Quantum Biophysics Semeiotics and Psychokinetic Diagnostics

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ABSTRACT

Mit-DNA is mainly responsible for cell respiration in biological systems, and the genetic alteration of mit-DNA affects mitochondrial activity. It will be here analyzed a well defined mitochondrial cytopathy which is connected, from the moment of birth, with several inherited diseases, such as cancer, diabetes and coronary heart diseases. The chance to investigate, indirectly and through bed-side evaluation, with the aid of 'Quantum Biophysics Semeiotics' - QBS, mitochondria functionality opens new ways to understand and face the very beginning states of these pathologies, even silent and not yet clinically diagnosed, and of their 'Inherited Real Risks', giving original impulses to diagnosis and prevention. Through the tools of chaos and quantum theory, with QBS is possible to visit the patients even at long distance through the 'Psychokinetic Diagnostics', corroborating the existence of non-local reality and entanglement in biological systems. Finally, a multidisciplinary and integrated approach involving biology, physics, mathematics, chemistry, philosophy, etc. opens new perspectives both for classical and social sciences.

Key words: quantum, biophysics, semeiotics, chaos, psychokinetic, diagnostic, entanglement, non local reality, cancer, diabetes, Coronary Artery Disease, prevention, therapy, oncogenesis, autopoiesis, DNA, mit-DNA

Introduction

Quantum Biophysics Semeiotics - QBS, is a new discipline in medical field, extension of the classical semeiotics with the support of quantum and complexity theories, a scientific approach first described by (Stagnaro, 2007b) based on the Congenital Acidosic Enzymo-Metabolic Histangiopathy – CAEMH (Stagnaro, 1985), a unique mitochondrial cytopathy, present at birth and subject to medical therapy.

We will see how chaos theory, quantum theory, and concepts such as synchronicity, entanglement, strange attractors, non-local reality, energy-information and DNA "antenna" defined by Manzelli (2007), are crucial for understanding the diagnosis, prevention and therapy of many diseases such as cancer (Caramel, 2010c), Coronary Artery Disease – CAD (Caramel, 2010a) and diabetes mellitus (Caramel, 2010b).

The autopoietic theory (Varela, 1974) will be a useful key-tool to interpret the behavior of biological systems here analyzed.

According to the research of Stagnaro, today the doctors should be able to evaluate, at the bedside of their patients, simply using the stethoscope and auscultatory percussion of the stomach (Stagnaro, 1978; Stagnaro, 2004a), mitochondria functionality, as well as the functionality of all

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biological systems. It is now possible, from the moment of birth, to make a diagnosis in order to detect the presence of Inherited Real Risk of many diseases linked with 'QBS Constitution' (Stagnaro, 2004c), so that an intelligent prevention strategy can be implemented only on those subjects with Real Risk, without incurring additional costs for the NHS – National Health Service.

The prevention done on the basis of QBS constitutions - i.e. Oncological Terrain, Diabetics Constitution (Stagnaro, 2009c), etc. - will prevent the onset of the more serious diseases that humans suffer from today - for example, cancer, diabetes, ischemic heart diseases, including myocardial infarction.

Finally, it has been corroborated the presence of non-local reality in biological systems so the doctors can exploit the properties of entanglement in order to visit their patients, according with QBS, even at very long distance, through the Psychokinetic Diagnostics.

1. State of art

Genetics, mit-DNA and chaotic dynamics

Several works of the last decades evidence the importance of deterministic chaos and fractals in genetics (Capra, 1997).

By studying the complexity of biological systems, the focus has shifted from the structures to the processes that 'emerge' from them. In the past there was the view of genes as stable and clearly distinct units that transmit hereditary characteristics. Genetic stability is instead an emergent property that stems from the complex dynamics of the whole cellular network.

The stability of genetic structure is the result of a well-orchestrated dynamic process that requires the participation of a large number of enzymes, organized in complex metabolic networks that regulate and ensure both the stability of DNA molecules, and the accuracy of their duplication. During duplication the cell not only passes the double helix newly replicated DNA but also a complete set of enzymes, coenzymes and ions needed for metabolic processes such as membranes and other cellular structures: in short the entire cell's network. In this way, cellular metabolism can perpetuate itself without ever leaving the pattern of their self-generated networks.

