TITLE: Determination of urea, creatinine and glucose in bathwater after use of an electronic purification system (IonCleanse®) from patients with diverse chronic illnesses.

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ABSTRACT

OBJECTIVE:

To determine the outcome in adult patients with different chronic diseases, of urea, creatinine and glucose excretion in the bathwater after use of the electronic device IonCleanse® (Electronic Purification System) and their relationship with their reference values in serum. Assessment of the relationship of the diagnosis according to EAV (Electroacupuncture by Voll) and the clinical diagnosis.

PATIENTS AND METHODS:

The study was performed on a cross-sectional, descriptive, clinical and laboratory sample of 12 adults suffering various chronic illnesses, during the period of July 27-28, 2004, in the city of Torreón, Coahuila, Mexico. In this study, the Electronic Purification System (IonCleanse®) was used (AMD, A Major Difference) [www.amajordifference.com] in accordance with the attached guide (Instruction Guide). The data were grouped accordingly: clinical diagnosis, sex, age, side effects, color of bathwater, analysis of urea, creatinine and glucose in bathwater, and assessed with the diagnosis, according to EAV (Electroacupuncture by Voll).

RESULTS:

The grouped data were of 12 adult patients (3 male and 9 female) from the Torreon, Coahuila, Mexico, metropolitan area. The age per person was: STDV 52.0±16.0 mg/dL with (range: 36-68 years). Urea: STDV 14.93±9.47 mg/dL. (5.46-24.4 mg/dL). Creatinine: STDV 0.050±0.029 mg/dL. (0.021-0.079 mg/dL). Glucose: STDV 5.18 ±1.54 mg/dL. (3.64-6.72 mg/dL.). Diagnosis: Rheumatoid Arthritis (2). Diabetes Mellitus (2) Pharmacodependency and Infection Urinary System (1) Landry-Guillain-Barré syndrome (1) Chronic Fatigue Stress) (1) Obesity Pilonidal cyst (1) Passive smoker and Chronic Stress (1) Obesity and Migraine (1) Bathwater color: Yellow Brown (3), Dark Brown (4), Dark Green (4), Green Brown (1). Monitoring these patients during the 30-minute use of the IonCleanse® did not provoke significant adverse reactions, despite the fact that some patients were under treatment. A few patients, who were taking medications for specific maladies, experienced slight cramping in the feet. One patient diagnosed with Landry-Guillain-Barré syndrome and who had recently suffered a urinary tract infection, and was at the time responding well to antibiotics, reported moderate painful sensations in the neck, right lower limb and both tibia areas, which faded out

after 20 minutes. No other symptoms were reported either during or after the procedure, with most patients reporting a feeling of wellbeing.

CONCLUSIONS:

Our study revealed the presence of urea, glucose and creatinine molecules in the bathwater after the IonCleanse® was used, probably reflecting osmotic diffusion through the skin by co-transporters coupling the transport of cations (Na +or H+) or substrates (sugars, amino acids, and ions). From the clinical perspective, no severe adverse reactions were observed. During the procedure, some patients experienced paresthesias, which rapidly faded out. Although the sample size was small, the findings support the presence of non-ionic plasmatic molecules, probably crossing the biological membranes and presumably extracting ionized toxic waste.

BACKGROUND

Evidence suggests that environmental exposure to some anthropogenic chemicals may result in disruption of endocrine systems in human and wildlife populations, A number of the classes of chemicals suspected of causing endocrine disruption fall within the general law of the U.S. Environmental Protection Agency's (EPA) mandates to protect both public health and the environment. (EPA 2004)

In recent years, some scientists have proposed that chemicals might inadvertently be disrupting the endocrine system of humans and wildlife. A variety of chemicals have been found to disrupt the endocrine systems of animals in laboratory studies, and there is strong evidence that chemical exposure has been associated with adverse developmental and reproductive effects on fish and wildlife. The relationship of human diseases of the endocrine system and exposure to environmental contaminants, however, is poorly understood and scientifically controversial (Kavlock 1996).

