Magnesium Deficiency as a Cause and Essential Treatment for Cancer

In this chapter we are going to part the red sea of cancer with magnesium. A complex relationship links magnesium and cancer. Magnesium is a serious cancer medicine because it stabilizces ATP[1] and allows for DNA and RNA transcriptions and repairs.[2] Magnesium deficiency has been shown to be carcinogenic, and in the case of solid tumors, a high level of supplemented magnesium inhibits carcinogenesis.[3] Magnesium repletion has been shown to produce rapid disappearances of the periosteal tumors.[4]

It is intriguing that both carcinogenesis and magnesium deficiency increase the plasma membrane permeability and fluidity.[5] Thus it has been suggested that magnesium deficiency may trigger carcinogenesis by increasing membrane permeability.[6] The membranes of magnesium-deficient cells seem to have a smoother surface than normal and decreased membrane viscosity, analogous to changes in human leukemia cells.[7],[8] There is drastic change in ionic flux from the outer and inner cell membranes (higher Ca and Na, lower Mg and K levels) both in the impaired membranes of cancer and of magnesium deficiency. In addition, we find that lead (Pb) salts are more leukemogenic when given to magnesium-deficient rats than when they are given to magnesium-adequate rats, suggesting that magnesium is protective.[9]

The use of magnesium in the treatment of cancer has a long history (90 years) but oncologists have short memories. Below is a report from Dr. Robert H. Craig from circa 1930 published ‘The Value of Magnesium Chloride as an Aid in the Treatment of Cancer.’ The importance of the bio-chemical approach to the treatment of cancer with magnesium was also stressed by Prof. Pierre Delbet, Superintendent of the Cancer Institute, Paris. The Stockholm Weekly JournZ, back in June 1931, published a most enlightening article ‘Take Magnesium and Escape Cancer.’

Prof. Delbet advocated as a prophylactic measure the administration of magnesium chloride to all persons in and past middle life. His experimental work he showed that soil, water and foodstuffs deficient in magnesium salts predisposed to cancer. In order to check up his gross findings he inoculated a series of rabbits with cancer virus. *Fifty percent of these he treated with magnesium chloride, all of which recovered*, while the majority of the untreated rabbits died.

In other old research read, “Magnesium acts as a “brake for cancer” (Delbet). “The predisposition to cancer accompanies the deficit of magnesium reserves” (Dubar and Voisenet). The loss in magnesium decreases vitality, resistance, the power of regeneration of cells (Delbet), “provoking a sort of cellular anarchy which favors the evolution of cancerous processes” (L. Randoin).”[10]

Japan’s National Cancer Center in Tokyo have found that an increased intake of magnesium reduces a man’s risk of colon cancer by over 50 percent. Men with the highest average intakes of magnesium (at least 327 mg/d) were associated with a 52 percent lower risk of colon cancer, compared to men who

consumed the lowest average intakes. Published in the Journal of Nutrition, the research studied 87,117 people with an average age of 57 and followed them for about eight years. Dietary intakes were assessed using a food frequency questionnaire. Average intakes of magnesium for men and women were 284 and 279 milligrams per day.[11]

The School of Public Health at the Kaohsiung Medical College in Taiwan found that magnesium also exerts a protective effect against gastric cancer, but only for the group with the highest levels.[12]

Several studies have shown an increased cancer rate in regions with low magnesium levels in soil and drinking water. **In Egypt, the cancer rate was only about 10% of that in Europe and America.** In the rural fellah, it was practically nonexistent. The main difference was an extremely high magnesium intake of 2.5-3 g in these cancer-free populations, ten times more than in most western countries.[13]

An inverse relationship between cancer prevalence and the magnesium content of water and of soil is reported in studies, starting more than 50 years ago. A Russian report showed that stomach cancer is four times more common in the Ukraine where the magnesium content of soil and drinking water is low, than it is in Armenia where the magnesium content is more than twice as high. A more recent morphologic and statistical analysis of neoplastic deaths in two Polish communities disclosed a nearly three-fold higher death rate in the community with Mg-poor soil than in the one with Mg-rich soil (10%).

Magnesium and Pancreatic Cancer

Taking magnesium may reduce the risk of pancreatic cancer, one of the most deadly cancers, according to a study in 2015. Magnesium is known to reduce the risk of insulin resistance and type 2 diabetes (T2D), which are risk factors for pancreatic cancer. In fact, between 65 to 80 percent of pancreatic cancer patients have some form of glucose intolerance, including prediabetes or T2D.

Until now, it was not known whether magnesium indirectly reduced the risk of pancreatic cancer (by reducing the risk of diabetes) or whether it had a direct impact on cancer formation. Findings of the VITamins and Lifestyle study published in the *British Journal of Cancer*, looked at more than 66,000 patients in a health database from Washington State. Of those studied, 151 people developed pancreatic cancer.