In all living organisms there is a subtle balance between genetic stability and mutability; the ability of the organism to actively produce mutations is only acceptable if it helps evolution. The regulatory mechanisms of mutability show a growing abundance of details. The mutations, actively generated and regulated by epigenetic cell network, and evolution are an integral part of self-organization of living organisms. The stability of genes is therefore not an intrinsic property of DNA molecules, but a result of the complex dynamics of cellular processes.

Keller discovered that the signal (or signals) that determine the specific order or pattern to which DNA must conform after recombination as a result of the final transcription process comes from those regulating complex dynamics belonging to the cell in its wholeness (Capra, 1992). From the dynamics regulating the cellular network can emerge many different proteins from a single gene, and a single protein can develop multiple functions. If we shift our attention from a single gene to the entire genome, there are many other problems that cast doubt on the idea of genetic determinism. For example, when a cell divides during development of an embryo, each new cell receives exactly the same number of genes, but these cells then take on very different skills (muscle cells, blood, nerve, etc.). The types of cells do not differ from each other with regard to the genes they contain, but for those in each of them are actually being active in the presence of different mitochondrial kit. Genes do not act on their own behalf, but must be activated. For example, Monod et al. (1961) introduced a theory: a distinction between structural genes that encode proteins and regulatory genes that control DNA transcription and thereby regulate gene

expression. Recent research has revealed the fractal structure of the cytoplasm (Aon, 1994), of the genome (Dekker, 2009) and the chance that the electron can be represented with the typical complexity of a strange or chaotic attractor (Horwitz, 2004).

What emerges from these studies is the deeper understanding that biological processes involving genes are all regulated by the cellular network in which the genome is integrated. This network is a highly non-linear reality, a reality that contains multiple chains of feedback, so that patterns of genetic activity change constantly in response to changing circumstances. DNA, although certainly being an essential part of the epigenetic network, is not the only causative agent of forms and biological functions, as stated in the central dogma. The form and biological functioning are emergent properties of nonlinear dynamics of the network and we expect that our understanding of these processes of emergence will increase significantly with the application of chaos theory to the new discipline of epigenetic. Recent experiments in genetics have shown that the loss of individual genes - even when they thought they were essential - has very limited effects on the functioning of the body (Capra, 1997). Under this remarkable stability and robustness of biological development, an embryo may be different from the initial stages - for example in case of individual genes or whole cells are accidentally destroyed - then still reach the same mature form that characterizes the species to which belongs.

Natural selection does not operate on individual genes but on the scheme of self-organization bodies. It is possible to represent the whole process of biological evolution as a trajectory in a phase space that moves within a basin of attraction to an attractor (Medio, 1992) that describes the functioning of the body in the stable form that characterizes his adulthood. Complex systems exhibit nonlinear structural stability. A basin of attraction can be distorted or disturbed without changing the fundamental characteristics of the system. In the case of an embryo during evolution, it means that it is possible to change, to some extent, the initial conditions of the process without seriously damaging the development of the whole organism. Therefore, the stability of development, which remains a mystery from the perspective of genetic determinism, is clearly a consequence of basic properties of complex nonlinear systems.

DNA mutation and recombination are the two main way of bacterial evolution, but Margulis (1993) discovered a third way: the symbiosis. The most remarkable evidence of evolution through symbiosis - the tendency of different organisms to live in close association with each other, as the bacteria in our gut - is offered by mitochondria[1], the power plants that are found within most nucleated cells.

These fundamental components of all animal and plant cells that perform cellular respiration, contain their own genetic material and reproduce independently and at different times than the rest of the cell, and in fact have their own DNA, mitochondrial DNA[2].

Quantum-Deterministic chaos and non-local reality

Deterministic chaos has been defined[3] as the 'stochastic or probabilistic behavior occurring in a deterministic system' and its main characteristics are the uncertainty and unpredictability, but it is possible to detect and investigate it and to get qualitative information through invariant statistic measures such as LCE[4], fractal dimension[5] and entropy[6] (Medio, 1992).