Some chemicals, both natural and manmade, can interfere with the hormonal system. They are called "endocrine disruptors." The most controversial issue is whether low level exposure to such chemicals can have adverse effects. An endocrine disruptor is a synthetic chemical that, when absorbed into the body, either mimics or blocks hormones and disrupts the body's normal functions. This disruption can happen through altering normal hormone levels, halting or stimulating the production of hormones, or changing the way hormones travel through the body, thus affecting the functions that these hormones control (Kavlock 1996). Chemicals that are known human endocrine disruptors include diethylstilbesterol (DES), dioxin, PCBs, DDT, and some other pesticides. Many chemicals, particularly pesticides and plasticizers, are suspected endocrine disruptors based on limited animal studies. (Kavlock 1996).

What Are Endocrine Disruptors?

In 1996, EPA's Office of Research and Development (ORD) identified endocrine disruption as one of its top six research priorities (EPA 1996). The indiscriminate use of toxic chemicals in

order to protect crops or to combat disease threatens the delicate balance of nature and has decimated countless forms of life. Humans, domestic and wildlife species have suffered adverse health effects from exposure to environmental chemicals that interact with the endocrine system. Some chemicals, both natural and manmade, can interfere with endocrine glands and their hormones, the body's chemical messengers that control how an organism develops and functions, such as organochlorine compounds 1,1,1-trichloro-2,2-bis(p-chlorophenyl) ethane (DDT) and its metabolites, polychlorinated biphenyls (PCBs) and dioxins, or to naturally occurring plant estrogens. (Kavlock 1996). The environmental endocrine disruptors are synthetic chemicals that block, mimic or otherwise interfere with naturally produced hormones. The definition of the environmental endocrine disruptor was stated as:

> . . . an exogenous agent that interferes with the production, release, transport, metabolism, binding, action or elimination of natural hormones in the body responsible for the maintenance of homeostasis and the regulation of developmental processes. (Kavlock 1996).

Cells can selectively absorb and accumulate certain chemicals. Toxins can also accumulate in body tissues, reaching dangerous levels. There is evidence in exposed populations of adverse effects, of declines in the quality and decreases in the quantity of sperm production in humans (MRC 1995), of autoimmune syndromes (Noller 1988), and of physiological derangement of estrogen levels and autoimmune diseases in women (Grossman 1985; Schuurs 1990; Homo-Delarche 1991). Carbamates, organochlorines, organometals, and certain heavy metals alter immune phenotypes or function and are suggestive of immunosuppression and potential disease susceptibility (Davis 1990; Luster 1990; Dean 1994). Probably endocrine disruption can cause cancer in humans, based on the association between endocrine disruptor exposure of pregnant women and clear-cell adenocarcinoma of the vagina and cervix in their female offspring. (Herbst 1971).

Robert Moroney, President of AMD (A Major Difference) [www.amajordifference.com] states that the Electronic Purification System is intended to support purification protocols and provide a way to rid the body of environmental toxins such as chlorine, fluorine, and the new chlorine neutralizers used to mask chlorine and including probably the environmental endocrine disruptors (Moroney 2004). Cells make use of several transport mechanisms through membranes in order to carry molecules in and out of membrane proteins. The main categories are simple diffusion, facilitated diffusion, and active transport (White 2004).

The main intention of this investigation is to detect, in the bathwater after use of the electrolytic process, molecules of great metabolic interest due to their intervention at the energetic and purification processes as urea, creatinine and glucose normally present in the blood; and to assess the possibility these molecules could be transported through membranes in order to carry molecules in and out of membrane proteins.

MATERIAL AND METHODS

How the Electronic Purification System Works.

