

THE PANIC'S SYNDROME AND THE HYPOGLYCAEMIA

**Know how the hypoglycaemia is cause of
the panic's syndrome**

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Gratefulness

To Dr. Arual Augusto Costa, a friend and endocrinologist doctor that I admire a lot and that didn't avoid in supplying the information I requested him, for this small work's elaboration.

INDEX

Prologue	04
Introduction	06
Reactive Hypoglycaemia	07
The Constitution and Biotypologies	09
Organs of Shock	10
The Metabolism	11
It is Necessary " to Break " Carbohidrates	13
Homoeostasis and Self-regulation	13
The Pancreas	14
The Suprarenal	16
The Thyroid	17
The Hypophysis	17
Glycaemia	18
Hypoglycaemia	19
Diabetes and Hypoglycaemia	
20	
Symptoms	20
Pathogenesis	21
Hypoglycaemia's Diagnosis	23
Some Cases	24
Treatment	27
Dietary Considerations	
28	
Panic's Syndroms	29
A Road Inside of the Medicina Ortomolecular	32
Free Radicals	33
Conclusion	36
Bibliographical References	38
Summary	39
About the author	40

PROLOGUE

" An infinity of lands will never be truly a nation if it doesn't know to respect and to love it's children and its "old " ones.

Celso Batello.

My interest for the hypoglycaemia appeared when I was still medicine student at the sixth year, and a patient in coma state got into the Emergencial Help Sector. All of us know that not always is easy to determine the causes of a coma and, consequently, its treatment, therefore, we all, the interns, were surrounding the teacher, awaiting a solution for the case.

After an interrogation of the relatives and perfected physical exam, the teacher opted for apply an injection of intravenous glucose in the patient.

We questioned if it would not be an inadequate procedure, in the eventuality of being a diabetic coma.

He explained that this technique would bring an immediate result in the hypoglycaemia hypothesis and it would not bring larger problems in the case of diabetic coma.

It was a great surprise for us, when, after the glucose administration, the patient woke up, as that " resuscitating" from the coma.

This case woke up my attention, I remember to have done so much, at that time, a scientific work on the subject. The case in subject was a acute, immediate and deep case.

However, nor all the cases happen in this way, in other words, taking the patient to the coma.

On the contrary, the hypoglycaemia, most of the time, travel in a chronic way, generating all kinds of physical and psychic symptoms.

This work doesn't have the pretension of draining the subject. The only thing we wanted was to accomplish in some way, while doctors, our function of clearing and informing on this so important subject for the human health, denominated hypoglycaemia that can be one of the causes of the Panic's Syndrome.

The word " panic " comes from the Greek god *Pã*, that was a mixed of man and male goat.

Pã was renounced by the own mother due to his ugliness; he was created isolated in the mountains and he amused scaring the travelers, that felt fear and panic in his presence.

To give an encouragement the those that suffer of the Panic's Syndrome it should remember that *Pã* was the only Greek god, that died in our time.

According to the mythology (Guirand, 1975; Graves, 1977), an Egyptian sailor named Thanus that traveled to Italy; when passed close of the Island of Paxi, he heard a

voice scream three times through the sea: " Thanus, are you there? When you arrive in Palodes don't forget to say that the great god Pã is dead ".

The Panic's Syndrome, it also can have the same destiny of that who gave the name, in other words, the symptoms' disappearance totally and absolutly, if conveniently treated .

INTRODUCTION

Hypoglycaemia (hypo = drop; glycaemia = glucose rate in the blood), as the own name indicates, it means a decrease at the glucose's concentration in the blood, could result, consequently, in a glucose decrease inside the cells of the whole organism.

The cell is the smallest unit of the organism. Each tissue and the different organs possess cells with different characteristics, so much in its structure, as in the form and function.

A fact in common among all the cells of the human body is that all them need nutrients to maintain the alive organism, mainly the cerebral cells.

Unquestionable the nutrient, the " fuel " more nobleman of the organism is the glucose, because it participates absolutely in all the cellular reactions in all the tissues. Then the importance of knowing the causes and effects of its decrease in the blood's circulation, as well as, the forms of preventing the hypoglycaemia, that we will try doing during this work.

The mechanisms that regulate the glucose level in the blood are the same ones that, when altered, they can unbalance the glycaemia lowering it, characterizing the hypoglycaemia, reason of this book, or on the contrary elevating it, generating the hiperglycemia (hyper = high, high + glycemia = glucose rate in the blood).

Almost always the glucose elevation in the blood is associated to the *Diabetes Mellitus* or *Diabetes Sacarino*.

Therefore if it is possible the understanding of the mechanisms regulators of the glucose rate in the blood, the reader automatically will understand as it is processed, as the hipo as the hiperglicemia.

At my point of view, the hypoglycemia can be prevented avoiding before, the refined carbohydrates, as well the white sugar and the white flours. When I say to avoid, I want to say to consume the least possible, without representing an obsession for the people, nor stopping living the pleased moments of the life, for fear of ingesting them just because is refined.

For the own definition, syndrome (sin = union and dromo = to run) is a group of symptoms generated by more than a cause, with several factors that contribute to the totality of the syndrome.

The word panic as we already saw, means fright and fear without apparent reason.

The panic can appear without being a problem, as in situations of sharp anxiety, when the individual's life is in game, as for instance, in an airplane breakdown in the middle of the flight, imminence of catastrophes, etc.

However when it happens in a "groundless way", a fear that comes from the individual's interior, with repeated panic attacks, it happens or it can happen the panic's syndrome or disorder.

And what causes impression that all that he is living is true, is that so much in the real situation of panic as in the fall of the airplane, as in the fear seemingly groundless, the autonomous nervous system is causing what is called Neurovegetative Distony (dis = altered; tony = tonus), that is, an alteration of the tonus among Simpathetical Nervous System and Parassimpathetical one, which compose the Autonomous Nervous System.

Among Sympathetical Nervous System and Parasympathetical one there are antagonistic and at the same time complementary functions. Sympathetical Nervous System when activated promotes tachycardia and mydriasis, and Parasympathetical one makes exactly the inverse: it reduces the heart frequency (bradycardia) and it provokes the miosis, when this balance is broken it happens Neurovegetative Distony, happening disturbances as mouth evaporates, vertigo, tachycardia, etc.

According to the above described, it seems that in some moment of the humanity's past, somebody could feel something similar, however perhaps the first report happened in 1871 by the Franco-Prussian war, where welded in the trench, the soldiers presented pains in the chest, palpitations, diarrheas, dizziness, as it was observed for Da Costa, designated "Syndrome of the Unalterable Heart"; later it was verified that there was not lesion in the heart, so the own Da Costa ended that it was treated of a disturbance of function of the Parasympathetical System, caused by an adrenaline discharge, that is one of the hypotheses more accepted now.

However the denomination Panic's Syndrome is very recent. Panic's Syndrome can happen in any age and it is accompanied by sensations of imminent death, sensation of madness and every disorder type that accompanies the unbalance between the Sympathetical Nervous System and Parasympathetical one.

The duration of the panic's attack varies from 05 to 20 minutes, although the individual thinks that lasted an eternity. A tendency almost always exists to an anxious behavior in the individual or a family tendency.

During the crisis there is no much to do, except awaiting that it passes spontaneously. However, the psychiatrist Dr. Dorgival Caetano of Unicamp pleads the use of medical substances to take precautions with panic attack, according to book of his authorship "How to Face the Panic", Publisher of Unicamp, that I recommend it to be read.

REACTIVE HYPOGLYCAEMIA

Reading the Magazine No. 01 of Medicina Biomolecular's Brazilian Society and Free Radicals, I found it as very important to transcribe the text "Special Theme", in order to call the attention for the subject, as below discriminated:

Reactive Hypoglycaemia: A True Epidemy

The reactive or functional hypoglycaemia is reaching epidemic proportions in the USA, where the consumption of refined carbohydrates, the sugar, and the white flour, together with the processed victuals are also alarming. In recent interview involving 134.000 people of the North American population, about 50% presented spontaneous answers of some hypoglycaemic manifestation.

The cerebral tissue depends primarily on glucose to produce energy and it is known, there is a long time, the consistent association between the neurosis symptoms and the one of reactive hypoglycaemia. We can find depression, anxiety, insomnia, irritability,

phobias, panic, concentration lack and mental confusion. Accompanying those symptoms are: fatigues, sudorese, tachicardia, chronic indigestion and decrease of the appetite. Very important they are the headache, the dizziness, the fainting sensation, the muscular pains and the lumbar pains.

Some authors get to affirm that 1/3 of the people that look for his doctor suffer of hypoglycaemia not diagnosed.

Roberts, in 1971, analyzing 421 patient with severe headache and other types of migraine, of vascular origin, refractory to the habitual therapy, verified that:

1 -) 226 patient (54%) they presented hypoglycaemia in the test of tolerance to the glucose (TTG) in 5 hours of duration.

2 -) 155 patient (37%) they presented signs and hypoglycaemia symptoms it reactivates, however with normal TTG. The clinical symptoms were typical hypoglycaemia crisis, 2 at 5 hours after the feeding and ready relief with the ingestion of sugar.

3 -) 40 patient (9%) they didn't present hypoglycaemia.

That means that 91% of that group of patients with migraine, of vascular origin of difficult treatment, they presented hypoglycaemia.