Entropy represents the rate of uncertainty, or equivalently, the rate of variation of qualitative information of dynamical systems, and is important in the causal interpretation of quantum theory (Bohm, 1980), which supposed the electron to be a certain kind of particle which follows a causally determined trajectory[7]. In addition to the Newtonian classical potential, the particle[8] moves according to a new potential, called Quantum Potential – QP – which is determined by the quantum wave field[9], or wave function. QP is independent of the strength, or intensity, of the quantum field but depends only on its form, so that the information in the form[10]

of the quantum wave directs the energy of the electron and even distant features of the environment can effect this movement in a deep way.

The feature, in which very distant events can have a strong influence, is what is meant by a nonlocal interaction. Non-locality implies an instantaneous connection between distant events and does operate in nature, as proved by Aspect et al. (1982), who provide strong evidence for a nonlocal form of interaction. This result follows in a natural way, within the causal interpretation, as a result of the nonlocal QP that directly connects distant particles.

Sub-quantum behaviors and biological systems dynamics are usually considered as separated and different worlds, but there are some interesting works as Lory's experiment (Stagnaro, 2008b) that open new perspectives about the presence of non-local reality in biological systems.

Lory's experiment is based on the fact that "all" subatomic components, both atomic and molecular, structured to form a cell and the whole cell or parenchyma, are correlated between themselves and with "all" the other branches of the same embryo in the non-local reality in a four-dimensional space (2 space dimensions and 2 time dimension – 2S – 2T[11]), as well as are just "plotted" (entangled) two electrons observed by Aspect in his experiment. The effect of' entanglement[12] means that the information takes on a "non-local" dimension. Lory's experiment is as follows: if it is done a digital pressure applied over a parotid gland, or a salivary gland sublingual, of a "single ovular" twin sister, simultaneously it is observed microcirculatory activation type I associated in the pancreas of the other twin sister, regardless of the distance that separates them: meters or kilometers (Stagnaro et al., 2007d).

Furthermore, since life system is based on the communication system, DNA functioning can not only be seen as a storage of genetic information. We can consider DNA/RNA dynamic system as an Information Energy – EI – catalyst (Manzelli, 2009) able to transmit and receive bio-physical quantum signals to and from the proteins in the living cells, so DNA can be thought as an "antenna" transmitting nonlocal information[13] through 'gene quantum signals'.

In biology, Varela et al. (1974) proposed the theory of autopoiesis, useful to understand the connection between organization and structures in living systems. An autopoietic system, so as described by Maturana and Varela, is based on a scheme of autopoietic organization through a process of structuring which can lead to different structures. The autopoietic organization is conservative and always acts on itself: self-production, self-regulation, self-referential, recursion, circularity. The scheme of organization works relentlessly to achieve the autopoiesis through a continuous process of structuring, generating dissipative structures with non-linear dynamics (Prigogine, 1967).

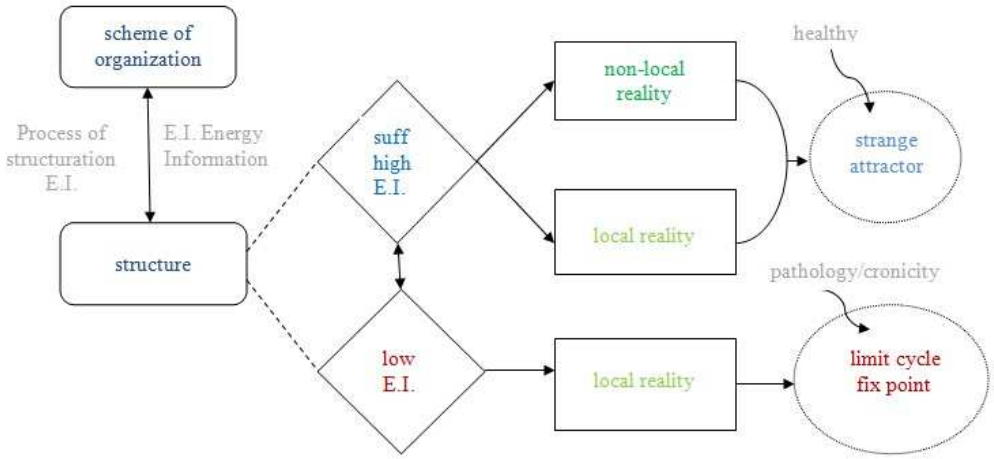
There is structural coupling between organization (conservative) and structure (dissipative) to achieve always the autopoiesis. If there was a tendency to disease (or if there is pathology), the organization would always be orientated towards the survival, materializing and engaging compensatory mechanisms to restore the simultaneity and synchronicity.