Robert Moroney explains:

> The water module utilizes low voltage direct current to separate the water molecule into positive and negative ions. The ions travel through the body, attaching to and neutralizing oppositely charged particles, and osmosis pulls the neutralized particles out through whatever surfaces are exposed to the water. . . . I can regulate the ion mix according to the pH of the body by changing the direction (polarity) of the electrical flow. The positive polarity produces more negative ions, and the negative polarity more positive ions . . . . Actually, I determine what ion mix the body wants through muscle testing, but there seems to be a strong correlation between saliva pH and what the body tests for . . . . Keep in mind that positive and negative are electrical terms that refer to the poles that the current flows to; not the predominant ion charge. The colors and the sludge in the water are produced by the ionization interaction of the current flow, the metal in the module and the toxins in the water and body. (Explore 2002; Moroney 2004).

The IonCleanse® Instruction Guide (Moroney 2004) states:

> How the IonCleanse® works. Generating ions. An ion is a charged atom that has gained or lost an electron which creates a magnetic field capable of attaching to and neutralizing oppositely charged particles. These neutralized particles are extracted from the body through the process called osmosis. Osmosis is a scientific term that is used to describe the movement of particles through a membrane from an area of lower concentration to an area of higher concentration. In this case, the higher concentration refers to the ion field that is set up by placing he array into the water while running the unit.
>
> The array is placed into the water alongside the hands, feet, or body while the power supply delivers a low level direct current to the array. This causes the metals within the array in combination with water and salt to generate charged ions by separating the oxygen and hydrogen in the water.
>
> The practitioner determines the polarity setting through the use of litmus paper (pH strips) or muscle testing. We speculate that ions generated by the IonCleanse® travel through the body attaching themselves to a multitude of toxic substances, thereby neutralizing their positive or negative charge. It may be possible to reduce pain and other symptoms caused by a lifetime of toxic buildup in the body (assuming the symptoms are caused by toxic buildup). The long-term effectiveness of the IonCleanse® purification process depends on other life-enhancing changes a person is willing to make.

Robert Moroney further states:

> We have also found that a person's purification session will override the geographical toxicity of the water based on *EAV (Electroacupuncture by Voll) testing, the following table shows what we believe the colors in the water represent: (Moroney 2004)

Color of Particle	Material or Area of the Body
Yellow green	Purifying the kidney, bladder, urinary tract, female/prostate area
Orange	Purifying joints
Brown	Purifying the liver
Black	Purifying the liver; tobacco, cellular debris
Dark green	Purifying the gallbladder
White foam	Lymphatic system
White cheese-like particles	Most likely, yeast
Black flecks	Heavy metals
Red flecks	Blood clot material

> We have also seen parasites, pinworms, and smelly purple mucous from a person on dairy medication. We have experienced various rancid odors. . . . (Moroney 2004)

> *The purpose of EAV is to establish an energetic evaluation, a functional testing of organs and tissues through the measure of acupuncture and electroacupuncture points in order to determine energetically unbalanced points.

> Bio-resonance or Electroacupuncture by Voll testing represents a single diagnostic modality available, but the main drawback is that it is very cumbersome, time-consuming and may contain false positive and false negative readings. (Yurkovsky 2004).

PATIENTS AND METHODS

The grouped data were of 12 adult patients (3 male and 9 female) from the Terreón, Coahuila, Mexico metropolitan area. The age per person had an average and standard deviation of 52.0± 16.0 with; Range: 36-68 years old. The laboratory tests were performed at a local laboratory (Guerrero-Rojo 2004).

Urea was determined using the modified urease-Berthelot method (Range 15-40) (Zepponi 1983). The estimation of serum glucose was performed using glucose oxidase (Range 70-110 mgs/dL) (Trinder 1969). The determination of serum creatinine was realized by a direct colorimetric method, with reference values (0.9-1.5 mgs/dL) (Heinegard 1973). The bathwater used was filtered and purified water from a local facility. The tap water from this area contains limestone salts and is not suitable for use in this procedure. The IonCleanse® Instruction Guide

was used as the main procedure's guide (Moroney 2004). The preset of the IonCleanse® units were calibrated by Robert (Bob) Moroney: 70+ (positive)/30- (negative), due to the chronic illnesses of the patients, and tested during 30 minutes with each patient.

