The Possible Effect of MRET Activated Water On Diabetic Patients

Abstract

This particular article relates to subtle electrical effects, and provides some evidence of a fundamental nature on how electromagnetic fields might be utilized to modify the molecular structure and electrodynamic characteristics of water in order to enhance specific molecular mechanisms in cells. The unusual electrodynamic characteristics of MRET Activated water provide some evidence regarding it possible effect on electrical activity of the cells such as proper [beta]-cell depolarization, which activates voltage-gated [Ca.sup.2+] channels as well as normal glucose transportation function. MRET Activated water having enhanced proton activity and modified electrical conductivity may also have an ability to enhance a proton pump activity of the cells. As a result it may lead to restoration of the insulin signaling for normal [beta]-cell function.

MRET (Activated) Water is produced with the help of patented (US Patent No. 6,022,479), non-chemical Molecular Resonance Effect Technology. The process of water activation induces the formation of water molecular clusters similar to water molecular structures found in living cells. The mechanism that explains the effect of electromagnetic fields on water is related to the existence of defects in molecular structure of water. The stable structural changes in water were detected in experiments by the UV luminescence spectrophotometer. They have been attributed to different water structural defects that include specific centers of luminescence. The nuclear proton spins were considered to be a primary targets of external magnetic fields, since proton lattice of water molecules is unstable and asymmetric. The structural metastability of water was associated with microscopic orbital currents of protons in water-molecular hexagons, and deviation from the stochiometric composition of water. The effects of memory of water interacting with electromagnetic fields were supposed to originate from the oscillations of water-molecular hexagons.

The basic idea of Molecular Resonance Effect Technology is the direct transmission of prerecorded molecular activity signals to biological systems with the help of Activated Water. These messages are imprinted in water during the process of activation. The effect of MRET Activated Water on molecular complexes, such as abnormal cells, can be explained by the fundamental physical phenomenon of electromagnetism, such as resonance, constructive and destructive interference. Modern research in biophysics proved that even slight change in molecular structure of water could dramatically change physical and physiological properties of water. Water has the capacity to receive, store and to pass on information in the form of electromagnetic signals. Among the works providing the evidence of "water memory" effect is one published in the reputable magazine *Nature* (Davenas, 1988). In that work there was identified preservation of information in water about trace quantities of some biologically active substances (i.e. its factual chemical activation). That information was preserved even after an ultimately strong dissolution, when molecules of a dissolved substance in water were completely absent. This work describes investigations in classical immunology conducted by the scientific group of a French biochemist J. Benveniste. He studied the effect on blood cells, called basophiles, protein molecules specifically affecting these cells and causing their specific response reaction, which is called degranulation. Conventional biochemistry is based upon the belief that the higher the concentration of such proteins the higher the rate of such reactions. Accordingly, with lower concentration the rate should also be lower. In contrast to that, the experiments have revealed that at even the strongest dissolution of protein molecules (antipolyglobulines) when their relative concentration was lower than 10^{-30} (which is equivalent to only one molecule per 70 liters of water!) a clearly pronounced effect of degranulation of basophiles was observed.

Since the volume of a pan where the experiments were carried out was naturally much lower than 70 liters, it means that there was not a single protein molecule in the volume of water after repeated dissolutions. It is proposed that the information retention within water results from dynamic modification of the molecular structure of water.

At the first glance, it appears that water cannot have any long-term memory. It follows from simple estimates. For a long time continuous (quasi crystalline) model of water was the dominant one. Within the framework of this model the spatial structure of potential energy for each one of H_2O molecules is nearly a periodical three-dimensional system of pits and barriers. This relief is the result of a self-regulating movement of all water molecules, which represents a combination of two independent processes – vibration movement in each one of potential pits and random (fluctuation) leap into a neighboring pit. The average frequency of vibrations in potential pits is approximately the same as the Debay frequency in a solid body (about $\omega_D \approx 10^{13}$ c^{-1}). The average duration of a leap into a neighboring potential pit is equal $\tau_0 \approx 10^{-13}$ c. The average time of staying in one pit is determined by the water temperature T and the energy of activation $\Delta W \approx$ 0.2 eV of the diffusion process (the height of the barrier between neighboring pits). Staying within the framework of this model it is easy to make a conclusion that water memory must be preserved for not much longer than the value $<\tau>$, which is by many orders less than data received in numerous experiments. There are two ways out of this logical dead end – either the experiments are not reliable, or the continuous model is incomplete (or wrong).

