Cancer

Its Nature
And
A Proposed Treatment

The Story of
Dr. A. Keith Brewer's
High pH CancerTherapy with Cesium

Published by A. Keith Brewer Brewer International Science Library

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In 1974 Dr. A. Keith Brewer (1893 - 1986) established this unique library to provide resources and information on topics that were of personal interest to him, as well as being information that is often not readily available. The walk in library closed in 2019 and continues as an online library.

DR. A. KEITH BREWER:

Aubrey Keith Brewer, Ph.D., the founder of the Brewer International Science Library, had a life-long desire to understand the processes going on in the living cell. He was convinced that the tools and methods he used in the laboratory as a physicist could be applied to such phenomena as cancer, the aging process, and mutations. The development of his theory of the High pH Cancer Therapy with Cesium grew out of his understanding of the physics of the cell membrane. The articles contained in this packet are representative of the many articles he has written about the development and utilization of this theory. Dr. Brewer funded some animal research studies undertaken by Dr. Marilyn Tufte of the Department of Biology at the University of Wisconsin at Platteville, which demonstrated confirmation of his theory on the uptake of cesium by cancer cells.

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INFORMATION DISCLAIMER

The articles in this booklet contain information on some innovative and promising research results obtained from animal studies with cesium chloride. Although this may be considered as compelling evidence to some individuals, it is premature to judge the data and findings as conclusive. These early research results provide the rationale for future basic research and clinical trials. The results obtained by a small study of 50 individuals in the 1980's should be considered as preliminary and need to be verified and confirmed before any claims about the efficacy of cesium chloride usage can be made.

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The publisher of these articles does not advocate or promote the use of this information except for informational and educational purposes, and makes them available to the public for this purpose. The information in this booklet is not intended to replace the advice and treatment of a qualified physician or health professional. Cancer is a life threatening disease and all matters regarding its treatment require qualified medical supervision. Physicians in the field of cancer treatment hold widely varying views. The intent is to offer information to help the reader understand the treatments described herein. The A. Keith Brewer International Science Library, the A. Keith Brewer Foundation, or any employee or agent thereof, assume no responsibility or liability for the use of any of the information and procedures described in this booklet.

Introduction to Dr. A. Keith Brewer's High pH Cancer Therapy With Cesium

by

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The traditional modalities for treatment of cancer with surgery, radiation and chemotherapy as the only worthwhile treatments have lost much favor in the eyes of thousands of people stricken with various forms of cancer.

The first diagnosis of cancer often throws people into an emotional roller coaster of hope and fear that is not always quelled by the survival statistics they are given. At some point in their personal cancer journey they may become disenchanted with the traditional approach they have been following and begin a flurry of personal research into optional approaches. Sometimes this search is entered into because of the insistence of a family member or friend who has lost faith in the effectiveness of traditional approaches. Sometimes it is the pronouncement of failure by the physician in charge that is the catalyst for the search.

Ten years ago there was a scarcity of information available to the searching soul looking for a resolution to their health crisis. In the late '90's the situation is very different. Published information about alternative and complimentary cancer therapies is readily available in books, magazines, journals and the Internet. Reports from researchers all over the world indicate that there are many nutritional and botanical substances that have demonstrated anti-cancer effects in the test tube, in animal experiments and even in human clinical studies.

Although patient emphasis is usually focused on the reduction of tumor size, which is also the criterion used to evaluate new chemotherapy drugs, there is beginning to be increased understanding among patients that this reduction in tumor size does not necessarily correlate with longer life or mortality. Improved quality of life, reduction of pain and long-term remission are attainable goals for many individuals, although everyone hopes for a complete cure.

Scientific understanding of the unique features of the metabolism of cancer cells and how it differs from the metabolic processes of normal cells has made significant strides in recent years. This has led to an increased understanding of the processes the body naturally uses to defend itself against carcinogenic agents, repair the damage caused by them, and to intercept the initiation of the cancer process itself. There is greater appreciation for the millions of times that the immune system, gene repair mechanism or other inherent body process prevents cancer from starting, advancing or metastasizing.

