

Bone Cancer responds to Micronutrient Synergy

Osteosarcoma is the most common type of bone cancer, frequently occurring in children and young adults between the ages of 10 and 30. People over 60 are also at an increased risk. Almost 800 new cases of osteosarcoma are diagnosed every year in the US, of which more than 400 are in children and teens younger than 20. The initial symptoms of osteosarcoma – such as pain, bone or joint swelling and decreased joint motion – can be misleading and often occur in children due to sports or other injuries. In older adults, the symptoms can be misdiagnosed as arthritis.



The most common location of osteosarcoma is in the long bones of the legs or arms. These bones undergo phases of increased metabolic activity, such as bone deposition in young children and bone dissolution in older adults. Both of these processes require increased secretion of collagen digesting enzymes (matrix metalloproteinases, MMP), therefore increasing the risk of cancer development in these age groups. In addition, certain genetic mutations or prior radiation treatments also increase the risk of developing osteosarcoma.

All cancers spread by increasing the production of MMP enzymes, which destroy the surrounding connective tissue. Destruction of the connective tissue allows the cancer cells to move freely and spread. We studied the effects of collagen-supporting natural micronutrients, e.g., vitamin C, lysine, proline, green tea extract and others, on the cellular characteristics of osteosarcoma cells and induced tumors in mice¹. The results showed that the micronutrient-supplemented mice developed tumors 53% smaller than those in the control group of mice. Moreover, the micronutrients also suppressed cancer cell

growth, MMP secretion and specific blood vessel growth factors, thereby reducing blood supply to the tumors and their potential to spread.

The micronutrients vitamin C, lysine, proline and others are essential for the strong connective tissue meshwork that is required to limit the spread of cancer. Therefore, in another study, we also evaluated the effects of the micronutrient mixture for its connective tissue strengthening properties and ability to limit the invasion of osteosarcoma cells². Our results showed that the micronutrients not only inhibited the growth of osteosarcoma cells up to 70%, but also inhibited the invasive potential of these cells – thus limiting their spread. Additionally, the connective tissue matrix produced by the cells supplemented with the micronutrient mixture was much stronger and therefore able to resist the destruction by MMP. Osteosarcoma has a very high potential to spread and is difficult to treat once it has metastasized to other organs. Almost 20%-25% of cases are diagnosed when the cancer has already spread to the lungs and other bones. Despite aggressive treatments such as amputation, high dose chemotherapy and post-operative radiotherapy, once it metastasizes the expected 5-year survival of osteosarcoma patients is only 15%-30%. On this background, our research results could help in reducing the spread of osteosarcoma and save more lives.

Ref:

1. MW Roomi, et al, *Medical Oncology* 2006, 23(3): 411-417
2. V. Ivanov, et al., *Medical Oncology* 2007, 24(2): 209-217

Health Science News Page



This information is provided to you courtesy of the Dr. Rath Research Institute. Led by two former colleagues of two-time Nobel Laureate Linus Pauling († 1994) this Institute has become a leader in the breakthrough of natural health research in the field of cancer, cardiovascular disease and other common diseases. The Institute is a 100% subsidiary of the non-profit Dr. Rath Foundation.

The groundbreaking nature of this research poses a threat to the multi-billion dollar pharmaceutical “business with disease.” It is no surprise that over the years the drug lobby has attacked Dr. Rath and his research team in an attempt to silence this message. To no avail. During this battle, Dr. Rath has become an internationally renowned advocate for natural health saying, “Never in the history of medicine have researchers been so ferociously attacked for their discoveries. It reminds us that health is not given to us voluntarily, but we need to fight for it.”

You can print out copies of this News Page at: www4.dr-rath-foundation.org/research_news/index.html, and share it with your friends and colleagues.

A free copy the full text of the study described here is available at: www.drathresearch.org/pub/pdf/hsns1440.pdf which you can also share with your doctor.

www.DrRathResearch.org

Issue: 27_091014