The patients with reactive hypoglycaemia studied by Roberts presented the following signs and symptoms:

90%--narcolepsia: irresistible sleep or inapropriated sleep

56%--recurrent swelling

50%--spontaneous cramps and pains in the legs

46%--obesity

32%--outlying neuropatia: tingling of the fingers of the hands and of the feet, etc.

30%--anxiety, depression, or both, not responsive the psychotropics or to psychiatric treatment.

15%--angina pectoris and arrhythmias.

12%--peptical ulcer.

7%--alcoholism.

Roberts, H.J: *The Cause, Ecology and Prevention of Traffic Accidents*. Springfield, Illimons. CC THOMS, 1971.

Comment

It is interesting the fact that in this study the need of prolonging the tolerance test for the glucose to the 5a. hour, and that this test can be normal, even in the presence of typical symptoms and hypoglycaemia, that is, it can give false negative: 155 in 381 patients (41%).

The patients that looked for us, with that dysfunction, usually women, didn't know through where to begin to count their complaints. They said to possess all the diseases and that they already sought several doctors, without any result. An anamnese and a high suspicion degree will be a lot useful. In Brazil, in the several social classes the reactive hypoglycaemia incidence is also high. A lot of times the people count spontaneously that

cannot live without the sugar and that possess true compulsion for candies and sugary victuals. It is very frequent to find headaches at dawn or when waking up in the morning; unexplained sudorese; palpitation and tremors at dawn or in the afternoon, that is, far away from the last meal. The fall of the intellectual revenue and the sleep with relevant cause in the afternoon, unexplained dizziness, fainting sensation or of "turn off" of the conscience they are also common data. The patient refers that is with the weak pile or she is working with the energy in stocking phase. It is not rare we find diabetics in the family.

We should be attentive and it alerts for not letting to pass unperceived this diagnosis, that in spite of very frequent in the medicine consultations, we, doctors, are not giving it the deserved value. In the treatment, besides the classic 6 meals a day, rich in proteins and poor in refined carbohydrates.

THE CONSTITUTION AND BIOTYPOLOGIES

A concept that will be referred intensely in this work is of its constitution. For that, we tried to clear it so that the reader can assimilate its meaning and to understand better as the organism reacts differently to a noxious incentive according to the constitution of each one.

The term biotype is intimately linked to the constitution idea. Therefore we will expose the definition that I think better of all: " Constitution is the group of morphologic and functional characters of an individual, in a die moment of his life ". (MAFFEI)

"However in the newly born it is not possible to settle down the constitutional type, because that is delineated during the individual's evolution". (MAFFEI)

We will transcribe an outline of the book *Summary of Psychiatry* of Theodor Spoerri. As the book is about Psychiatry, the considerations done about the constitutions take into account only psychic aspects, however they can and should be extended to the people's organic aspects.

This outline was placed for the reader to feel and to turn more tangible these concepts.

The athletic constitution, for instance, can answer a fall of the rate of the "sugar" in the blood (hypoglycaemia), with epileptic symptoms, such as absence - momentary escape of the conscience - or even with a widespread convulsion.

However, the picnic constitution can unchain an euphoria or depression crisis, or both, for instance, first the euphoria followed by depression.

The person's constitution can bring a series of information to the doctor, about the invigoration of the shock organs, through a specific vitamins and mineral supplementation, position that its study makes possible the knowledge of which are these organs, according to the biotype of each one.

ORGANS OF SHOCK

The understanding of what means shock organs, organs of smaller resistance or, still, "locus minoris resistentiae" is of vital importance, to understand each other as a disease it travels in an organism.

Organ of smaller resistance is those that were born weaker in a certain individual.

For analogy we could compare this or more organs to a current that can be very resistant in its whole, however presenting an or more weak links, paraphrasing the proverb that says " rope always tears on the weakest side "

In the organism, the shock organs are those that first will suffer the consequences, in case this front is unbalance to any aggression, as: stress, imbalanced feeding, sedentary life, etc., justifying an axiom of the organicist medicine, that says "*Nobody gets sick of what he/she wants but of what he/she can*".

These shock organs are the same ones that during the development of the embryo didn't complete its intra-uterine development.

An example is the lobulate kidney that remains lobed for not completing its development embryonal, could predispose it to repeated urinary infections.

Through a healthy life and mainly of a balanced feeding that doesn't overload and, above all, and that supply the indispensable nutrients to the weakest organs, improving its operation, they will become more resistant to the illnesses.

Prof. Maffei makes a beautiful analogy with the mythology.

"In fact, already in the Greek mythology, we find the conception of the sensitive organ in the acquaintance history of Achilles: when this hero of the Troia's war, was born, his mother, Tetis, dipped him in the Estígia lake's waters, that turned him invulnerable, except the heel, through where it was not taken a bath, later he was killed by an arrow thrown by Páris, that got right him in this point. So we can see that it is a symbolism, meaning that every one possesses its sensitive point..."

As the shock organ is corresponding to the Achilles' heel it is easy to presuppose that a low glucose level in the blood exactly will affect the operation stiller eventually precarious of the organ in subject, could generate every kind of symptoms according to these organs of smaller resistance. Such symptoms can be physical or psychic.

THE METABOLISM

Metabolism, Greek word (metabollein = to transform) it means a series of biochemical reactions, through the organisms transform certain obtained substances of the external in energy for the maintenance of its cells.

Through the feeding that the alive being transform the raw material of the victuals in necessary substances to its operation, supplying the necessary energy to him, or repairing the matter it spends in this incessant metabolism.

The metabolism are divided in :

Catabolism: (cata = below + ballein = to throw) it is phenomenon that consists on the elimination of the toxicant substances resultants of the metabolism.

Anabolism: (anabollein = to build), it consists on the process of building the cells and the tissues, through nutrients obtained by the victuals.

We saw consequently that the metabolism by definition is the result of the anabolism and of the cathabolism.

Victuals are necessary substances to the life and they are divided in:

- * Immediate principles
- * Water and minerals
- * Indispensable substances

The immediate principles are substances used in the daily feeding, classified as in its chemical structure in: proteid or proteins; lipid or fats and glicide or carbohidrates.

We won't enter into details in this work on the importance of the water and the minerals. We will only refer the water, saying that all the biological reactions only happen in its presence.

About the minerals, it seems that the zinc plays an important part in the maintenance of the glycaemia.

Indispensable substances: some authors noticed, through experimentations, that even receiving proteid, lipid, hydrates of carbon, water and minerals, the animals needed another substance for not to get sick. This substance received the *vitamin* name (vita = life), that is, indispensable aminas to the life.

In this work it interests us particularly the group of the immediate principles, that is: the proteid or proteins; lipid or fat and glucide or carbohidrates.

With the purpose of understanding the hypoglycemia, we are going to report, with more details, only to the metabolism of the glucides or carbohidrates, known popularly as sugars.

They are the substances more found in the feeding. Practically all the victuals are composed by the glucides, as: cereals, fruit, potatoes and etc. they receive the name of carbohidrates because they are constituted of carbon's atoms (C), hydrogen (H) and oxygen (O).

The combination of two atoms of hydrogen with an atom of oxygen results in the molecule of the water and this one combines with the carbon's atoms of the "hydrates" passing this composed to be called carbon's hydrate and to be represented by the formula $C_n(H_2O)_n$.

They are classified in monossaccharides, dissaccharides, trissaccharides, polissaccharides, heteroglycosides and mucopolysaccharides according to the number of saccharide molecules that constitute it.

The monosaccharide are the simplest, constituted by only one molecule, could contain 3, 4, 5 and 6, carbon's atoms and then its classification in triosis, tetosis, pentosis and hexosis respectively.

Among the hexosis they are the glucose, the levulose and the galactose.

The levulose frutosis is also denominated, for being found in the fruits and in the honey.

The galactose is found in the milk in combination with other glucides and proteins.

The glucose is, without any doubt, the most important of the carbonhydrates, once it is present in all the animal fabrics and vegetables, and it is found in the blood in a proportion of 70%. The glucose is an alcohol and, therefore, combined with the acids, it results in the esteres formation, like this for instance, combining with the phosphoric acid, it forms the phosphoglucosis, that are esteres of matter importance in the metabolism of the glucides.

The dissaccharides are constituted by two monossaccharides, being the most important the maltose, contained in the malt.

The maltose is composed by two glucose molecules.

The lactose, present in the milk, is composed of glucose and galactose.

The sucrose is obtained of the sugar-cane, resulting in our common sugar, and being constituted by the association of the glucose with levulose.

The sucrose (of the Greek sakkaror = sweet + eidos = aspects) that possesses a sweetened taste it received the generic denomination of sugar.

Then the reason of the name fructose for the sugar of the fruit; lactose, for the sugar of the milk and so forth.

The monossaccharides and the dissaccharides, due to its sweet taste, received the denomination of sugars.

The polyssaccharides are composed by the mono union or dissaccharides, through a process of polymerization of the sugar. The polymerization (poly = many + meros = parts) it is the meeting in a same molecule of several mono or dissaccharides.

Among the most important polissaccharides, it stands out the cellulose, the starch and the glycogen.

The cellulose is found in the nature, forming the wall of the vegetable cell.

The starch, in the nature, is found as material of reservations of vegetables, being stored in the tuberculous, seeds, etc., in form of granules. It is formed in the nature by the photosynthesis process, of the Greek (Photo = light + Syntethein = to compose), of the carbonic gas, catalyzed by the chlorophyll, under the sunshine action.

The photosynthesis is the only synthetic process that, from two inorganic substances, produces the raw material of the alive being.