The practice of aggressively killing cancer cells with chemotherapy without regard to its effect on healthy normal cells is unacceptable to many individuals who are unwilling to engage in such harsh treatment. They are looking for protocols that work with the natural cellular processes and accentuate them to the point that they become a useful agent in obtaining the goal of cancer cell death.

The unique role of the immune system in the suppression of cancer has been given increased importance by both traditional and alternative cancer therapists in recent years. This has led to increased application from both camps of protocols that maximize the defensive and aggressive actions of the immune system. In alternative therapy protocols this has led to various nutritional programs that include herbs and plant concentrates such as aloe vera, vitamins, food extracts and imagery training that is aimed at stimulating the immune system to engage its specialized cells in "seek and destroy" missions against tumor cells. When activated, these specialized immune cells release tumor necrosis factor, interferon and interleukin-1, which are all valuable agents in the body's own action against cancer cells to cause tumor shrinkage or destruction.

Dr. A. Keith Brewer had an intense interest in the cellular processes that precipitated and maintained the cancerous process. He believed that his understanding of the physics of the cell membrane could play a part in understanding one way to shut down the metabolic processes in the cancer cell.

His theory of the High pH Cancer Therapy with the trace mineral cesium (not the radioactive isotope of cesium) was arrived at from a series of tests he conducted on the membranes of plants, animals and a variety of cancer membranes. The results of these tests indicated that solid tumor cancer cells manifest a preferential uptake for the trace mineral cesium and transport it into the cell while at the same time excluding oxygen-carrying minerals such as calcium and magnesium.

He postulated that this selective transport process could be accentuated through the supplemental daily intake of cesium in dosages of 3 to 7 grams (human dosage) and that the result would be an increase in the alkalinity of the interior of the cancer cell to such an extent that sensitive cellular functions would shut down, thereby disrupting the dividing and multiplying process going on. He theorized that these effects would only occur in the cancer cells since healthy cells would continue to transport the oxygen-carrying minerals such as calcium and magnesium and normal metabolism would be the result in them.

In order to test his theory, in 1984 Dr. Brewer funded animal research at two universities. The results, as well as those from other researchers, obtained with cesium salts showed significant tumor repression and decreased mortality in injected sarcoma-bearing mice, colon-cancer bearing mice, mammary adenocarcinoma-bearing mice, and in mice with chemically induced epithelial cancer.

These early animal experiments were followed in 1984 with cesium salts being utilized as part of a biological therapy with 50 terminal cancer patients, most of whom had metastatic

cancer that had been unsuccessfully treated with surgery, radiation and chemotherapy. Up to 50% of the patients survived the length of the one year study. These were patients with cancers of the colon, breast, lung, prostate and pancreas. Half of the patients that died during the study did so during the first 14 days of the study, perhaps indicating that the protocol did not have enough time to take effect. These results seemed to confirm the usefulness of cesium as part of a treatment for cancer patients, since several of the patients experienced significant tumor reduction, destruction and prolonged survival beyond their initial projections. A very welcome result of the cesium therapy experienced by most of the cancer patients was a significant reduction in pain after a few days of cesium usage. This pain reduction may be the result of the neutralization of the acid environment that builds up around cancer cells.

The most recent animal research undertaken in the early '90's confirmed the results of earlier studies. A friendly and casual recent interview with Mark Bader, M. S., one of the researchers engaged in this latest work, substantiated the impact that cesium can have in repressing cancer growth in cancer-implanted mice as well as causing regression of well-developed tumors. His recounting of anecdotal stories of cesium's effectiveness in relieving a case of terminal metastatic prostate cancer and dissolving a basketball-size cancerous tumor in a cow provide a welcome diversion from the dry statistics of the animal studies he undertook along with Dr. Marilyn Tufte, Ph.D., of the Department of Biology at the University of Wisconsin at Platteville.

This booklet includes an easily understood explanation of the basis of the high pH cancer therapy as developed by Dr. Brewer followed by a very brief summary on the basics of the cesium protocol. A much more in-depth and detailed explanation of the science behind this therapy is available in a 40 page booklet from the Brewer Science Library as well as from other organizations and physicians.