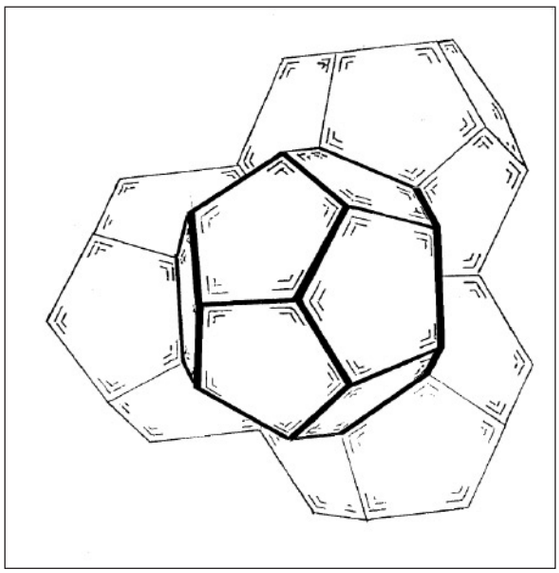

Fig.1 **The system of clathrate hydrates in water.**

The increasing number of reliable experiments shows that the continuous model is inadequate for describing the water structure. Moreover, continuous non-structural water (according to the data by the Nobel Prize winner Juan Lee) should be not a liquid but gas because of a relative weakness of hydrogen links. The presence of a spatial structure in a volume of water was first proved by Bernal (1933). Calculations made on the basis of quantum chemistry have shown that water molecules participate in creation of molecular assemblies and may form different types of associated molecules: "hydrol" H_2O, "dehydrol" $(H_2O)_2$, "trihydrol" $(H_2O)_3$ and so on. Further studies have shown that even much larger associates (clusters) may form in water from water molecules, whose structure resembles the form of small pieces of ice. As a rule, these clusters are unstable and appear and disappear spontaneously. The dynamics of such associates lies in the basis of the cluster model of water (Nemethy, 1962). More detailed studies (for example (Samoilov, 1957)) have shown that the so-called "clathrate" model is the one closest to reality. In its final form this model was developed by Pauling (Pauling, 1959). The basis of the Pauling's model is the concept that unification of atoms of oxygen and hydrogen can create spatial flexible tetrahedral frames. Formation of a tetrahedral frame was due to the fact that the natural spatial angle between OH-links in a free water molecule H_2O is equal to 104.5°, which is sufficiently close to the exact value of the tetrahedral angle 109.5°. In the joints of the crystalline frame there are very large (in the scale of a water molecule) micro cavities (microscopic empty spaces) with rigid atomic walls. The main elements of this structure are right polyhedrons linked to each other – dodecahedrons. Such systems are called "clathrate hydrates". The entire frame is held together by hydrogen links. They fasten together a system of pentagonal dodecahedronic polyhedrons from ions of oxygen and hydrogen, which form the walls of the micro cavities. Each one of the polyhedrons may be characterized by an inscribed sphere with radius about $R_c \approx$ 2.6 A°. All polyhedrons have 12 pentagonal facets, 30 edges connecting these facets and 20 vertexes with 3 edges converging in each one of them. On the vertexes of these polyhedrons there are 20 molecules of water H_2O, each one of which having three hydrogen links. The space structure of the system of clathrate hydrates in water is presented in *Fig.1*.

Beyond this frame there are quasi free molecules of "regular" isotropic water, the features and the structure of which approximately matches the continuous model. Micro cavities are linked to the outer space by windows with diameter of about 2.5 A°, which is slightly less than diameter of a water molecule ($2R \approx 2.76$ A°). In the result, each of the micro cavities is separated from "external" amorphous quasi free water by a circular potential barrier with width about 0.13-0.15 A° bounding each window. Relative quantity of molecules of "frame" water at room temperature is 20-30% increasing with lower temperatures. In the volume of micro cavities one molecule of H_2O, CH_4, O_2 or N_2 may be accommodated.