In a previous work (Caramel, 2010b) we tested successfully in biological systems the hypothesis of the correlation between nonlocal reality and deterministic chaos, of the co-presence of local reality and non-local reality in physiological states, and of a sufficient high amount of information energy – EI – as catalytic cognitive process to maintain non-locality in the autopoiesis.

If the system was fully healthy, there would be actually a non-local reality (parallel to the local reality) - simultaneity and synchronicity - and the presence of deterministic chaos (chaotic or strange attractor). If there was disease, the autopoiesis would still be present, but the non-local reality and the correlated strange attractor equilibrium, corroborating the presence of deterministic chaos, would disappear so that we would observe just limit cycle equilibrium in the case of pathology, and fixed points in case of chronicity (Scheme 1).

Furthermore, chaotic determinism, and quantum determinism as suggested by David Bohm, could merge together in a new philosophical idea of 'quantum-chaotic determinism'[14],

corroborated by QBS and Manuel's Story[15], where the 'cause and effect' is replaced just by a potential causality.



Scheme 1. Autopoiesis and Energy Information

Most of metabolic processes are catalyzed by enzymes and receive energy through special molecules known as organic phosphate or ATP, of mitochondrial origin. All cellular structures exist in conditions far from thermodynamic equilibrium: they are dissipative, far from equilibrium with their own stability, spontaneous emergence of new forms of order. As the flow of energy increases it is possible that the system encounters an instability - fork - at which the system itself can enter into a completely new state, where new structures and new forms of order can emerge - emergences - or self-organization.

Creativity is a key property of all living systems, and if cell metabolism does not use a constant flow of energy to repair structures as soon as they damage, quickly they would decay to steady-state: the cell would die (from chaotic attractor to limit cycle to fixed point). If it is reduced the blood flow in an artery, the microcirculation would activate itself, but the fractal dimension would be reduced. We then describe the cell as an open system. Living systems are closed at the level of organizational structure (they are autopoietic networks), but open in terms of materials and energy. *"The cell enters in connection automatically with other bodies. If it expels something, there will be any other body that will absorb it"* (Lynn Margulis)

Inherited Real Risks and QBS Constitutions

According to Stagnaro (2004a), genome's information are transmitted simultaneously both to parenchyma and related microvessels, so that mutations in parenchymal cell n-DNA and mit-DNA are the *conditio sine qua non* of the most common human disorders, like diabetes, CAD, and cancer, today's epidemics.

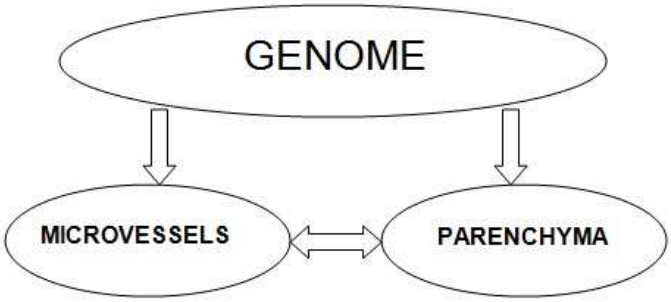
In fact, all these diseases are based on a particular congenital, functional, mitochondrial cytopathy, mostly transmitted through mother, and defined Congenital Acidosic Enzyme-Metabolic Histangiopathy, CAEMH (Caramel, 2010b).