The glycogen (glykus = sweet + gennin = to generate) it possesses a molecule a lot similar to the starch and it constitutes the carbohidrate of the organisms human's reservation and animal, as well as the starch it is the carbonhydrate of reservation of the vegetables.

IT IS NECESSARY “TO BREAK” CARBOHIDRATES

As it was demonstrated, in order to make the hidratos of carbon being absorbed by the intestines, they should be broken in monossaccharides, as the glucose, fructose and galactose for the action of the pancreas amilases salivate. These last ones are enzymes or responsible substances for the process of breakking, the polissacarídeos and dissacarídeos in simpler fractions through dissaccharidasas to be absorbed, that are the monossaccharides.

It is worthwhile to point out that the glucose absorbed in the intestines follows three basic roads that will explain, as follow:

1 - for the blood of the portal vein, for the liver where will be stored in glycogen form, through a polymerization process, that was already explained previously.

This storage is constituted in a process of glucose reservation in the organism, for an eventual need of this same organism.

The storage process receives the glucogenesis name (Glucose + neo = new; genesis = to create).

2 - other part of the glucose is taken to the muscles, where it is stored in glycogen form, resulting in the main source of energy for the attainment of the muscular work.

3 - the liver is the principal place of glucose storage, soon after the muscles come, however other woven of our organism contain glucose or glycogen. The nervous tissues, particularly, receives the glucose of the sanguine circulation directly without the participation of the insulin, as well as certain organs, as the kidneys and red globules.

The glucose excess in the blood that is called hyperglycaemia (hyper = high; glycaemia = glucose rate in the blood). The hyperglycaemia is found most of the time in people who suffer from Diabetes Mellitus.

And the contrary of the hyperglycaemia, the hypoglycaemia (hypo = drop; glycaemia = rate of sugar in the blood), means low content of sugar in the blood.

The glucose is one of the most important and indispensable victuals for the metabolism of the cells. Only for didactic effect and to facilitate the understanding, we will use the words glucose and sugar, as being to each other synonymous.

HOMEOSTASIS AND SELF-REGULATION

After the importance of the glucose was cleared in the reactions of all the cells of the organism, we will try to demonstrate the organs, tissue and substances involved in the mechanisms of glucose regulation in the organism, in order to maintain its homeostasia. Homeostasis, defined for the North American physiologist Walter Bradford Cannon, in 1916, is the hereditary property of being alive of lasting long in the time, maintaining the morphologic and functional balance of its cells and tissues.

The homeostasia is maintained by other hereditary property that is the self-regulation.

The self-regulation shows, for instance, when the temperature of the atmosphere is elevated, provoking a dilation of the capillary ones, in order to eliminate heat of the organism or, on the contrary, to receive heat through the supply of energy obtained by the glucose metabolism.

“The homeostasis and the self-regulation of the organism constitute the adaptation mechanisms and compensation of the organism to the several external agents, influencing, not only in a determinated time, the manifestation of a disease, as well as in the evolution way and therapeutic action” (Maffei).

Therefore each person possesses its adaptation mechanism in order to maintain the glucose levels inside of a normality strip.

This normality rate, that is always statistics, can vary from 70 to 100mg/ml or from 80 to 110mg/ml, according to the employed method to dose the glycaemia.

The glycaemia is influenced by a series of factors, being their principal the insulin, followed by other, such as the glucagon, the growth hormone, the hormones produced by the suprarenal gland, estrogen, etc.

An antagonism, an opposition between insulin and the other hormones exists. The insulin acts reducing the glucose levels in the blood contrarily to the all hormones mentioned that tend to increase these same levels.

Schematically

		Glucagon
		Adrenaline and Noradrenaline
Insulin	X	Corticoid
		Growth hormone
		T3
		E2
		ACTH

Of this balance, results the homeostasis or, on the contrary, the homeostasis promotes this balance.

We will expose, to proceed, some organs and tissues that secrete all these hormones, as well as your action way on the metabolism of the glucose.

THE PANCREAS

The pancreas is a located organ in the superior abdomen, being composed by two main types of tissues:

- The acids, that they secrete digestive juice in the small intestine, to be more exact, in the duodenum.
- The Islets of Langerhans, that produce two hormones of fundamental importance in the glycaemia maintenance, that, because of not being secreted in the intestine, they are thrown directly in the bloodstream. These two hormones are the insulin and the glucagon.

the Islets of Langerhans have two types of cells - alpha and beta - that possess different characteristics between them.

1 - the insulin: The insulin's word comes from Latin (insula = island), being produced in the cells beta of the Islets of Langerhans. The insulin is considered a protein molecule with low weight (molecular weigh).

The insulin unchains some effects in the metabolism of the Carbohidrates(sugar):

- Increase of the metabolism (transformation of the glucose), and it facilitates the entrance of the sugar in the cell.
- Decrease of the glucose concentration in the sanguine current.
- Increase of the glicogen reservations in the tissues

The insulin promotes the entrance of the glucose of the blood for the interior of the cells, where the glucose is used as source of energy, to produce all the reactions that the organism needs in order to maintain its homeostasis.

One of the few tissues or organs that don't need the insulin to absorb the glucose are the central nervous system, mainly the brain, that demonstrates the immense importance of the glucose to nurture one of our nobler organs. The heart seems to possess mechanisms similar to the brain.

Transporting the glucose of the blood's circulation for the cells, the insulin produces a hypoglycaemia, that is, promotes a fall of sugar in the blood.

We tried then, to demonstrate that in the cells of the brain the glucose enters direct inside the cell, without the contest of the insulin. The glucose is so important for the brain, that the nature endowed the cerebral cells of a mechanism of absorption of independent glucose of the contest of the insulin.

It seems also, that the insulin enters in the mechanism of mobilization of the glucose reservations in the liver, for instance, transforming the stored glucose, now with the glicogen name, in glucose.

This process receives the glycogenolysis name (glico = glicogen; lisis = to break) that consists of to break or to promote the lise of the glicogen molecule, that is composed by several glucose molecules, in its units of origin that it is the own glucose.

An imperfect insulin or a low amount of insulin can cause the state contrary to the hypoglycaemia, generating the hyperglycaemia, almost always represented by the Diabetes Mellitus.

2 - Glucagon: the glucagon is, equally to the insulin, considered a protein molecule with low molecular weight.

The glucagon is produced in the cells alpha of the Islets of Langerhans. The glucagon is produced not only for the pancreas, but also for the lymphatic ganglions, skin, tongue, spleen, duodenum and liver.

The glucagon possesses an elevating effect of the glycaemia, promoting a hyperglycaemia, through the hepatic glicogenolysis, that is, promoting the break of the glicogen stored in the liver, transforming it in glucose, that is thrown in the circulation sanguínea, when the organism needs.

Necessarily, the glucagon doesn't exercise an opposition or antagonism to the insulin, but it works as complement of this, because it mobilizes the glycogen of the liver, placing in the blood's circulation a larger amount of glucose for the insulin action, balancing the action of the hormones, with the intention of maintaining the glucose inside of a normality strip.

The other endocrine glands, as we will see follow, they act from an antagonistic way to the Islets of Langerhans - insular system.

As they possess an opposite action, contrary to the insular system, these other glands were denominated of against-insular system.

I think it was possible for the reader to feel all it is important for the organism the glucose metabolism, if not, they would not be involved so many mechanisms regulators and against-regulators, in order to stay this delicate balance.

THE SUPRARENAL GLAND

The suprarenal are two glands in form of little hats that are on top of the kidneys (supra = top; renal = kidneys), as the own name indicates, however “nothing has” to do with the kidneys. I say anything among quotation marks, because the organism is an all harmonic one that acts and interacts to each other.

The suprarenal is divided in two parts, the medular and the cortical, of different origin.

1 - the medular part of the suprarenal originates from the nervous system and it secretes the hormones epinephrin, norepinephrin, that we will denominate all of Adrenaline and Noradrenaline to facilitate.

The adrenaline acts in the organism elevating the glucose rate in the blood, promoting the glycogenolysis of the liver and of the muscles and liberation of the blocked insulin.

The glycogenolysis, as we already pointed out, it is the glicogênio break stored in the liver or in the muscles, in smaller units (glucose) for the needs of the organism.

The main paper of the adrenaline is made occupation in the cases of emergency as fear, struggles, pain, stress, surgeries and emotions...

The adrenaline is the great responsible for the famous sentence "to run or to struggle", front to a danger.

2 - The cortex of the suprarenal produces the corticoesteroids, mainly the cortisol, the aldosterone and the sexual hormones.

The cortisol reduces the use of the glucose and it stimulates the glyconeogenesis (glyco = glucose; neo = new; genesis = to generate), that is, promotes the increase of the glucose starting from substances except the carbohidrates, in the case, proteins and fats, in other words, to promote a (new = neo) road of glucose formation starting from the amino acids of the proteins and fats.

This mechanism, gliconeogenesis, enters mainly in action in the long-term fasts, when these amino acids (units of proteins) and fats degraded by GH, adrenaline and cortisol, they become more available so that they can be transformed in glucose.

THYROID

The thyroid is a located gland in the neck in “bow tie ” form, producing a hormone that regulates all the functions of the organism.

The hormones of the thyroid have an indirect action on the glucose’s metabolism; if its function is increased, it can have increase of the glicemia or, on the contrary, if its function is decreased it can have glycaemia decrease.