The results of direct measurements (Zenin, 1999) have shown that optical properties of structured and amorphous water at the same temperature differ by a very large margin. Specifically, the difference in characteristics

for refraction of the clathrate frame and amorphous water reaches in some cases 4-5%, which testifies of spatial ordering of the clathrate frame. The Pauling's clathrate model explains very well all features of water including its anomalous condensability. The DNA structure ideally matches the spatial structure of such framed water, given that each macromolecule of DNA regulates water at the distance of up to 300-500 A° away from its surface. Many works address the possibility of unification of the Pauling's model with the cluster model. In that case, separate elements of clathrate frames may, from time to time connect with each other by hydrogen links and form groups with ordered structure (or clusters). The examined features of spatial water structure show that water molecules are always distributed between two loosely connected systems: the quasi amorphous non-structured water and the quasi crystalline structured system of clathrate hydrates. During the process of external influence on water (activation) there is a significant change of its structure and parameters. The hierarchical micro level of the water structure is related to processes of movement and distribution of separate H_2O molecules between micro cavities of the spatial clathrate water frame and quasi-amorphous non-structured water. That micro level determines non-stationary evolution of H_2O molecules. The process of evolution is determined by two possible directions: molecules can leave the volume of quasi-amorphous water, penetrate the volume of these micro cavities and stay there for a long time in hydrophobic form, or, to the opposite, transfer from micro cavities into the volume of quasi-amorphous water. It is clear that the micro level of water structure is distinguished by a much greater stability with respect to effects of external influences. With all external transformations of the clathrate frame hydrophobic H_2O molecules remain in a stable state in the volume of micro cavities. Such stability makes the micro level of water structure an effective object for organization of a system of long-term water memory. Such principle provides reliable binary system of water memory: occupied clathrates and vacant clathrates of water molecular structure. Another word the presence of a clathrate frame of water may lead to formation of long-term memory and to the recording of information in it.

This property of water is especially important for living organisms: on the one hand water acts as an information carrier within the organism itself, while on the other hand; essential information necessary for life is carried by water from the outside environment into the metabolism. It is generally known that all metabolic reactions in living organisms take place within colloidal solutions. In colloidal solutions substances are dispersed in such a fine manner that they can no longer be differentiated from the liquid. Important examples are blood, plant juices, etc. Disturbances of these colloidal systems, or even worse, their total disruption, are synonymous with degenerative conditions of diseases. There is a relationship between the health of living organisms and the colloidal state in its tissues. The stability of colloidal solutions stands in a direct physical relationship to the molecular structure of water. It is important for the stability of colloidal systems that the structure of water exerts a great degree of organization upon the colloidal particles. The extent and propagation of such an ordered state throughout the water could be described as its information content. Another word the more organized the molecular structure of water the more stable is colloidal system.

Diabetes definition – diabetes is a disease which is caused by the inadequate production of insulin by the body or by the body not being able to properly use the insulin that is produced thereby resulting in hyperglycemia or high blood glucose levels. There are two main types of diabetes, type I, which is insulin dependent, and type II, which is non-insulin dependent. Type 2 diabetes frequently results from progressive failure of pancreatic [beta]-cells in a setting of chronic insulin resistance. Whether [beta]-cell defect and insulin resistance are simply coincident or are causally related is unknown. ATP-sensitive [K.sup.+] ([K.sub.ATP]) channels of the pancreatic [beta]-cell play a pivotal role in stimulus-secretion coupling, setting the resting membrane potential below the activation threshold of voltage-gated [Ca.sup.2+] channels. Cellular metabolism of fuel secretagogues raises the ATP/ADP ratio, resulting in the closure of [K.sub.ATP] channels and concomitant [beta]-cell depolarization. This depolarization in turn activates voltage-gated [Ca.sup.2+] channels, resulting in [Ca.sup.2+] influx and [Ca.sup.2+] -dependent insulin exocytosis. Locally released insulin may bind to [beta]-cell insulin receptors, triggering receptor autophosphorylation, receptor tyrosine kinase activation, insulin receptor substrate (IRS)-1 phosphorylation, and phosphatidylinositol (PI) 3-kinase activation. This autocrine action of insulin has been proposed to regulate a number of functions in [beta]-cells, including insulin gene transcription. The importance of insulin signaling for normal [beta]-cell function has been demonstrated by recent studies of insulin receptor knockout mice. Parallel studies of arteriovenous fractional extraction across the leg of [[sup.18]]FDG and [2-[sup.3]H] glucose were performed to measure the "lumped constant" (LC) (i.e., the analog effect) for [[sup.18]F]FDG to determine whether this value is affected by insulin dose or insulin resistance. The value of the LC was similar across insulin doses and groups. Leg glucose uptake (LGU) also provided a measure of skeletal muscle glucose metabolism independent of PET. [[sup.18]F]FDG uptake determined by PET imaging strongly correlated with LGU across groups and across insulin doses ($r = 0.81$, $P < 0.001$). Likewise, LGU correlated with PET parameters of glucose transport ($r = 0.67$, $P < 0.001$) and glucose phosphorylation ($r = 0.86$, $P < 0.001$). Glucose transport increased in response to insulin in the lean and obese groups ($P < 0.05$), but did not increase significantly in the type 2 diabetic group.