OUTCOME

The data of patients grouped by Sex, Age, Diagnosis, Side Effects, Urea, Creatinine Glucose and Bathwater Color are shown in Table 1-3 and laboratory outcomes: Urea, Creatinine and Glucose; Histograms with mean and standard deviations in Tables 4-6. Clinical Diagnosis, Bathwater Color, and Clinical Diagnosis according to EAV (Electroacupuncture by Voll) by Name, Sex, Age, Diagnosis, Bathwater Color Table:7

Table No. 1

Name	Sex	Age	Diagnosis	Side Effects	Urea	Creatinine	Glucose	Bathtub Water Color
B.A.A.	F	80	Rheumatoid Arthritus	+	2.10 mgs/dL	0.03 mgs/dL	6.00 mgs/dL	Yellow Brown
I.E.	M	31	Pharmacodependency, Infection Urinary System	No	No data	No data	No Data	Very Dark Brown
De la R. R. M. A.	M	46	Landry-Guillain-Barré	++	23.73 mgs/dL	0.05 mgs/dL	5.00 mgs/dL	Green Brown
G.S.S.	F	61	Diabetes Mellitus Arterial Hypertension	No	18.48 mgs/dL	0.04 mgs/dL	4.00 mgs/dL	Dark Green
G.U.G.	F	66	Chronic Fatigue Stress	No	4.20 mgs/dL	0.10 mgs.dL	6.00 mgs/dL	Dark Green
G.V.A-L	F	38	Obesity Pilonidal cyst	No	12.60 mgs/dL	0.09 mgs/dL	7.00 mgs/dL	Dark Green
G.U.C.	M	67	Diabetes Mellitus Chronic Psoriasis	No	12.60 mgs/dL	0.09 mgs/dL	5.00 mgs/dL	Dark Brown
S.C.G.	F	25	Passive smoker	No	30.03 mgs./dL	0.05 mgs/dL	8.00 mgs/dL	Dark Brown
T.B.A.	F	56	Chronic Smoker Chronic Fatigue	No	18.48 mgs/dL	0.04 mgs/dL	4.00 mgs/dL	Dark Green
T.B.Ma.G.	F	47	Varices and bilateral saphenectomy, Headache type migraine	+	14.60 mgs/dL	0.05 mgs/dL	3.00 mgs/dL	Orange yellow White foam
T.B.L.E.	F	L58	Rheumatoid Arthritis	No	16.10 mgs/dL	0.10 mgs/dL	5.00 mgs/dL	Yellow Brown
T.B.M.G.	F	45	Obesity Migraine	No	2/10 mgs/dL	0.03 mgs/dL	6.00 mgs/dL	Yellow Brown

+ Intensity of paresthesias: (Mild: (+), Moderate: (++)

Table No. 2 PATIENTS AND GENDER

No. of Patients	Male	Female
12	3	9

*N = 11 patients with laboratory tests for computing purposes

Table No. 3 AGE

Age Histogram				
Bin	Minimum	Absolute Freq.	Relative Freq.	Cumul. Relative Freq.
1	25.00	3	25.00%	25.00%
2	38.75	3	25.00%	50.00%
3	52.50	4	33.33%	83.33%
4	66.25	2	16.67%	100.00%
Statistic		Value		
MIN		25		
MAX		890		
N		*12		
SUM		620		
SUM2		34846		
AVG		51.666666666667		
STDV		15.990527499022		
NBINS		4		

*N= 11 patients with laboratory tests for computing purposes

TABLE No. 4 UREA

UREA Histogram				
Bin	Minimum	Absolute Freq.	Relative Freq.	Cumul. Relative Freq.
1	1.05	3	27.27%	27.27%
2	8.3625	3	27.27%	54.55%
3	15.675	2	18.18%	72.73%
4	22.9875	3	27.27%	100.00%
Statistic		Value		
MIN		1.05		
MAX		30.03		