ORGANS OF THE NECK:

- 1 - parotid- gland;
- 2 - carotid;
- 3 - internal jugular;
- 4 - windpipe;
- 5 - thyroid_gland.

THE HYPOPHYSIS

The hypophysis is a located endocrine gland in the base of the brain and, as well as the suprarenal, it is constituted of 3 parts, a previous one, and other subsequent one: the anterior part is of nature epithelial. The posterior part is of nervous origin. Both parts produce several hormones.

The lobe or the frontal side of the hypophysis produces several substances that are contrary to the insulin, designated diabetogens or hyperglycemics (hyper = high; glycaemia = rate of sugar in the blood).

It is common to say that the hypophysis is the "queen" of the endocrine glands, position that every balance hormonal is intermediated by its.

1 - Growth Hormone: as the own name says, it is linked to the growth of the organism. It possesses, however, an action that elevates the glucose rate in the blood (hiperglicemic) reducing its use on the part of the tissues of the organs, maintaining its high level. It acts impeding the action of the insulin.

2 - Luteinizing hormones: they act primarily and they stimulate the formation of the corpus--luteum in the ovaries and the cells producing of masculine hormones in the testicles.

On the glycaemia, these hormones possess an effect similar to the hormone of the growth, however very much less intense.

3 - The Corticotrophine: it is a substance also secreted by the part previous of the hypophysis, whose function is to stimulate the suprarenal glands to produce the corticoesteroids, that promote the glyconeogenesis, already explained in the part regarding the suprarenal.

That is, therefore, an indirect action, position that increases the glycaemia, not for its own action, however through the stimulation of the suprarenal.

4 - Thireotrophics hormones: these hormones elevate the concentration or the glucose level in the blood, increasing the tiroxine's secretion for the thyroid, increasing the glyconeogenesis, although less intensely than the glycocorticoids.

The united action of the hormones of the hypophysis possesses a diabetogenic or hyperglycaemic action.

Its seems that the growth's hormone possesses a more intense effect than the other hypophysis' hormones.

However the decrease of these antagonistic hormones to the insulin reduces the glycaemia.

Just to clarify a bit more, the existent antagonism between the insulin and the other hormones can be schematized in the following way:

INSULIN	X	Adrenaline	Glicemia		
		Corticoesteróides		=	
		Thyroid's hormones			Normal
		Growth's hormone			
		T3			
		E2			
		ACTH			

Any unbalance, for less or more in one on the sides, it will move the glycemia for one on the sides in subject.

GLYCAEMIA

Now that we exposed in a summary way, the mechanisms involved in the glicemia's control on the part of the organism, we believe that the reader can already evaluate the importance that the glucose, or better still, the maintenance of the glycaemia in stable levels represents for the balance of human being.

If not, the nature would not have provided the organism of so complex mechanisms, with the purpose of maintaining the glicemia inside of a wide normality strip, to provide it, at any moment that it is needed, with one of its more important victuals, the glucose.

Inside of this perfection, the nature endowed the brain with the capacity to take advantage of the glucose without the contest of the insulin.

It is always very important to point out that all or, at least, most of the parameters used in the laboratorials exams obey statistical phenomena, as the Gauss' Curve, because of that, the great variation between a minimum rate and a wanted maximum rate, as for instance 70 to 110 or 80 to 120mg/dl, according to the used method, and because of that not always an individual that introduces a glycemia of 130 should be considered diabetic: everything depends on the correlation of the exam with the patient's epidemic data, in other words, " the clinic is sovereign ".

HYPOGLYCAEMIA

The hypoglycaemia is the low glucose concentration or sugar in the blood due to a series of factors.

An unbalance between the insulin and these factors can provoke the hypoglycaemia. For instance, if there is the insulin predominance on the hormones hyperglycaemics, there will be an unbalance of the plate in the scale in favor of the hypoglycaemia, with all the

damages for the organism. These damages and current symptoms of the hypoglycaemia, always happen because of the person's smaller resistance organs or in other words, according to your partial constitutional alterations.

The glucose levels in the blood are inside stable of a normality strip.

The glycaemia can vary, in a same person, in different times of his life, however, as we said, inside of a normality strip.

A blood's glucose level from 70 to 80mg/ml represents the ideal minimum that the organism needs to obtain energy for its operation, mainly for the cerebral metabolism.

In spite of this, it is not uncommon to find people with inferior levels to 70mg/ml, without he presenting any manifestation or symptoms characterizing a picture of latent hypoglycaemia.

Usually, however, the manifestations are more or less serious and they can be due to the spontaneous hypoglycaemia or then provoked.

The spontaneous hypoglycaemia, that it is also called hypoglycemosi_s, it is a hereditary disease transmitted in recessive way by autosomic's gene, in general familiar, but of variable penetrancy from a case to the other, so that not always the manifestations are complete.

It comes already in the first childhood characterizing for neurological symptoms as motor uncoordination, tremors and convulsions that can take to the coma and the death. Besides there is also easy fatigue, asthenia, sudoresis, speech alterations and of vision. The biochemical exams reveal low glucose rate in the blood in fast and the glicemia proof for injection gives a abnormally short duration of the glicemia increase. In the light forms, the symptoms are limited in irritability, negativism and alterations of conduct. In certain cases it is also verified hypothermia. If the disease's not diagnosed on time, the cerebral alterations can become worse, becoming irreversible, could take to the idiotism.

The disease's pathogenesis is not still cleared. The hypophysis corticotrophic hormone (ACTH) discovery and its application in these cases showed that ACTH determines the increase of the glycaemia in fast, disappearance of the tremors and convulsions, turning the normal mental development, indicating like this, that this hypoglycaemia should depend on insufficient incentive of the suprarenal. In spite of that, the clinical condiction shows that there is the hypothalamus's constuticional alteration .

There are still other cases that depend on other constitutional alterations, as the exaggerating number of Islets of Langerhans of the pancreas, that constitute the polygenesis, having, therefore, excess of insulin production.

The provoked hypoglycaemia can depend on several mechanisms that will be further exposed.

DIABETES AND HYPOGLYCAEMIA

It is very important to point out that the diabetes and the hypoglycaemia walk together.

An hypoglycaemic person can along the life get well, or even to walk for an apprenticeship of diabetes, in case there are antecedents relatives. A person can present hypoglycaemia because possesses a more sensitive organism to the insulin in the cases of late hypoglycaemia in diabetics' children, and because it produces an excessive amount of insulin.

In any of these cases before a hiperstimulation, the pancreas can end up producing a smaller amount of insulin because of "draining" its cells.

The preventive character of the diseases can seem distant, mainly in a country where the therapeutic approach is eminently healing. However exists a law of physiology of ARNDT-SCHULTZ that says that if an organ is submitted to a strong incentive it will have a weak reaction in the future and the opposite is valid: if this same organ is submitted to a weak incentive, it will have a strong reaction in the future. We know that stronger incentive doesn't exist for the endocrine pancreas that produces the insulin, than the refined carbohydrates, as the flour and the white sugar.

Who doesn't still believe in the diabetes' prevention knows that it is a disease that can be avoided by walks daily rates, weight reduction and avoiding substances that alter the action and insulin production.

The people should assume your portion of responsibility with their health, not only laying the responsibility on the doctors, improving their life quality, however the physicians are responsible for the orientation of the people.

SYMPTOMS

The symptoms vary from person to person, as we already said, depending on the shock organs of these people's, and they could be divided in light symptoms, of average and intense gravity.

The light cases are manifested by a sensation of very big hunger, with indisposition which could provoke fatigue to execute works.

These symptoms don't choose classes mainly in Brazil, once, in the early morning, the people take a small meal just constituted by milk with sugary coffee, accompanied of bread with butter and sometimes only coffee with simple bread or even only coffee. Everything refined!

After the ingestion of these carboidratos it happens a glucose elevation in the blood and after it falls abruptly.

Therefore the coffee between 9 and 10 of the morning gives the false sensation of supplying energy. It solves the problem momentarily, for the ingestion of sugar, for soon after to happen the hypoglycaemia. It is a vicious circle.

In those cases, according to the shock organs, it can happen asthenia or muscular fatigue, disturbances, alterations of conscience (obnubilation), tremors, dizziness, sleepiness, tachicardia, headache, agitation, irritability or, on the contrary, the person can be depressed etc.

The symptoms of average intensity can provoke nervous phenomena, as maniac agitation, furious cholera, mental confusion, hallucinations, somnambulism, visual alterations of conformity. We insisted again, with your partial constitution and or general,

for instance, if the patient possesses an athletic constitution, he can suffer absence or convulsive crisis.

It can happen abdominal pains, precordials, simulating or even provoke miocardio's infarct.

The symptom of intense gravity is the coma hypoglycemic, that can bring permanent sequels as disease of Parkinson, hemiplegia etc.

It can be noticed that the symptomatology can be so much physical as psychic and of all the intensity levels, from a simple indisposition, until for instance, a syndrome of the panic.

PATHOGENESIS

The pathogenesis (pathos = suffering + genesis = origin) it is a word of Greek origin, that explains the mechanism of action of the causes.

All the symptoms that can happen in the validity of the hypoglycaemia elapse of the inadequacy of the energy supplied by the glucose and because of the fall of the metabolism of the nervous tissue, in which that immediate principle has fundamental importance for its operation.