A dose-responsive pattern of stimulation of glucose phosphorylation was observed in all groups of subjects ($P < 0.05$); however, glucose phosphorylation was lower in both the obese and type 2 diabetic groups compared with the lean group at the moderate insulin dose ($P < 0.05$). These findings indicate an important interaction between transport and phosphorylation in the insulin resistance of obesity and type 2 diabetes.

Most of studies indicate that normal insulin production in the body dependes on the cellular metabolism and proper [beta]-cell depolarization, which activates voltage-gated [Ca.sup.2+] channels as well as normal glucose transportation function. It is scientificly proved fact that electrical activity of the cells has direct correlation with physical properties (dielectiric permittivity, electrical conductivity and viscosity) of intracellular water. Extracellular water is the main transportation agent in the body. The extracellular water (fluid) plays an important role in both direct and indirect transport in the cells. The cytosol of animal cells contains a concentration of potassium ions (K^+) as much as 20 times higher than that in the extracellular fluid. Conversely, the extracellular fluid contains a concentration of sodium ions (Na^+) as much as 10 times greater than that within the cell. These concentration gradients are established by the active transport of both ions. And, in fact, the same transporter, called the Na^+/K^+ ATPase, does both jobs. It uses the energy from the hydrolysis of ATP. The Na^+/glucose transporter is used to actively transport glucose out of the intestine and also out of the kidney tubules and back into the blood.

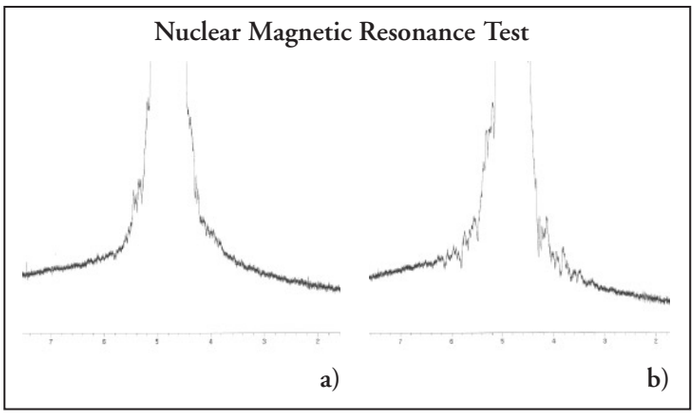

Fig.2 **NMR test result: a) - sample of regular water, and b) - sample of Activated water. Observe H1, 499.9189962 MHz for both samples. Proton dispersion in Activated water sample is increased.**

NMR test was conducted at the laboratory of Department of Chemistry of San Diego State University by Dr. Leroy Lafferty. The experimental data were recorded on INOVA-500 spectrometer. Each sample of MRET Activated and regular water was inserted into 10-ml NMR test tube, and a 5-ml NMR tube filled with D_2O was then inserted into the 10-ml test tube to provide a lock signal for the NMR. A 90° second pulse was used for the experiment. Acquisition time was set to 5.000 sec with one second delay, and a spectral width of 8000.0 Hz was employed. Line broadening was utilized and set to 0.2 Hz. Fourier transformation was performed on each spec following the scanning. Signal peak was observed for all samples, indicating that both Activated and regular water samples are free of detectable organics. Experimental data revealed a consistent 2.1 times increase in the width of proton peak in the line of NMR absorption for the samples of Activated water in comparison with a sample of regular water from the same source. This fact provides evidence that proton activity in MRET activated water is enhanced to compare with non-activated water *(Fig.2)*.

Another experiment was conducted at Moscow State University, Russia under the supervision of Prof. V. Vysotskii regarding the electrodynamic characteristics of MRET Activated water. To determine characteristics of dialectical permittivity and electrical conductivity of MRET Activated water the standard method of measurement of impedance characteristics of AC electrical current was used. The testing equipment "Novocontrol" which includes generator of AC electrical current, impedance analyzer, system of thermostatic measurement chamber, and data analyzer was used for this measurement procedure. This testing equipment allows detecting and analyzing the power, electrical current, and shift of the phase between electrical current and power. Based on this experiment it was found that MRET activation process changes dialectical permittivity and electrical conductivity of water *(Fig.3)*.