IMPORTANT NOTE: Dr. Brewer's work was with the trace mineral cesium; his work should not be confused with the research on the radioactive isotopes of cesium.

CANCER
ITS NATURE AND
A PROPOSED TREATMENT

A. Keith Brewer, Ph.D.

There are certain fundamental properties of malignant cells. Any theory on the mechanism of malignant tumors must be compatible with (and hopefully explain) these properties. The most fundamental of these is that the basic metabolic process is glucose fermentation to lactic acid which can be induced by depriving the cell oxygen. Dr. Otto Warburg, who was awarded the Nobel Prize in Medicine in the years 1931 and 1944, made several discoveries concerning the basic metabolic process of the cancer cell. There are other changes in a cell as it becomes malignant. These include a drop in pH (the cell becomes acidic) genetic abnormalities, and a toxification.

Many cancer researchers have attempted to increase the blood's supply of oxygen to prevent and cure malignancies. Some vitamins such as Vitamin E, and minerals such as selenium are believed to prevent certain abnormal oxidation processes which consume some of the body's oxygen supply. Other substances, such as Vitamin B_{15} are believed to increase the supply of oxygen by other mechanisms. These have been used with some apparent modest success, but have unquestionably fallen short of being a universal cure or preventative.

Cellular deprivation of oxygen need not be caused by an oxygen deficiency in the blood supply. A non-laboratory malignancy arising from such a cause would be rare indeed if any have ever occurred. The oxygen deficiency in the cell is the result of an abnormality at the cell membrane which effectively prevents the transport of oxygen into the cell. Cells are naturally equipped to function for short periods in a condition of oxygen shortage. During sprinting, athletes rapidly deplete the body's oxygen reserves. Consequently, the cells derive energy in an anaerobic environment. The first stage of glucose metabolism is identical for aerobic and anaerobic environment. The first stage is the conversion of glucose to pyruvic acid which is accompanied by the rapid release of a small amount of energy. When oxygen is present, a lengthy process (involving the Krebs Cycle and the respiratory chain) occurs which releases large amounts of energy, carbon dioxide and water.

In the absence of oxygen, the pyruvic acid undergoes a fermentation process which results in the formation of lactic acid. At least initially, the lactic acid causes the drop in the pH (making it more acidic) of the cancer cells. The cancer cell maintains its supply of glucose but is deprived of oxygen. Therefore, any mechanism for cellular transport must explain this phenomenon. Most current models for transporting substances into and out of cells across the cell membrane are incomplete and totally unable to explain the observations regarding malignant cells.

Dr. A. Keith Brewer has developed a model of cellular transport that not only explains the glucose-oxygen phenomenon but also nerve action, isotope concentrations and many other observed processes. Dr Brewer's model is based on (1) the attraction between a certain class of cations and molecules with special electrical properties (such as peroxides, water, glucose, amino acids, and energy molecules) and (2) the nature of the double bond in organic compounds.

ASSOCIATION BETWEEN CATIONS AND MOLECULES

Alkaline substances are of interest in attracting certain molecules.

See Table 1 at end of article

These atoms are alkaline substances which lose one or two electrons in water becoming positively charged ions ($^{+}$ or $^{++}$), respectively. These positively charged ions are called cations. Opposites attract. Therefore, these ions can attract negative charges. Peroxides, water, glucose, amino acids and energy molecules are electrically neutral overall but possess negatively (-) and positively ($^{+}$) charged regions. Depending upon the strength of the attraction, these molecules can associate with cations of the above listed elements. In the aforementioned list of elements the topmost substance (cesium) as the cation Cs^{+} can generate only the weakest attraction for negative charges. Hence it cannot associate with many substances. Its association seems to be limited to three water molecules.

$$Cs{\cdot}3H_2O$$

Rubidium is the second weakest and its association is limited to five water molecules.

$$Rb{\cdot}5H_2O$$

Potassium is able to associate with seven water molecules or glucose.

$$K{\cdot}7H_2O$$

K·glucose

As one continues to move down the list of alkaline elements, the attractions become stronger and the ions are able to associate with more and an even wider variety of molecules. The calcium ion is able to associate with peroxides which supply oxygen to the cell.