Several conditions can determine it such as:

- 1 - excessive solicitation of glucose for the organism, as it is verified in the violent and lingering muscular effort.
- 2 - for the application of excessive dose of insulin or hypoglycemics used in Diabetes Mellitus's treatment.
- 3 - in cases of constitutional alteration of the metabolism, as for instance the amino acid Leucine - when the individual ingests caffeine that determines the inhibition of the hepatic glycogenesis; galactose absorption in the individuals with constitutional galactosemia and the constitutional intolerance; the intolerance to the fructose and, finally, in the renal diabetes.
- 4 - Hypoglycaemia, due to glycogenolysis or the insufficient hepatic glycogenesis, that can depend on alterations of the liver or, in the case of this organ to be normal, to the inadequacy of the systems hormonal hypophysis, suprarenal cortical and of the thyroid. In the first case, we have the sharp and chronic hepatitis, cirrhosis of Laennec, necroses of the liver of toxicant nature for anesthetic or other medicines, etc.

The neoglycogenesis consists of the glucose production at the expense of proteins and of lipids. If the metabolism of these immediate beginnings is committed, it can have hypoglycaemia, as it happens in the inadequacy of hypophysis, in the less function of the thyroid and in the inadequacy of the suprarenal.

- 5 - of great importance it is the hypoglycaemia in people who suffer gastrectomy, that is verified half hour or one hour after the meals known by the dumping name and its pathogenesis consists of the fast emptying of the stomach, resulting in the abrupt and voluminous stuffing of the intestine and as consequence, absorption of great amount of glucides. This way, insulin excess is produced, that not only it mobilizes what it was absorbed, as well as the glucose usually found in the blood. Therefore, the treatment, in

those cases, consists of reducing the volume of the meals, multiplying their number and, besides, there is reduction of the hydrates of carbon in the feeding.

6 - tumors of mesenchymal nature benign or evil retroperitoneal or thoracic can be cause of recidivist hypoglycaemias due to the paper of that fabric in the glycolic metabolism, that is, of Reticuloendothelial System for him constituted.

7 - special mention deserves the hyperinsulinism, described by Seale Harris, in 1923, characterized by the functional hypersensitivity of the Islets of Langerhans of the pancreas, that, of rest, they are normal in number and its structures.

In this way, any incentive of larger intensity of the nice nervous system that enervates those structures or a sudden increase of glycaemia, can determine the insulin overproduction and consequently the hypoglycaemia. The amount of produced insulin presents variations in the time and, for that, the symptoms are also variables, with relationship to its gravity. The proof of tolerance to the glucose also presents variations in the same person, according to the time in that it is accomplished; great rate increase is sometimes verified in the first hour to fall later below the fast rate and other times it stays around the fast rate since the first hour.

The hyperinsulinism is very common in the medical practice and it can come with any of the symptoms already referred and as the clinical exam is in general normal, those people are labeled as "hysterical" or "neurasthenic", or still "psicasthenic"; because the most common symptoms are: nervousness, irritability, migraine, anxiety, depression, insomnia, vertigo, tremors, crises of weakness, sudoresis and disturbances gastroenterics. Therefore, those individuals travel several medical clinics.

The variability of symptomatology of a case and another depends on the partial constitutions of each one.

" These disturbances can also be found in children in the school age and in the academical girls, showing themselves as retarded or disturbed emotionally, harming them the studies. In certain cases, the individuals become alcoholists, due to their anxiety state ". (Maffei)

The lightest symptoms of hypoglycaemia are not usually mischievous in consideration, even for friends, that, less informed, end up treating the patients as being "nervous", making use of medicines that can mask or to worsen the clinical condition.

HYPOGLYCAEMIA'S DIAGNOSIS

Diagnosis (dia = through + gnosis = to recognize) seeks to establish the type of disease that affects the patient, through the subjective data (complaints and symptoms) for him presented and the objective data verified by the doctor, such as tremor of the hands and laboratory exams.

Only after the diagnosis it is settled down the therapeutics, a Greek word that means to take care, through medicines or orientations of health.

As we saw, the hypoglycaemia's symptoms are not elucidators.

The diagnosis is firm by the level of sugar in the blood through a fast glycemia, of the glycaemic curve and of the level of the insulin in the blood's circulation.

The fast glycaemia just measures the glucose dosage in the blood, in a certain moment, that is, in fast, that can result normal.

Several hypoglycaemia causes exist, some can be mentioned, such as deficiency of operation of the hypophysis, inadequacy of the suprarenal gland, disease of Von Gierke that is caused by the lack of an enzyme for the glucose's metabolization, increase of the Islets of Langerhans, malnutrition and functional hypoglycaemia (it reactivates, spontaneous, neurogenical).

As we said above, the fast glycaemia only is not enough to close the diagnosis. However, a fundamental exam, but not absolute, is the oral proof of tolerance to the glucose, also denominated glicemical curves.

The glycemical curve consists of picking the blood in fast and soon after to administer glucose orally, repeating the crop of blood 30 minutes, 1 hour, 1 hour and 30 minutes, 2 hours, 3 hours and 4 hours later, following medical criterion.

In the accomplishment of glycemical curve, the patient should ingest a diet with, at least, 150 grams of carbohydrates for three days before the accomplishment of the proof.

At the same time, should be suppressed by three days the use of any agent that can alter the glycaemia.

After the successive crops of blood in the times above extolled, the measure of the levels of sanguinea glucose is proceeded.

The curve that interests us that is inserted in the context of this work is the curve of the hyperinsulinism.

Several conditions can modify the proof of tolerance to the glucose as hepatopaties (diseases of the liver); sharp stress "; lingering physical inactivity; all the conditions that expel the potassium, as diuretics; hyperthyroidism (excess of operation of the thyroid); diseases related with the hypophysis gland.

The insulin dosage, at the same time when each measure of the glicemia in the glycemical curve, has a priceless value in the detection of the hyperinsulinism when it happens an increased secretion of the insulin, provoking a fall of the sugar in the blood.

After a hypoglycemia's proof, occupation is turned to proceed a more detailed study of the whole endocrine and metabolic system, for trying to establish the decisive cause of the problem. It's necessary to know if it is of insular cause (pancreatic - Islet of Langerhans) or against islander, with the other factors that influence on the glycaemia.

It is useful to point out that a glicemical curve normal doesn't move away a hypoglycaemia diagnosis and nor a person that had an altered curve should present this alteration forever.

Nowadays it is considered that the endocrine system, with its secretion internal glands doesn't work in a continuous way and indeed through "pulses". Fact that the doctor should take in consideration in the elaboration of its diagnosis.

Some medical friends that only consider hypoglycaemia exist when the glycaemia is below certain levels. These friends are treating, so-only the exam without taking in consideration the person as a whole, that is globally so much that the great laboratories are careful of saying that the laboratorials data should be taken in consideration the function of the patient's epidemic data.

Therefore, exist people that don't present symptoms even with significantly low levels of glycaemia and, to the opposite, patient that even with a small variation, they present important alterations as much physical as psychical.

We cannot forget all the mechanisms that regulate the rate of blood's, glucose as well as the individual's constitution, that determines the vulnerability degree of the different organs to a glicemia variation, that certainly is not the same for all the organisms.

It suits not to forget that "the clinic is sovereign " and never forget the French dictation that says that in Medicine as in the Love we don't say nor never.

SOME CASES

As we saw, the symptoms are very variable and non pathognomic that is they are not specific or characteristic of hypoglycaemia, in other words, they are general symptoms that can belong to any other illness.

We will tell some cases through an empiric methodology, just in order to the reader evaluate the importance of this hypoglycemic syndrome.

We will present, also, some laboratory exams, in order to familiarize the reader with these procedures and to evaluate as the doctor acts in the elaboration of the diagnosis.

Case 1: O.B., 72 years old, married.

The patient came to the clinic with dizziness, complaints, mental confusion and visual alterations, saying that didn't feel the ground.

He referred to have made a dosage of sugar in the blood, that resulted low, according to him, below 60mg/ml.

After the physical exam, seemingly normal, I requested a fast glycaemia's exam that resulted 70mg/ml, and the value of normalities of the employed method is 70 to 110mg%.

Not satisfied, I directed the patient to the ophtalmologist and neurologist. They found out nothing significant in the case. Besides I requested the accomplishment of a glycemical curve, that resulted in the following:

Fast Glycaemia 70mg%

Ingestion of a solution of 75g of Dextrosol

After 30 minutes - Glycaemia: 118mg%

After 60 minutes - Glycaemia: 71mg%

After 90 minutes - Glycaemia: 61mg%

After 120 minutes - Glycaemia: 38mg%

After 180 minutes - Glycaemia: 58mg%

See that the fast Glycaemia resulted normal.

In compensation, we can see that this curve is below, that is considered normal.

Getting to critical levels of 38mg% after 120 minutes after the ingestion of Dextrosol (sugar).

That is a case, therefore, of a reacional hypoglycaemia to the ingestion of sugar.

The conduct was to guide the patient in an alimentary diet, reducing the ingestion of refined carboidratos, mainly white sugar.

The patient nor followed the diet strictly, but either only abolished the white sugar, what allowed him to return to the life normality.

In case 2: I.A.P., 35 years old, married, administrative manager.

The patient affirms to have received the diagnosis of the syndrome of the panic, presenting an uncontrollable fear of the death, with a paradoxical desire of throwing her of a high place, anguish, fear of being alone, fear that something can happen, sensation that the heart opens up, a drop falls up and later it closes.

Besides, the patient presents a decrease of the sexual desire (libido), however after he begins the sexual relationship, everything elapses very well.