N	*11
SUM	164.22
SUM2	3349.2944
AVG	14.929090909091
STDV	9.4743817260499
NBINS	4

*N= 11 patients with laboratory tests for computing purposes

Table No. 5 CREATININE

CREATININE Histogram				
Bin	Minimum	Absolute Freq.	Relative Freq.	Cumul. Relative Freq.
1	0.006	2	18.18%	18.18%
2	0.0295	`7	63.64%	81.82%
3	0.053	0	0%	81.82%
4	0.0765	2	18.18%	100.00%
Statistic		Value		
MIN				0.006
MAX				0.1
N				*11
SUM				0.546
SUM2				0.035436
AVG				0.049636363636364
STDV				0.028869612838667
NBINS				4

*N= 11 patients with laboratory tests for computing purposes

Table No. 6 GLUCOSE

GLUCOSE Histogram				
Bin	Minimum	Absolute Freq.	Relative Freq.	Cumul. Relative Freq.
1	3.00	3	27.27%	27.27%
2	4.25	4	36.36%	63.64%
3	5.50	2	18.18%	81.82%
4	6.75	2	18.18%	100.00%
Statistic		Value		
MIN				3
MAX				8
N				*11
SUM				57
SUM2				319
AVG				5.1818181818182
STDV				1.5374122295716
NBINS				4

*N= 11 patients with laboratory tests for computing purposes

LABORATORY OUTCOME

UREA: The bathwater showed Urea: Minimum: 1.05 mg/dL, and Maximum: 30.3 mg/dL, with a rounded Average and Standard Deviation: 14.93±9.47 mg/dL. (5.46-24±9.47 mg/dL. (5.46-24.4). These values were lower and within the lower range of reference values in blood urea (15 – 40 mg/dL).

CREATININE: Minimum: 0.006 mg/Dl, and Maximum: 0.1 mg/dL, with a rounded Average and Standard Deviation: 0.050±0.029 mg/dL. (0.021-0.079 mg/dL)O. These values were lower of reference values in blood serum/ blood creatinine (0.9 – 1.5 mg/dL).

GLUCOSE: Minimum: 3 mg/dL, and Maximum: 8 mg/dL, with a rounded Average and Standard Deviation: 5.18±1.54 mg/dL (3.64-6.72 mg/dL). These values were lower of reference values in blood plasma Glucose (70 – 110 mg/dL).

DISCUSSION

The clinical characteristics of the patients were:

Two patients had diagnosed rheumatoid arthritis, one of them, 80-year-old female, presented slight paresthesias, which rapidly faded out.

A 31-year-old male with longstanding pharmacodependency to several drugs and alcohol. Presently in rehabilitation with antecedent of typhoid fever successfully treated with antibiotics and recent infection of the urinary system showed good response to antibiotics. Laboratory tests were not performed on this patient due to recent infectious diseases. However, the color of the bathwater was deep black and brown, shading the feet, with a body of black brown matter floating on the surface. At the bottom of the bathwater was a brown, murky sediment mass. The bathwater had a very strong rancid alkaline odor.

A 46-year-old male had a sudden onset of fever, malaise and diarrhea with progressive palsy of the extremities. The diagnosis was Landry-Guillain-Barré syndrome. This patient received appropriate therapy in the intensive care unit at a local hospital and subsequent rehabilitation. This patient was overweight with partial paresis of the left lower limb and slight paresis of the left eyelid, together with subjective pain in the thorax and spine. Subsequent to a 10-minute treatment with the IonCleanse®, patient had subjective pain in the neck, right lower limb and both tibia areas, which faded after 20 minutes. No other symptoms were reported. This patient also suffered infection of the urinary system which responded well to antibiotics. The water turned very murky brown, with floating slight green streaks, and at the bottom sediment, shading the feet, was a body of green and brown matter outpouring of the electrolytic array and floating on the water surface. At the bottom, remained sediment with a green, murky mass. The water had an alkaline odor.