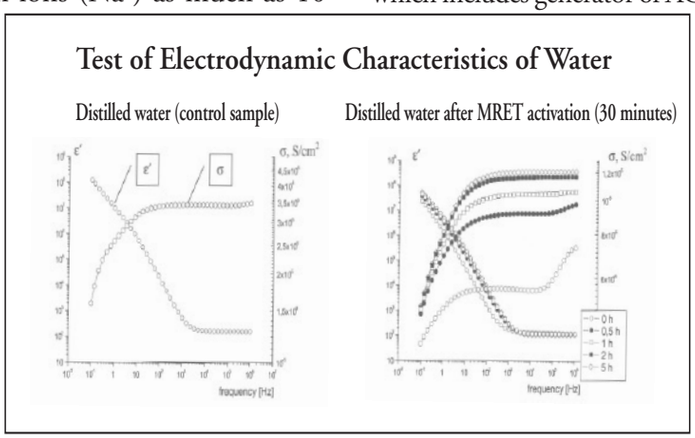

Fig.3 **Measurements were conducted at 20°C. After MRET activation process, in the range of frequencies f < 10^3 Hz dialectical permittivity (_) reduced by 6-7 times, and electrical conductivity (_) reduced by 2.5 times.**

This experiment also provides information regarding the changes of dialectical permittivity and electrical conductivity of MRET Activated water depending on different time of storage after activation process. These anomalous electrodynamic characteristics of MRET Activated water provide some evidence regarding it possible effect on electrical activity

of the cells such as proper [beta]-cell depolarization, which activates voltage-gated [Ca.sup.2+] channels as well as normal glucose transportation function.

The relationship between such electrodynamic characteristic of water as dielectrical permittivity and biochemical activity of cells can be explained with the analysis of dispersion characteristics of deoxyribonucleids (DNA). Deoxyribonucleic acid (DNA) is a high molecular biopolimer with a linear chain consisting of alternating monomeric units – deoxyribonucleotides (shortly – nucleotides). Four types of monomers are normally found in natural DNA: deoxyadenosine monophosphate (adenin), deoxyguanozin monophosphate (guanin), deoxytimidin monophosphat (timin) and deoxycitidin monophosphate (citosin). The basis of an informational structure of a DNA macromolecule is alteration of sequences of four basics – A, G, T and C. This sequence determines the code of hereditary information. In a double DNA spiral there is, on average, about the same quantity of four main nucleotides, provided that, naturally, the quantity of nucleotides included in their respective complimentary pairs AT and GC is matched exactly. The mole ratio of different pairs changes only slightly (by not more than 2-5%) in different organisms and also from molecule to molecule in same cells. In the process of forming DNA spiral structure water surrounding a DNA spiral, plays a very important role. In the absence of water (for example, on the surface of covering glass) cross section of a molecule of DNA assumes the ellipsoid shape. The distance between adjacent pairs of nucleotides equals 3.4 A° and each turn of the spiral contains 10 nucleotide pairs. A spiral with such parameters represents the so-called "stretched" B-form of DNA, which is an unstable meta stable form of a molecule, distinguished from the stable "compressed" A-form with eleven nucleotides by one full turn of the spiral and spiral step of 28 A°.

A DNA spiral with step 28A° (A-form) corresponds well with the quasi-crystalline water structure. DNA is capable of bringing water into order on the distance of up to 1000 A° from its surface. Transfers between forms A and B in the result of dehydration of DNA is a non-specific reaction on very different forms of external influence (radiation, heat, pH, etc.) conditional upon breaks of hydrogen links, neutralization of phosphorus groups as well as suppression of their dissociation. Regulation of protein synthesis and the process of self-reproduction is accomplished by a DNA free of protein casing, activated in the result of protein depravation and the A→B transfer. The character of interaction of fragments of biological molecules largely depends on their dispersion characteristics.