THE CELL MEMBRANE
THE DOUBLE BOND

The most important structure in the cell membrane is the double bond. Several double bonds exist in human tissue. The primary double bond in membrane structure is between phosphorous and oxygen atoms (P=O). Theoretical studies based on electron attraction indicate that this combination is the most potent double bond common to tissues. The important characteristic of the double bond is that four electrons reside closer to one atom, the oxygen atom in this case, than to the other atom, the phosphorous atom in this case. This uneven distribution of electrons, upon proper orientation, creates an electric potential difference across the membrane.

This potential difference can attract cations causing them to either enter or leave cells. In the actual cell there is a double layer of these bonds which create a complex pumping action. This process transports cations and their associated molecules (such as K-glucose) into and out of cells. The strength of this attraction is dependent upon the state of the double bond in the cell membrane. The ground state (lowest energy level) of the double bond provides the smallest potential difference across the cell membranes. When the P=O bond in the cell membrane is in the ground state, only Cs^+, Rb^+ and K^+ ions can enter a cell. As a result, the cell is able to receive water and glucose, but little else.

The metabolic mechanisms in the cells can provide the energy necessary to excite the bond to a higher energy level. In these higher energy states, the four electrons of the double bond are pulled even farther away from the phosphorous atom. The result is even a larger potential difference across the cell membrane. As this potential difference increases, so does the attraction for cations inside or outside of the cell. In an excited state, all of the cations listed above can enter the cell. Therefore, the cell is able to obtain not only glucose and water, but also oxygen and all other nutrients. The amount of time that the double bonds are in excited states depends upon the metabolic processes occurring within the cells. This provides a control mechanism. **See Table 2 at end of article.**

THE CANCER PROCESS

As has been previously stated, malignant cells are able to obtain glucose but not oxygen. This phenomenon occurs because either radiation damaged double bonds or chemicals with certain electrical properties coated the cell membrane. Such chemicals are called carcinogens and have many sources, including the cancer process itself. Radiation damage and carcinogens prevent excitation of these double bonds and therefore prevent most nutrients other than water and glucose from passing through the membrane into the cell. It is with this exclusion of oxygen at the cell membrane (and not the level of oxygen in the blood supply) that the cancer process begins. It generally progresses in the following manner:

A. At least thirty-five percent of the oxygen supply to the cell is lost.

B. Metabolism proceeds along the anaerobic pathway. Glucose is converted to lactic acid.

C. In this acidic environment, enzymes from the lysosomes within the cell are released and react with the acidic surroundings.

D. The resulting lysosomal substances which are acid appear to be carcinogenic, that is, they seem to prevent double bonds of affected cell membranes from becoming excited. The cancer process is now firmly established. The tumor can metastasize as the lysosomal products spread throughout the body.

E. This acidic environment destroys the normal RNA-DNA reactions within the cell. The usual genetic controls on the affected cells are lost. Cellular size and shape are no longer regulated.

F. These acids leak out from the tumor causing toxification, pain and eventual death of the host.

CELL LIFE AND pH

Dr. M. von Ardenne, of Dresden, East Germany, has shown that cells can divide or live only in a fairly narrow pH range. The normal pH range is about 7.3 to 7.4. Normal cells can maintain this pH range under a wide variety of conditions. Malignant cells with their restricted nutrient supply cannot fully adjust pH levels as the environment is altered. If the pH of the cell drops below a value of about 6.0 (acid) or rises above a value of about 8.0 (alkaline), the cell dies rapidly. This suggests two types of therapies which are based on the theory of cations, cell membranes, and pH control in normal and malignant cells. These therapies consider which cations can enter cells when the P=O is in the ground state (unexcited).

LOW pH THERAPY

The pH of malignant cells can be lowered by increasing glucose transport into the cell which results in lactic acid formation. Dr. von Ardenne has had good success by administering glucose supplemented by hyperthermia of tumors. The increased temperature results in further release of lysosomal enzymes which also contributes to a decreased pH. One possible danger from this therapy is increased, perhaps fatal, toxification of the patient from the leakage of lysosomal enzymes.