Two patients had diagnosed diabetes mellitus.

One patient was diagnosed with chronic psoriasis.

Two patients were obese, one had a pilonidal cyst and the other had varices and bilateral saphenectomy and migraine.

Two patients were smokers, one passive smoker, and the other smoker had chronic fatigue.

Two patients had stress and chronic fatigue (see Table No. 1).

The clinical diagnosis was associated to the bathwater and material or area of the body according to the findings with the diagnosis of EAV in most of the patients agree with the clinical diagnosis (see Table No. 7). For example, the case of B.A.A., Female, 80 years old, evaluated with rheumatoid arthritis, the material in the bathwater turned orange brown. (See photos): DSCN1409.NEF.DSCN1438, nefdscn1437.nef. According to EAV, this coloration represents purification from the liver and from joints.

Table No. 7

Name	Sex	Age	Clinical Diagnosis	Bathwater Color	
B.A.A.	F	809	Rheumatoid Arthritis	Yellow Brown	
B.F.R.	M	31	Pharmacodependency. Infection Urinary System	Yellow Brown	
De la R.R.M.A.	M	46	Landry-Guillain-Barré Syndrome	Green Brown	
G.S.S.	F	61	Diabetes Mellitus Arterial Hypertension	Dark Green	
G.U.G.	F	66	Chronic Fatigue Stress	Dark Green	
D.V.A-L	F	38	Obesity Pilonidal Cyst	Dark Green	
G.U.C.	M	67	Diabetes Mellitus Chronic Psoriasis	Dark Brown	
T.B.A.	F	56	Chronic Smoker Chronic Fatigue	Dark Green	
T.B.Ma.G.	F	47	Varices and Bilateral Saphenectomy, Headache Type Migraine	Orange Yellow White Foam	
T.B.O.E.	F	58	Rheumatoid Arthritis	Yellow Brown	
T.B.M.G.	F	45	Obesity, Varices and Bilateral Saphenectomy, Migraine	Yellow Brown	

MEMBRANE TRANSPORT MECHANISMS

According to the Hypertextbook Cell Cell Biology Chapter Directory Membrane Transport Mechanisms from the Massachusetts Institute of Technology's Experimental Study Group Brian White's 7.01 (White 2004):

The cells utilize several transport mechanisms through membranes in order to carry molecules in and out of membrane proteins. The main categories are: simple diffusion, facilitated diffusion, and active transport.

By simple diffusion, the molecules can pass directly through the membrane due to concentration gradient, inside the cell or outside the cell if it is a waste product. Water crosses cell membranes by passive transport and by secondary active co-transport along with ions.

Facilitated diffusion utilizes membrane protein channels to allow charged molecules, to freely diffuse in and out of the cell. These channels facilitated the transport of small ions like hydrogen, potassium or sodium. The velocity of the passage of these small molecules through the plasma membrane is limited by the number of channels available, whereas the speed of diffusion is dependent only on the concentration gradient.

Primary active transport requires the consumption of energy to transport the molecule from one side of the membrane to the other, the so-called "ion pump diffusion;" usually derived from ATP (Adenosine Triphosphate Acid), to actively force ions from one side of the plasma membrane to the other.

The secondary active transport system uses the Na+-K+ pump as the first step, generating a strong Na+ gradient across the cell membrane. Proteins that act as carriers are too large to move across the membrane. They are transmembrane proteins. The Na+-glucose secondary transport mechanism, the glucose-Na+ symport protein uses that Na+ gradient to transport glucose into the cell.

Diverse range of values for all of the major human solute components has been reported (Harries 1994) with variations between individuals, due to the experimental conditions, and differences due to the method of collection. (Harries 1994).

Lemon et al. (Lemon 196) reported the use of urea as a marker, and they estimated that an amount equal to 20% of the added urea was excreted onto the skin during the wash down procedure.