Researchers found that those who met the recommended dietary allowance (RDA) for magnesium had a lower risk of pancreatic cancer compared to those who did not meet the RDA for this mineral. More specifically, **there was a 76 percent increase in the incidence of pancreatic cancer in those who took in less than the RDA for magnesium**compared to those who met or exceeded the base level recommended.

For every 100 mg a day decrease in magnesium intake, it resulted in 24 percent increase in the incidence of pancreatic cancer. However, when the researchers compared those who took a magnesium supplement with those who didn't, the benefits disappeared in non-supplement takers.

"The strong effect was only observed in those taking both dietary and supplemental magnesium indicating supplementation was beneficial," says the study author Daniel Dibaba, a PhD candidate, in the School of Public Health at Indiana University in Bloomington. This suggests that supplementation may be advised for individuals at risk to boost their magnesium levels to at least meet the RDA recommendations for this mineral.

Pancreatic cancer is the fourth most deadly cancer in the U.S. for both men and women. "For those at a higher risk of pancreatic cancer, adding a magnesium supplement to their diet may prove beneficial in preventing this disease," Dibaba said.

The Science of Magnesium

Magnesium (Mg^{2+}) is critical for all of the energetics of the cells because it is absolutely required that Mg^{2+} be bound (chelated) by ATP (adenosine triphosphate), the central high-energy compound of the body. ATP without Mg^{2+} bound cannot create the energy normally used by specific enzymes of the body to make protein, DNA, RNA, transport sodium or potassium or calcium in and out of cells, nor to phosphorylate proteins in response to hormone signals, etc.

ATP without enough Mg^{2+} is non-functional and leads to cell death or cancer. Cells become cancerous exactly when the oxidative process in the mitochondria falter forcing then for survival sake to turn to fermentation. "Bound Mg^{2+} holds the triphosphate in the correct stereo-chemical position so that it can interact with ATP using enzymes and the Mg^{2+} also polarizes the phosphate backbone so that the 'backside of the phosphorous' is more positive and susceptible to attack by nucleophilic agents such as hydroxide ion or other negatively charged compounds. Bottom line, Mg^{2+} at critical concentrations is essential to life," says Dr. Boyd Haley.

Haley asserts quite strongly that, "All detoxification mechanisms have as the bases of the energy required to remove a toxicant the need for Mg-ATP to drive the process. There is nothing done in the body that does not use energy and **without Mg^{2+} this energy can neither be made nor used**." Detoxification of carcinogenic chemical poisons is essential for people want to avoid the ravages of cancer. The importance of magnesium in cancer prevention and treatment should not be underestimated.

Dr. Seeger and Dr. Johanna Budwig in Germany have shown that cancer is mainly the result of a faulty energy metabolism in the powerhouses of the cells, the mitochondria. ATP and most of the enzymes involved in the production of energy require magnesium. A healthy cell has high magnesium and low calcium levels. The problem that comes with low magnesium (Mg) levels is the calcium builds up inside the cells while energy production decreases as the mitochondria gradually calcify.

Aleksandrowicz et al. in Poland concluded that inadequacy of magnesium and antioxidants is an important risk factors in predisposing to leukemias.[14] Other researchers found that 46 percent of the patients admitted to an ICU in a tertiary cancer center presented hypomagnesemia. They concluded that the incidence of hypomagnesemia in critically ill cancer patients is high.[15]

Scientists have also found out that lead (Pb) salts are more leukemogenic when given to magnesium-deficient rats than when they are given to magnesium-adequate rats, suggesting that magnesium is protective.[16]

Conclusion

Flooding the body with magnesium increases a person's chance of surviving cancer and living a longer pain free life. When I say flood it behooves a cancer patient to simultaneously use different forms of magnesium and different forms of administration and even to take intense magnesium baths and get daily magnesium massages.

However, there are fundamental biological reasons why magnesium chloride was chosen by early researchers into its use as a cancer treatment. Magnesium exhibits its maximum valence in combination with chloride. Magnesium chloride is the ideal oxidizing and reducing agent in the tissues. This combination has apparently been selected by nature to stimulate to the maximum inter and intracellular change. The great versatility of this combination to reduce and oxidize brings about a complete ionization, and therefore a normal functioning of the cells.

Thus, though I do recommend different types of magnesium the backbone of magnesium medical treatments is a pure form of magnesium chloride, which can be administered intravenously, orally, Nebulized, transdermally in baths and used directly on the skin. Industrial made magnesium chloride does not even come close in terms of purity of heavy metals.