He says that everything worsened after having seen a deceased in a funeral (sic).

As a family history of diabetes exists, I requested a glicemical curve or proof of tolerance to the glucose whose result was the following:

RESULT	UNIT	VALUE OF REFERENCE
Fast	76,8 mg/dl	70 to 110 mg/dl
30 minutes	93,1 mg/dl	
60 minutes	68,5 mg/dl	
90 minutes	71,6 mg/dl	
120 minutes	60,8 mg/dl	
240 minutes	68,5 mg/dl	

I treated with a homeopathic medicine and I guided a poor diet in carbohydrate, mainly the white sugar. The result was excellent. This case, "labeled" for "syndrome of the panic", it was nothing else that a reacional hypoglycaemia, probably provoking alterations in the patient's shock organs, mainly in the central nervous system, in the case, brain, hypothalamus and limbic system, with current psychic manifestations of the glucose lack in these structures.

At little time I read a report on to syndrome of the panic, where the person said that the patients passed of doctor in doctor and didn/t get better.

In this mentioned case, the patient belonged to psychotherapist in psychotherapist and the cause of your problem was eminently physics.

French say: "In medicine as in the love, don't always say nor never".

In case 3: S.M.S., 44 years old, single woman.

The patient arrived at the clinic complaining about irritability, and to be desirous of breaking the things, sleepiness the whole day, "vision dark", quarrelsome and discouraged of the life, almost impeding him of working.

For the antecedents of diabetes and family hypoglycaemia, I requested a curve:

RESULT UNIT VALUE OF REFERENCE

Fast 71,4 mg% 70 to 110mg%
 30 minutes 95,1 mg%
 60 minutes 68,9 mg%
 90 minutes 67,6 mg%
 120 minutes 60,6 mg%
 180 minutes 62,2 mg%

The given orientation was the same of the previous cases, added of a vitamin and mineral supplements. The case developed in a satisfactory way.

These cases come to demonstrate the importance of the metabolism of the glucose in the human health, not only in the physical aspect, as well as in the psychic.

In fact, a balanced feeding that supplies all the indispensable nutrients to the all cellular reactions has vital importance to avoid illnesses or that, at least, hurry the evolution of it.

This work seeks mainly to alert for the fact that many treated patients psychically are, in the reality, people that possess an important metabolic alteration.

We don't want to say that the psychotherapeutic treatment is not important, on the contrary, problems and psychic traumas also make to get sick physically. However, it is very important to settle down in that case is framed the patient with the purpose of benefitting the sick person.

TREATMENT

If we verify the immense majority of the therapeutics books, we will notice that almost anything is talked of the hypoglycaemia.

The treatments, when they are referred, limit to the coma or hypoglycemic state for which the use of the intravenous glucose is extolled. The results are astonishing, once already in the beginning of the injection the person recovers the conscience.

In the people eventuality not to answer to the glucose injection, it can be opted for the use of the corticotrophina or ACTH, whose function is already view as stimulating the

suprarenal to produce a larger amount of corticoesteroids that would promote an glycaemia increase.

However, in the hypoglycaemia chronic, little thing it is spoken about. Unlike what it imagines, in spite of the name hypoglycaemia to suggest low glucose levels in the blood, it should not ingest carbohydrates, mainly the sugar, because in a first instant it happens an glycaemia's elevation, for soon after, due to a high secretion of insulin, the blood's glucose falls, usually at lower levels than the initial state, that did the person to ingest the sugar.

Certainly, the sugar should totally be abolished of the diet of the hypoglycemic. A smaller restriction is made to the carbohydrates non refined, such as: raw sugar, flour of whole wheat, whole cereals, because it enters slowly in the bloodstream not requesting a very intense answer of the pancreas in the secretion of the insulin.

On the contrary, the sugar and the refined flour and all the refined in a general way fall in the bloodstream in an abrupt and violent way, causing a reactional hypoglycaemia.

An auxiliary therapeutic should be based on the supplementation with vitamins and mineral salts, mainly zinc, that enters in the constitution of the insulin.

It is recommended, 3 hours after each meal, to take a glass of milk with chestnut in order to avoid great increase of the glucose levels in the blood.

Another carbohydrate which has great value is the fructose, that, as we already showed, it is treated of a pentose, in other words, it contains 5 atoms of carbon. The fructose follows a different metabolic road from the glucose, being absorbed practically without the contest of the insulin, fact this that turns it advisable so much for the diabetic people, as for the hypoglycemic, since used with moderation.

Besides the avoidance of the carbohydrates, it is interesting to promote an invigoration proceeded with natural minerals and vitamins of all the glands that produce hormones that they are opposed to the action of the insulin, for instance, to stimulate:

- a) thyroid, through the ingestion of sea algae;
- b) suprarenal, through the vitamin C and ginseng;
- c) hipophysis, through the oil of the wheat germ and of the zinc, that enter in the constitution of the insulin.
- d) etc...

DIETARY CONSIDERATIONS

The diet more recommended for the hypoglycaemia it is a poor feeding in carbohydrates, for the reason previously described.

An orientation of highest importance is that the person hypoglycaemic should do from 6 to 7 meals a day; in order to always maintain the stomach full, with the intention of liberating carbohydrate of the duodenum constantly, so that the glucose rate in the blood stays stable, always not suffering oscillations harmful to the organism.

In a general way, under the point of view of the treatment of the hypoglycaemia, it is important that is ingested victuals that stay a larger time in the stomach for the reason

previously exposed. The victuals that assist this basic precept are the groups of proteins and of fats. However, the one of animal origin should be consumed with parsimony, because we know about the deleterious effects caused by the excess of these products in the organism.

It should be avoided the alcohol, the coffee and the tobacco, as well as the excessive consumption of kitchen salt, because there is spoliation of blood's potassium, fact this that predisposes to the hypoglycaemia.

The protein sources and vegetable fat should be used with the purpose of delaying the gastric emptying. Such elements can be found in the seeds, in the whole grains, sprouts, nuts and chestnuts, that together with the dairy products they should be the base of this diet, mainly the yogurt.

The sprouts, the chestnuts, the whole cereals and the nuts can be consumed raw. However, the grains should be cooked in the cereal form, because when cooked they stay more time in the stomach to be digested, delaying of this sorts out the gastric emptying, maintaining constant the absorption of carbohydrates non refined on the part of the duodenum and, like this, maintaining stable the glycaemia.

In the interval of the 3 principal meals, that is, breakfast, lunch and dinner, it can be ingested sunflower seeds, pumpkin seeds, chestnut or nuts with yogurt. However, when if it wants to sweeten some thing, it is better to use the fructose, because as we already saw it is metabolized predominantly by the liver and it doesn't need, practically, of the contest of the insulin to be absorbed by the blood's circulation, then not to provoke abrupt alterations in the glicemia.

The sweet fruit and the dried fruit can be consumed once a day.

The fruit juices and, mainly, the vegetable juices should be ingested from one to two hours before the main meals.

It should be observed that this outline is very rigid and it is applied integrally to the serious hypoglycaemias. Therefore, nobody should turn if, in any hypothesis slave of outlines, any that are. What was said above it is alone an orientation norm, a route just.

As Hipócrates, the Father of the Medicine, said "in matter of fact food, never prejudice nor does well, it depends on the quantitie".

Of course in that time agrotóxicos didn't exist etc. However a called philosopher Lucrécio enunciated, that "the same meat that feeds a man can poison another man".

The sayings of Lucrécio speak about the people's individuality, that together with the Hipócrates' sayings, they want to say: "avoid what you know that does it badly and remain eating with moderation".

Necesserally, the most capable person to give this therapeutic alimentary orientation is an endocrinologist or a competent metabologist.

PANIC SYNDROME

For the own definition syndrome (syn = gathered + dromo = to run) is a group of symptoms originated for more than a cause, competing of this, several factors that contribute to the totality of the syndrome.

A patient almost always seeks a doctor with several complaints or more than a symptom that, as we saw, they are originated for more than a cause.

The Panic's Syndrome doesn't escape from this rule. Therefore, it should be taken in consideration in the patient's treatment all its global aspects, in other words, his characters physicist, mental and psychic, simultaneously.

The start of panic's syndrome usually happens after an important psychic fact, that causes any psychic upset, that reaches the "sick person Achilles' heel" as for instance, loss of a dear being, loss of an employment, loving breaking, a deception, etc. In this matter the Homeopathy can contribute, and a lot, for the person's reestablishment .

However, before indicating a psychotherapical treatment exclusively, we have to exclude the organic and metabolic causes as well as causes of any psychic disturbance - and in the panic's syndrome it is not different, because we believe that the psychic aggressions, are the most important, however they act unchaining on top of a predisposed constitution of answering to this aggression in any or several ways, according to his susceptibility. In this matter the hypoglycaemia can unchain to panic's syndrome, as a low rate of blood's glucose represents an alarm situation for the organism in a general way and especially for the brain, mainly in the limbic system, that is the headquarters of the human being emotions.

Therefore, it is very important that parallelly to the any psychotherapeutic treatment an orientation is instituted to the patient, towards to normalizing his glycaemia, if not, due to this alarm situation, the person becomes susceptible to any kind of erroneous interpretations of what it is happening in his interior, as well as in the world that surrounds him, causing every fear luck that could torment his existence.