It is a known fact that none of the enzymatic methods of reparation of damages to DNA can fully restore ruptures of complementary chains of a DNA spiral. It happens because in order for an enzyme to fulfill its "repairs" it needs a special platform, on which such restoration of DNA integrity is performed. In case of single breaks, an undamaged complimentary DNA string serves as such a platform. In case of double breaks, such possibility is no longer feasible, which, at a first glance, must lead to an irreversible destruction of DNA with a loss of genetic information. The only possibility of restoring DNA in this case is by using the method of non-enzymatic self-reparation mechanism. The efficiency of implementing the mechanism of non-enzymatic reparation depends on the features of long-distance force interaction between ruptured parts of a double-string DNA spiral in liquid inner molecular environment. Since dispersion parameters of the nucleotides are stable and they cannot be controlled, the only possibility of regulating the process of self-reparation of DNA is through controlling the dispersion parameters of water in liquid inner molecular environment. These dispersion parameters directly depend on dialectical constant and conductivity characteristics of water.

MRET Activated water having enhanced proton activity and modified electrical conductivity may also have an ability to enhance a proton pump activity of the cells. A proton pump is an integral membrane protein that is capable of moving protons across the membrane of a cell, mitochondrion, or other subcellular compartments thereby creating a difference or gradient in both pH and electrical charge. As a result it may lead to restoration of the insulin signaling for normal [beta]-cell function.

REFERENCES

Smirnov I., "*Activated Water*", Explore Magazine vol.11, No.2, pp.49-53, 2002.

Smirnov I., "*Electrically Activated Water*", Electric Space Craft Journal, issue 33, 2002.

Vysotskii V., Smirnov I., Kornilova A., "*Introduction to the Biophysics of Activated Water',* Universal Publishers, 2005.

Clinical Observation by Peerayot Trongsawad, M.D. Using MRET-activated Water As Additional Treatment

The 1st case: Myocardial Infarction (MI)

A 61 years old nurse, name T.C., was diagnosed as MI for 20 years. She had been treated by cardiologist in the public hospital with full medication. In spite of the treatment, she had heart attack for a short period continuously and still had to take medicine everyday.

She started drinking MRET water in her daily life (the same volume as the ordinary water) since 20th April 2004. Within 2 months of drinking MRET water, she stopped suffering from heart attack. When she went back to see her doctor, the doctor indicated that she had recovered from Myocardial Infarct and been discharged from the Cardiac Clinic.

The clinical observation made : as TC drank the water that had been activated by the MRET process, the water possess the capacity to dissolve into hemoglobin, so hemoglobin became having more power enough for the tissues that lack of oxygen. Therefore, the cardiac tissue can get back or recover to normal status as usual.

The 2nd case: Parkinson's disease

The male patient, name N.P., 65 years old, was diagnosed with Parkinson's disease for 8 years. All the time he had been treated by neurologist. His symptoms were difficulty in walking, tremor of both hands, masking face, no reaction to impulse, can't speak loud noise and no more interest in himself.

After he had drunk MRET-activated water for 3 weeks, there were significant improvements: he can walk longer steps, speak louder, smile easily and no sign of stress on his face, spoke more clearly. He can now stroll along 2 kilometers of the pathway at Mt. Khao Hin-ngam, Chaiyaphum province, by himself.

The 3rd case: Psoriasis disease

The first patient is male, name Y.S., 53 years old, was diagnosed Psoriasis since he was a young boy and had been treated by the doctors in 3 medical school hospitals. He had the symptoms of red spots on his face, head, ears and all body to the feet. His nails on every finger became shorter and shorter. However, after he had drunk 1.5 liters of MRET-activated water per day for a week, he found that his symptom of itchiness had disappeared without taking medicine and the papule improved until the red spots disappeared. When he had drunk MRET water continuously for 2 months, he could stop the daily medicine that the doctor has prescribed, and 30% of red spot has become slightly Hyper-pigmentation.

The second patient is female, name B.P., 37 years old, was diagnosed as terminal AIDS, lung tuberculosis, active PCP and also Psoriasis all over her body. Her symptoms were the low fever in the afternoon and the evening, loss of appetite, look sick and pale, red face and red spot on skin, having white scale on all her body and feeling itchy all the time. After she had drunk 1.5 liters of MRET-activated water per day since 13th July 2004, 7 days later the symptom of itchiness had been disappeared, 40% of red spots has become the Hyper-pigmentation, the face looked fresher than before, getting no fever and she showed more confidence, in herself.

Conclusion

The clinical observations on the use of MRET-activated water as additional therapy to enhance the health, and in most instances, to alleviate patients form the suffering of their diseases had been very encouraging.

There is plan to do the Protocol in cooperation with the governmental and private institutions, in order to collect the data that may be useful for doctor and for all.

Dr. Peerayot Trongsawad : Pension Officer – Ex-Director of AIDS control Department, Bangkok Metropolis