune cells would begin to appear in tumors that previously had none. This process is known as turning “cold” tumors “hot.”

“Genuinely speaking, patients with hot tumors have better clinical outcomes with a lower risk for recurrence and live longer, so there’s a lot of interest in what regulates whether tumors are hot or cold,” Dr. Lee said.

However, tumors continued to grow in mice given ivermectin alone, meaning that the drug is not enough by itself. Dr. Lee reasoned that ivermectin could synergize with immune checkpoint inhibitor anti-PD1, an immunotherapy drug. Immunotherapy is a relatively new form of anti-cancer therapy that strengthens the body’s immune system to fight cancer. While some immunotherapies have broad immune-strengthening effects, the most commonly used ones target only a specific subset of the immune system.

After they were once again injected with cancer cells, the mice whose tumors were cleared after this combination therapy no longer formed new tumors.

Immune cells CD4+ (green), CD8+ T-cells (yellow), and cancer cells (red) shown via staining. (Courtesy of NPJ Breast Cancer)

However, only ivermectin and pembrolizumab together could completely clear out metastasis.

“Ivermectin has a lot of promise for cancer but probably not as a stand-alone treatment,” Dr. Lee said.

Professor of urologic sciences at the University of British Columbia Dr. Martin Gleave [previously tested](#) ivermectin for its ability to inhibit HSP27, a “stress” protein that gets released after chemotherapy and radiation therapy. High levels of this protein prevent the body from responding to and recovering from cancer treatments. Ivermectin successfully reduced their activities in an animal model.

However, the researchers ultimately decided against pursuing clinical trials, as there were concerns of potential neurotoxicity since mice were given a dose of 10 milligrams per kilogram, which was much higher than the dose prescribed for parasitic diseases.

New Therapeutic Reality?

Dr. Lee's team has [begun a clinical trial](#) of ivermectin combined with immunotherapy for women with metastatic breast cancer. They have also found ivermectin to be effective against other types of cancer cells. Therefore, additional patients may be included in future trials.

The interaction of the two therapies is a highly complex process dependent on timing, dosage, and drug combinations.

Dr. Lee likened the process of using multiple drugs to boost immunity to coaching a football team.

“You don’t just throw all the players together and say, ‘Just run.’ You have different people doing different things. You have different sequences to try to score,” he said.

“What we’re learning is that ivermectin is going to be a very powerful drug in the context of really carefully developed immunotherapy combinations.”

Dr. Kathleen Ruddy, a Memorial Sloan-Kettering Cancer Center-trained breast cancer surgeon, also became interested in ivermectin after three patients she consulted with experienced a dramatic improvement in their condition after taking it with other adjunctive therapeutics.

The first of the three patients had stage 4 prostate cancer. It came on abruptly, and after exhausting all possible treatments within nine months, his doctors announced that he had three weeks left to live. The patient started taking ivermectin along with other nutraceuticals, and within two months, his prostate-specific antigen (PSA), a potential marker for prostate tumor, became negligible.

Within six months, the metastatic lesions had begun to disappear, and in less than a year, “he was out dancing for four hours” three nights per week, according to Dr. Ruddy.

The same scenario unfolded for two subsequent patients.

“I’ve been a cancer surgeon for over 30 years. I’ve never seen anything like this in one patient—let alone three in a row,” she said.

Dr. Ruddy is currently recruiting for an observational study on the effects of alternative cancer treatments. As it is an observational study, patients have complete control over the therapeutics they want to be on, and researchers will only follow them for the duration of their prognosis.

Some doctors have already been treating cancer using ivermectin—with some success.

Dr. Dueñas-González has prescribed ivermectin at his private clinic. Most of his patients also received chemotherapy treatments, and some saw reductions in their tumor marks after going on ivermectin.

Dr. Scott Rollins from the Integrative Medicine Center of Western Colorado has been treating cancer patients with alternative treatment protocols for decades. Since the COVID-19 pandemic, he has added ivermectin to this protocol after learning about its anti-cancer

effects. However, since patients are given a combination of drugs, he is uncertain if patients' improvements are due to ivermectin, the overall drug combination, or the other drugs in the protocol.

Responsive Cancer Types

Ivermectin has shown some degree of anti-cancer effect in every cancer type it has been tested on, Dr. Ruddy said.

[Dr. Dueñas-González's research](#) has shown that at least 26 different cancer cell lines, including prostate, kidney, esophageal, breast, ovarian, lungs, glioblastoma, stomach, colon, liver, lymphoma, uterus, pancreas, and bladder, respond to ivermectin in laboratory studies.

Its use in some cancer types is more well-researched than others, although most of the research has not been conducted in humans but in human cell lines or animals.

Ivermectin's use in some cancer types, including leukemia and breast, ovarian, and colorectal. (Natasha Holt/The Epoch Times)

Breast Cancer

Laboratory studies on breast cancer tissue have found ivermectin to be effective against all types of human breast cancer tissues, including triple-negative, the most resistant to treatment.

Animal and laboratory [studies show](#) that ivermectin induces autophagy in breast cancer cells. Autophagy is an anti-cancer process that starves and degrades useless cells while blocking cancer cell growth. Ivermectin also enhances chemotherapy effects in breast cancer treatment.

Leukemia

Studies of various chronic myeloid leukemia cell lines show that ivermectin [kills these lines](#) by inducing mitochondrial dysfunction and the production of free radicals.

When ivermectin is combined with two chemotherapy drugs, free radical production is further increased. Ivermectin also reverses drug resistance in chemotherapy-resistant leukemia cells.

Ovarian Cancer

[Laboratory studies](#) of three different ovarian cancer cell lines showed that when only ivermectin was used, the drug modestly inhibited the growth of cancer cells. However, when it was combined with pitavastatin, a type of statin, the synergistic drug combination increased both drugs' effects.

Ivermectin preferentially targets ovarian cancer stem cells, promoting their death by encouraging the formation of free radicals. Another study involving both a cell line and animal model that combined ivermectin with

cisplatin, a type of chemotherapy drug, shows that ivermectin by itself stopped ovarian cell growth. However, when combined with cisplatin, it completely reversed cancer cell growth.

Colorectal Cancer

Laboratory research on colorectal cancer cell lines has shown that ivermectin inhibits cell growth. The drug also encourages the formation of free radicals, which can attack these cancer cells' DNA and cellular components. With increasing doses of ivermectin, more free radicals were produced. Ivermectin also reverses chemotherapy resistance in colorectal cancer cells.