Hypoglycaemia can be one of the causes of the panic's syndrome , however not the only one but it should be taken in consideration in the patient's approach with such syndrome that better should be treated by an endocrinologist or competent metabologist, together with a psychiatrist's contest.

Dr. Dorgival Caetano in his book "How to face the Panic", he makes some very important considerations that I transcribe:

- 1 - disorder or disease of the panic is qualitatively different from the anxiety states already known.
- 2 - in spite of being described in the past with different names, it was only defined at the beginning of the decade, therefore it is almost unknown by the doctors.
- 3 - the panic has steem incidence of 1 person in each 1.000, what would give about 130.000 people in Brazil.
- 4 - in about 65% of the cases, the crises begin in the from 21 to 35 years age's group, however it can begin before or after that scale.
- 5 - the panic was not still properly studied in children.
- 6 - it is two to three times more frequent in the feminine sex. It can happen in people of any socioeconomic class.
- 7 - There is an important genetic contribution, always meeting at least a case of panic e/ou alcoholism in the family.
- 8 - the diagnosis is made by the occurrence of sharp episodes of apprehension or accompanied fear of some of the following symptoms: pain, discomfort or squeeze in the

chest, palpitations, lack of air, drowning sensation or suffocation, dizziness or impression that it will lose the equilibrium, cold and/or heat waves, hyperspiration in the hands and/or other parts of the body, tremors, tingling, dry mouth, cold in the stomach or abdomen, nausea, vomits (little frequent), paleness, redness in the neck or face, pain or empty head sensation, softness in the legs or in the body, fatigues, sensation that the atmosphere or the own person is different, distant or not familiar.

Those symptoms are accompanied by an or more of the following sensations: sensation of imminent death, that he/she will have a heart collapse, to lose the senses, to go mad or to lose the control.

9 - not always the crises are so severe and there are people that only have smaller crises during the life.

10 - in general the crises are sudden and they length from 5 to 20 minutes.

11 - some physical diseases can simulate the disease of the panic. The diagnosis diferencial is a medical task.

12 - the precipitator factor more common of the disease is the emotional stress. The adrenaline use, marijuana and anorexemic eventually can be precipitante factor. The panic can appear suddenly, without any precipitator factor.

13 - once the panic appeared (precipitate or not), the crises become autonomous and no longer they need something that precipitates them more.

14 - they can, however, to be worsened by emotional and physical stress, premenstrual period, menopause and the same drugs that precipitated the disease. Pregnancy is, almost always, a protection factor.

15 - the only physical dysfunctions found in discharges percentages in patients with panic are prolapse of valve mitral and psychosomatic diseases.

16 - the panic crises seem to be caused by an intense discharge of noradrenaline. In spite of plausible, that hypothesis was not still fully confirmed.

17 - beside the physiologic dysfunction, they also exist psychological factors contributing in the genesis of the disease of the panic, which were not still clearly delimited.

18 - most of the people with panic already presented personality's anxious traces (tension, excessive concerns, difficulty to relax, etc.) even before the crises. About 1/3, however doesn't present special personality's characteristic before the crises.

19 - as the panic's disease is almost unknown, the great majority of professionals (persons on duty, general doctors, cardiologists, endocrinologists, ear's, nose's and throat's specialists, neurologists, psychiatrists and psychologists), is not prepared to identify the disease.

20 - as consequence, there is pilgrimage from doctor to doctor, accompanied of unnecessary exams and, sometimes, onerous, and of attempts of treatments without success.

21 - This syndrom contributes to the hypochondria appearance and disbelief in the doctors and in the medicine.

22 - with the crisis's repetition, besides hypochondria, the following complications appear: direct or indirectly phobias associated with the situations in which he/she had the crises, basal anxiety (more or less constant), anticipation anxiety, agoraphobia, self depreciation, depression, alcoholism and/or drugs' abuse.

23 - the complications don't have necessarily to follow the sequence above, and any simultaneous combination is possible, as well as it is also possible to have just one or two of those complications.

24 - frequent and severe panic crises take earlier or later to the development of complications, independently of the previous personalities's characteristics at the beginning of the crisis.

25 - the panic's disease not identified and nor appropriately treated previously, besides the psychological complications above described, also brings social-economical-familiar complication.

26 - the treatment of the panic's disease consists essentially on the crisis' prevention; that is a condition sine qua non for the success and to get over the phobias and of the other complications.

27 - the crisis' control can be obtained in a period from 2 to 4 weeks. The use of medicines is necessary.

28 - after (and just after) the complete blockade of the panic crises is that should be the patient stimulated to face the feared and avoided situations progressively.

29 - the fact that the patient has the disease for several years or decades it doesn't constitute an obstacle for his treatment.

30 - now we have conditions of modifying for best the history of the panic's disease, which has been causing so much suffering for patients, family and friends.

A ROAD INSIDE OF THE ORTHOMOLECULAR MEDICIN

The Orthomolecular Medicin and Nutrology

In is book *Medicina Biomolecular and Free Radicals* , Dr^a. Shirley de Campos exposes in a very clear and concise way the following:

"The healthy man should consider the health the largest human blessing". **Hipócrates**

Nutrology and Biomolecular Medicin

Orthomolecular Medicin means to conserve the great health and to treat the illnesses varying the concentrations of the substances that are usually present in the organism and that are necessary for a good health.

Linus Pauling
Chemistry Prize Nobel (1954)
Peace Nobel Prize (1963)

Orthomolecular Medicin's meaning

Orthomolecular Medicin was denominated in 1968, by Linus Pauling;

- Being a group of fundamental therapeutic investigations;
- Therapeutic techniques;
- Prevention practices.

Understanding of the biochemical mechanisms

As the indispensable nutrients are assimilated for the life, amino acids, fat acids, vitamins, minerals, presents in the feeding;

- As they are metabolized;
- As they are transformed chemically for cellular use;
- To study the generating lacks of physiologic disorders manifested by symptoms.

The medical use of substances of the own organism

For treatment in a unique form or with other therapies of different illnesses, nutritious, enzymes etc.

The use of these substances for preventive ends

Obtaining great conditions of health to compensate the lacks provoked by the feeding and life form.

Orthomolecular (of the Greek = balance (normal))

Presence, in appropriate proportions, of the molecules that are convenient to the organism.

Therefore: orthomolecular = medicine of the nutrition.

Medicine Biomolecular (advanced medicine)

It gathers the medicine ortomolecular, more the aplicability in the functional medicine, more the biopharmacology knowledge associated to the all the sciences that study the organism and the psyche.

Inside of this conceptualization it should be excelled by a better life quality through:

- 1) an intelligent diet;

- 2) aerobic and moderate exercises;
- 3) to administer the problems of the day by day;
- 4) to learn getting rid of the heavy metals;
- 5) to abandon suicidal habits as tobacco, to ingest alcoholics drunk etc.;
- 6) to use substances that neutralize the action of the free radicals.

FREE RADICALS

The Free Radicals (FR), are any substances, atoms or molecules that contains an isolated electron in its last layer, checking therefore a negative electric charge to this same substance. [See, follow, the representation of an atom:]

This same electronegativity turns this substance highly reactive and unstable, for that reason avid of calling to other atom or molecule. In linking, it "robs" an electron (negative load) of this atom or molecule, rusting it. This process happens, for instance, when the iron becomes rusty when exposed to the action of the time.

The free radical, far away from being a villainous one, is indispensable to maintain the balance and the organic defenses, for instance before the bacterial attack, the cells of defense kill the bacterias through the action of the free radicals.

Usually around 97% of FR are neutralized by the organism. However the remaining 3% can attack the own organism causing degenerative chronic illnesses, cellular aging and consequently precocious general aging.

The organism has resources to defend himself of the noxious FR's action through substances produced by himself, or, still, through vitamins and mineral salts, that enter in the composition of these defensive substances or acting as sweeping of this excess of FR, discharging them through elimination channels of toxins, which are skin, large intestine, lymphatic system, the urinary system, breathing, and because of that, there is a popular statement that says that who doesn't evacuate the intestines BECOME IRRITATED, and in Portuguese *enfezado* that is, full of feces, that it causes bad humor, irritability, due to the toxins or the free radical that were not eliminated, and because of that, they act on the cerebral structures provoking chemical reactions that take the person to be become irritated, or even, even with badly breath, once the gases be reabsorbed by the intestinal mucous membrane they fall in the blood's current and when passing for the lung's filter, they are eliminated alternatively by the breathing apparel, generating the halitose, in other words, it is something similar if it closes a faucet, it has to drain for another road, in this case for the breathing. See, it is everything a subject of life quality and of preservation of the basic life's instincts.

The feeding should be the way of preferential choice to receive the indispensable nutrients for the maintenance.

A blood's circulation is processed by the body's movements, mainly for walking, once the musculature of the calf, also called by "Outlying Heart of Bard" scientist that discovered this function, that concerns the veined return, that it is largely processed by the action of this musculature, impelling the veined blood for the right camera of the heart, for

soon after to be led to the lung to be arterialized. The Homeostasis, that is the capacity being alive of lasting long in the space and in the time, maintaining complete its functions, it depends intensely on the veined return.

Dr. Jensen refers that to stay healthy a clean blood, a complete nervous system, it should be had a appropriate blood's circulation and to rest. A clean blood, for instance, is obtained by a healthy diet, for a good oxygenation, being used the channels of elimination of toxins satisfactorily.

A complete nervous system, besides the above-mentioned items, the excessive stress should be avoided.