HIGH pH THERAPY

Dr. A. Keith Brewer has proposed treating cancer by elevating the pH. While all cations will raise the pH, cesium is the most active. Of the three cations which can enter malignant cells (Cs^+, Rb^+, K^+), only potassium (K^+) can cause a decrease in cellular pH due to its role in glucose transport. Potassium can carry glucose into the cell resulting in an increase in lactic acid formation. If sufficient quantities of cesium and/or rubidium ions and/or glucose-free potassium enter the cancer cell, then its pH can be raised enough to cause its rapid death. Such levels of cations are non-toxic to normal cells which have full access to the normal pH control mechanisms. The intake of large quantities of potassium can provide more potassium than is needed for glucose transport supplying some glucose-free potassium.

An advantage of high pH therapy is that the acidic lysosomal products are rapidly neutralized. The neutralization of these enzymes prevents most of the side effects from cancer, including the majority of the pain.

ANIMAL TESTS

Mice with induced abdominal tumors were force-fed rubidium carbonate at The American University in Washington, D. C. Rapid reduction in tumor size was observed after thirteen days of treatment. The tumors of the experimental mice weighed essentially one eleventh of those in the control group. Implanted colon carcinoma in mice was studied at the University of Wisconsin at Platteville by Dr. M. Tufte. Intraperitoneal injections of cesium carbonate were administered resulting in a ninety-seven percent repression in tumor growth. Dr. Messiha, et.al. of Texas Tech at Lubbock, Texas has administered cesium salts to mice with similar results.

HUMAN TESTS

Dr. H. Sartori, of the Life Science Universal, Inc., Aurora Medical Center located in Washington, D. C., has adopted the high pH therapy. Extensive tests were conducted on the first thirty patients starting in March 1981. Eight different types of tumors were represented. Dr. Sartori's treatment included 6 grams of oral cesium chloride per day. As best as can be interpreted by tests conducted, including autopsies on four patients who died by accident or infection, a 100% cure rate was obtained. Virtually all pain disappeared in 24 - 48 hours. The longer times were necessary in patients who had been administered large doses of morphine. The longer times were necessary for morphine withdrawal. Treatment was continued until all evidence of malignancy disappeared. This typically involved about thirty days, although wide variations in time can occur. The patient is then put on a low dose maintenance treatment. Dr. H. Nieper, of Hanover, West Germany, administers cesium chloride at a rate of fifty grams per week with spectacular results, including at least one case of massive primary liver cancer. Other doctors and even patients on their own have used cesium or rubidium salts with excellent results.

HISTORIC AND GEOGRAPHIC EVIDENCE

Many of the alternative treatments for cancer, including most laetrile therapies, emphasize a diet rich in potassium. Dr. M. Gerson administered massive doses of potassium both through vegetable juices and as potassium salts. Dr. Gerson claimed to obtain a cure in approximately fifty percent of his cancer patients of which a large portion were called "incurable".

Most people have an extremely small intake of cesium or rubidium. However, in some areas cesium and rubidium occur naturally in soil and water. This is especially true in regions with volcanic soil. When diets in these areas consist primarily of locally grown fruits and vegetables, extremely low cancer rates are observed. When diets are modified by the importation of processed foods which are not locally grown, cancer rates soar. The Hunzas, known for their excellent health, longevity and absence of cancer, live in an area with cesium-rich soil and water.

HIGH pH THERAPY AND ENHANCEMENTS

The goal of the high pH therapy is the transport of large quantities of Cs^+, Rb^+ and glucose-free K^+ across the membranes of cancer cells. The main ingredient in such a therapy is a cesium or rubidium salt. When cesium chloride is used, normal doses range from 3 to 7 grams per day. This dose should be divided and taken on a full stomach to minimize irritation to the stomach lining. A common practice is to divide the daily dose into three parts, dissolve the cesium or rubidium salt in at least eight ounces of liquid and take immediately after each meal. Dr. Nieper administers the cesium chloride in a sorbitol solution in order prevent such distress.