UREA

Urea is a major metabolic product of mammalian biopathways containing ammonia, which is toxic to the body. It must be quickly filtered from the blood by the kidneys and its transport plays a vital role in nitrogen elimination and osmotic homeostasis. The skin releases waste products, including water, salts, and urea, formed when amino acids are used for energy. Waste travels through the sweat glands and out of the body through sweat pores of the epidermis. The sweat glands of the skin function primarily in temperature regulation, but in secreting perspiration to the skin surfaces, they also perform an excretory role as small amounts of salts

and urea are contained in perspiration. (Wybenga 1971; Saston 1984). Urea, which is transported via the blood to the kidneys for excretion, is integrated to the urinary concentration mechanism in the kidney. It is generally considered that urea is passively transported across biological membranes by diffusion. Lately, specific transporters for urea have been identified in the renal medulla. (Kato 1998; Tsukaguchi 1998) that urea is transported actively (Kawamura 1976). Subsequent studies have shown that some water channels, such as aquaporins AQP3, AQP7 and AQP9, are permeable to urea (Borgnia 1999).

Leung et al. suggest that:

> Co-transporters, including the Na+-glucose co-transporter, behave as urea channels and urea co-transporters, and may account for urea re-absorption in the proximal tubule. The co-transporters may also have a role in the movement of urea across the plasma membranes in the intestine, thyroid gland and brain. This finding suggests that urea transport is coupled to substrate transport provides strong evidence against an osmotic mechanism for substrate-coupled water flow. (Leung W.D. 2000)

Perhaps the active mechanism for substrate-coupled water flow related to the movement of particles through a membrane, from an area of lower concentration from the body fluids, to an area of higher concentration to the ion field hat is set up by placing the array (IonCleanse®) into the water, while running the unit, could explain the presence of urea in the bathwater.

CREATININE

Creatinine is a protein produced by muscle and released into the blood. The amount produced is relatively stable in a given person. The creatinine level in the serum is therefore determined by the rate it is being removed, which is roughly a measure of kidney function. IF kidney function falls, the creatinine level will rise. Normally it is generated by skeletal muscle through the breakdown of creatinine phosphate for energy. Body fluids also contain charged organic molecules.

Only a small percentage of molecules in fluids are non-electrolytes: glucose, urea, and creatinine. The interesting outcome was the presence of these non-ionic molecules in the bathwater. A specific, saturable, Na+ and Cl- dependent creatinine transporter responsible for creatinine uptake across the plasma membrane has been described for skeletal muscle, heart, smooth muscle, fibroblasts, neurolastoma and astroglia cells, as well as for red blood cells and macrophages (Fitch 1966; Daly 1980; Daly 1985). This finding suggests the possibility of coupling between ion and water fluxes at the protein level as cellular water transport. The human Na+-glucose co-transporter is a molecular water pump. (Meinild 1998)

GLUCOSE

The transmembrane glucose-Na+ symport protein acts as a carrier to move the glucose across the membrane into the cell. This mechanism could explain the values of glucose in the bathwater. The most elevated value was for a 25-year-old female, passive smoker (8.00 mgs/dL) and paradoxically, the lower value was for a 47-year-old female, varices with bilateral saphenectomy, headache type migraine (3.00 mgs/dL) (see Table No. 1)

CONCLUSIONS

Our study revealed the presence of urea, glucose and creatinine molecules in the bathwater, after the Electronic Detoxification System was used (IonCleanse®) presumably reflecting osmotic diffusion through the skin glands by co-transporters coupling the transport of cations (Na+ or H+) or substrates (sugars, amino acids, and ions). From the clinical perspective, no severe adverse reactions were observed. During the procedure, some patients experienced paresthesias, which rapidly faded. The Electroacupuncture by Voll test readings correlated with the clinical diagnosis in most of the cases. Despite the fact that this research cross-sectional, descriptive with a small sample size, the findings support the presence of non-ionic plasmatic molecules, which probably crossed the biological membranes and which, presumably, were extracted ionized toxic waste.

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