Through the veined return, more blood arrives to the lungs more the blood will get rich with the oxygen and also, more arterial blood will arrive to the left camera of the heart that will distribute it for the whole organism, mainly the brain, justifying a dictation of Italian popular wisdom that says: " Who walks a lot never get a weak brain " inside.

The rest is so important that Jensen refers that is necessary to rest before even of feeling tired.

What we have to do, in this competitive modern world, full of hurry, where is it extolled Fast Foods, the sedentary life, the activity excess, where one "walk" seated in a vehicle or goes up in a building for the elevator? It can be received all the indispensable nutrients to the life, however, it is necessary that they arrive at the places that should nurture, and this is made by walking.

Happily in Europe a campaign exists already in favor of " Slow Food ", in the whole world it is extolling if walks daily rates, practices that relax and they rest like Yoga and Tai Chi Chuan, among other, that contribute to a " clean " blood. It is known in Orthomolecular Medicin that is the brain is the first organ to suffer lesions in function of FR. The central computer is prayed it works badly, as it is the remaining of the net. The American says " time is money ". However the time is much more, time is life and one lives once only in this life. Only who loses the health knows your real value.

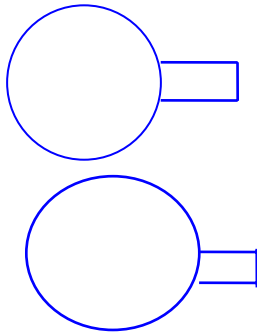
As Hipócrates says: *The healthy man should consider the health the largest "human blessing"*

The feeding is, without any doubt, a road for the Orthomolecular's Medicin and consequently a health secret, where the nutrients represent the raw material for the organic and fundamental reconstruction to avoid the excessive production and to neutralize the noxious action of FR on the human body and why not in the animals.

In this way, the minerals and the vitamins, as well as the victuals that it contains as much one as another are of real importance for who practices the orthomolecular's medicine or simply who wants to maintain his health.

However for the ortomolecular doctor, after the detection certain lack, for instance, through the Hair's Mineralogical Analysis, he can proceed an attack dose in the sense of correcting such lacks, and in a second moment to guide his patient in the sense of ingesting preferentially the victuals that contains those nutritious ones that are lacking in the organism in a rational and discerning way.

Schematic representation of a normal atom and of an atom with function of free radical:



Some highly important healthy metals in the glucose's metabolism and consequently in the genesis of Hypoglycaemia and of then Panic's Syndrome, such as the Zinc, Manganese, Chrome, Magnesium and Litium, for instance, that once corrected they can stabilize the glicemical levels contributing to the improvement of the refered clinical condiction.

Once detected the generating mechanisms of excess of free radicals an appropriate therapeutics is instituted including the minerals to correct them, providing well-being to the person.

As it is known, many are the mechanism involved in the Panic's Syndrome, however it is known that we improve the whole in improving the parts and that also, improving the whole, we improve the parts, however the whole is larger than the sum of the parts, that is, the considered person saw in a total way is what it really interests for him own and for all.

CONCLUSION

The man is the only animal of the creation that knows that one day unavoidably will die, fact this that places him in front of inexplorable something and before this apprehensive he wonders that exists after the death. Besides that, the aspirations and the unrealized life projects can bring some suffering type, mainly when he gets lost some life references such as dear beings, employment loss, separations, etc.

In his book "*The Myth's Power*", Joseph Campbell says, for instance, that in th past the boy only dressed trousers when reaching the 14 years of age, when in a process of initialization rito he noticed that was beginning to travel a road to become adult. Today this doesn't exist more. Therefore it is for instance, a loss reference. The drugs trafficker knows that that is important for the human being and because of that, he uses ritos, myths and initiation to reach his objectives.

As it is a syndrome, without any doubt, the lack of these references can also unchain this referred picture, because of that the people, wisely maintains its traditions and wisdom in the attempt of maintaining the cardinal point inside the people's unconscious.

Inside of these principles there are in the evolution human two appetites that are Phylogenetic and Ontogenetic.

Phylogenesis represents the evolution of being alive from the simplest to the more compound, in the geological scale, that supposedly is the man.

Ontogenesis is the evolution of the species in relation to herself, in other words, for instance of the man in relation to himself, or still, of the dog in relation to the dog.

In this way to think in appetite terms, the appetite Phylogenetic is that one which grew in an instinctive way, and because of that, purer.

The Ontogenetic appetite of the species in relation to the own species, in the case the man's subject in relation to the own man, for that reason susceptible by alterations, as for instance, the desire of soft drinks, that are not in fact victuals, generating, in this way, a deterioration of the appetite. The same reasoning is worth for the refined victuals, that usually don't exist in the nature, as for instance the sugar and the white flour, that consumed in excess from the childhood they can provoke an exaggerating answer on the part of the pancreas, because produces insulin, that in a second moment it can take to a hypoglycaemia reacional and functional front such great incentive.

To all excitement it befalls a depression, fact this that can be explained by Arndt Shultz's Law that says: Weak incentive in an organ, strong reaction in the future, strong incentive in an organ, weak reaction in the future ".

This depression of the organ has the likeness of a boxing where the fighter from hitting a certain organ, is going mining the opponent until knocking out it. And the refined victuals, are the largest incentives to the endocrine pancreas, for that in a family of bearers of Diabetes Mellitus a functional hypoglycaemia can end up resulting, in the future, in an undesirable diabetes.

The purpose of this work was to demonstrate the importance that the metabolism of the glucose carries out in the organism acting as one of the principal victuals for the cells and consequently, for the whole human body.

The glucose's fall in the blood, hypoglycaemia, can produce symptoms and irreparable damages to the health, mainly of the " shock organs" or " locus minoris resistentiae ".

Through the precocious diagnosis, being taken into account, primordially the hereditariness, that is, exist a family history of hypoglycaemia or even of hyperglycaemia, almost always certain for the Diabetes Mellitus, it can take precautions the development of the disease, with its symptoms and sequels in the individual.

In spite of the hypoglycaemia to mean low sugar in the blood's circulation, it should be avoided the carbohydrates in a general way, mainly the refined ones, such as: sugar and refined flour, once entering very quickly in the circulation provokes a glucose pick, forcing the pancreas to a fast and intense answer in the insulin secretion making the glucose levels to fall abruptly, with all its consequences for the organism.

If the hypoglycemic patient doesn't resist to a candy done with white sugar, he should eat it during the meals, as in these cases the absorption of the sugar is slower and less intense. In these cases it is worth more to prevent of what to remedy.

Unhappily, the one that I have been observing is that even some medical friends don't know how to treat the chronic hypoglycaemia, recommending procedures even contrary to the correct, such as, "if you have low sugar in the blood, every time that you feel bad it sucks a candy or, drink a glass of water with sugar, etc. ", worsening the patients' symptoms.

An appropriate alimentary outline, that uses mainly the fructose is very important. However without acquiring the fear of eating that, at my point of view, it is only harmful in the person psychological aspect.

As we saw in elapsing of this work many patient diagnosed as bearers of the panic's syndrome, got better or even they didn't present the symptoms starting from the simple knowledge of what it could determine his fears, in addition after an appropriate alimentary orientation that blanket constant his blood's glucose levels, they could feel an improvement not only the short, as the medium and long term of all his sintomatology, as physics as psychics.

Considering more and more, that the disease should be seen as something ecological and environmental, being due, therefore, to obey the laws of the nature, mainly through the conservation of the basic instincts of life, as well as taking in consideration the wisdom of the people along the human existence.

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SUMMARY

The hypoglycaemia is a relatively unknown subject, receiving an importance relegated to a second plan.

The glycaemia decrease, unlike the name indicates, should not be treated or forewarned with the ingestion of sugar, because this procedure only worsening the condition.

The glucose lack in the brain can produce the panic.

As well as the god Pã died, that gave name to Panic's Syndrome, this same syndrome can be disappeared if treated conveniently.

ABOUT THE AUTHOR

Celso Fernandes Batello is a graduate doctor by the Medicine University at the ABC Foundation. Homeopathic Doctor with master degree course in Homeopathy, at the Association of São Paulo of Homeopathy, with title of Specialist by the Federal Council of Medicine. Former-Anesthesiologist of the Beneficent São Caetano Hospital, worked with Rubens Awada, M.D. in Maternity Hospital Brasil in Santo André City, has made his apprenticeship and medical residence in Anesthesiology in CET-ABC, of the Beneficent São Caetano Hospital, has worked with Deoclécio Tonelli, M.D.

Presidente of the I Congress Medical University Student of ABC, previously has written Homeopathy For Patients and Interested in 1988, publisher Dasein (out of print); Iridology- which the Eyes Can Reveal in 1991, Publisher Ground; Feeding: the secret of health, 1991, Publisher Gound; Homeopathy or Allopathy?, 1994, Publisher Ground; What is the High Pressure and the Low Pressure, 1996, Publisher Typus.

Nowadays Celso Batello is President of the Medical Brazilian Iridology's Association and of the World Irisdiagnosis' Association.

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Titular Member of the Municipal Council of Health of Santo André City.

Member of the Commission of Studies designated to promote changes in Santo André's Municipal Emergencial Help.

Member of the Commission of Elaboration of the master plan of Santo André's Health (1995).

Municipal Director of Health of Santo André City, in whose administration the following services had been implanted:

- a) Clinic of Pain
- b) Odonto Babies
- c) Clinic of Homeopathy
- d) Clinic of prevention of bucal cancer
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