Various substances which attach to cell membranes increase the transport of Cs^+, Rb^+ and K^+ across cell membranes. Two classes of such substances are known to exist. One class consists of acid radicals which by their nature possess a negative (-) charge which helps attract cations. Included in this class are Vitamins A and C which have received considerable attention as cancer preventatives. These vitamins have also been used in cancer therapies. The second class consists of substances which form double or triple bonds on cell membranes. These bonds have a function similar to P=O in transporting cations into cells. They increase the number of sites available for this transport. Zinc and selenium form double bonds with oxygen and have been shown to enhance Cs^+, Rb^+ and K^+ transport across the cell membrane. The cyanide radical (CN^-), which is obtained from laetrile, contains a triple bond between the carbon and nitrogen (C≡N) atoms. Zinc, selenium and laetrile are also widely used in preventative and alternative therapies for cancer. It is believed that cyanide has no direct action against cancer cells, but does significantly enhance Cs^+, Rb^+, and K^+ transport when these ions are available in the body fluids.

Dr. H. Nieper has observed a loss of potassium during high pH therapy which should be replaced. Dr. R. Neulieb believes that there is also a loss of sodium, calcium and magnesium which should also be replaced.

One caution is that a small dose of cesium or rubidium might elevate the pH of cancer cells to a level where rapid cell division can occur, but cell death does not result. Doses of less than half a gram per day should be avoided by cancer patients. While the high pH therapy may seem suitable for home application, Dr.Neulieb does not encourage it due to imbalances that develop in the electrolytes. Physician monitoring is highly recommended.

CONCLUSIONS

High pH therapy appears to be extremely effective against malignant tumors. Large amounts of data from both human and animal experiments already exist. The value of the therapy is also supported by both theoretical evidence and geographic data. The high pH therapy should be thoroughly tested. If results to date are duplicated, the high pH therapy should quickly replace surgery, radiation and chemotherapy in the treatment of cancer. Diets rich in potassium and transport vitamins and minerals can be consumed to reduce the incidence of cancer. Many of the fruits and vegetables can be useful in such diets.

TABLE I

ALKALINE ELEMENTS

ELEMENT	SYMBOL	CATION	STRENGTH ALKALINE	ATTRACTION FOR (-)
Cesium	Cs	Cs^{+}	STRONGEST	WEAKEST
Rubidium	Rb	Rb^{+}	↓	↑
Potassium	K	K^{+}		
Barium	Ba	Ba^{++}		
Sodium	Na	Na^{+}		
Calcium	Ca	Ca^{++}		
Lithium	Li	Li^{+}		
Magnesium	Mg	Mg^{++}	WEAKEST	STRONGEST

TABLE 2

Transport of Cations

Cations In descending order of alkaline strength	Minimum potential gradient at membrane double bond site required for transport	Quantum state of membrane double bond for transport		
		Ground		Excited
Cs^{+}	Smaller	X	or	X
Rb^{+}	↑	X	or	X
K^{+}		X	or	X
Ba^{++}				X
Na^{+}				X
Ca^{++}				X
Li^{+}				X
Mg^{++}	Larger			X

SUGGESTED READINGS

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Summary Of The Cesium Protocol

Basics of the High pH Cancer Therapy

1. The pH control mechanism is lost in cancer cells.

2. Cell mitosis ceases at a pH below 6.5 and above 7.5.

3. The life of the cell is very short at a pH below 6 and above 8.

4. The salts of Cesium, Rubidium and Potassium are readily taken up by cancer cells.

5. The vitamins A, E and C, and the minerals zinc, selenium and potassium enhance the effectiveness of the cesium protocol.

6. Cesium Chloride is taken in dosages of 3 to 6 grams a day, with 1 to 2 grams being taken after each meal.

7. Small doses of cesium chloride, such as half a gram or one gram, should not be taken as it may speed up the rate of cancer growth. Sufficient cesium chloride, such as 3 to 6 grams a day, is required to raise the pH into the 7.5 range or above where cancer cells die.

8. Amygdalin may also be included in the protocol as it increases the uptake of cesium ions on the membranes of cancer cells.