The contribution of these modifications to the relative pattern of diabetic syndrome, based always on genetic or inborn errors – CAEMH - is different from patient to patient and during the disorder's evolution. For instance, in case of diabetic syndrome, insulin-secretion increases silently for years or decades, before appearing Type 2 Diabetes Mellitus - T2DM. This is a pre-clinical stage that is not detectable through usual clinical tests, so it needs to explore new approaches, such as

that introduced by Quantum Biophysical Semeiotics – QBS – (Stagnaro, 2007b) which through bed-side evaluation, can assess the existence of pre-metabolic syndrome[16], that can last for years or decades, pre-clinical stage of the disease still potential or on training (evolution to pathology, pre-morbid state or gray area), so allowing an effective prevention (Scheme 3).

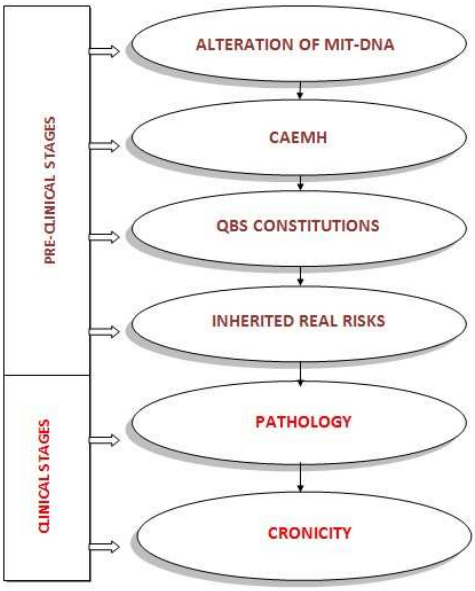
In addition, parenchymal gene mutations cause local microcirculatory remodeling, so doctor can evaluate it at the bedside in a reliable manner, gathering indirect information on inherited modifications of relative parenchymal cell, since biological system functional modifications parallel gene mutation, according to Angiobiopathy theory (Stagnaro, 2008i).

The presence of intense CAEMH – termed CAEMH-'a' - in a well-defined area, i.e., myocardium, involved by gene mutations in both n-DNA and mit-DNA, is the ground for one or more biophysical semeiotics constitutions[17] (Stagnaro, 2004c) which could brings about their respective congenital Real Risks - RR (Scheme 4) characterized by microcirculatory remodeling from QBS viewpoint, especially intense under environmental risk factors.



Scheme 2. Genome affects both microvessels and parenchyma

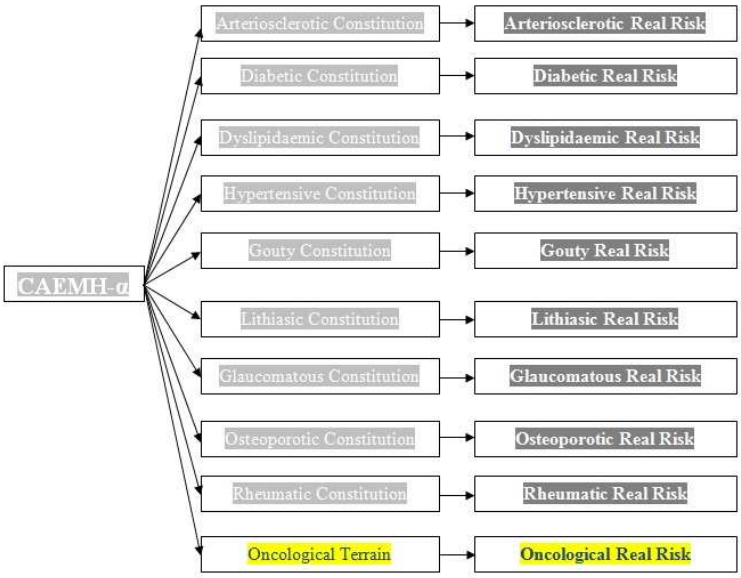
In Scheme 2 is shown that genome affect both microvessels and parenchyma. Investigating the microvessels, whose behavior is that typical of dissipative systems far from equilibrium, this is a way to get indirect information from the state of health of their respective parenchyma.



Scheme 3. Pre-clinical and clinical stages of diseases depending on mit-DNA alteration

The congenital microvascular remodeling, shows since birth interesting structures, i.e., newborn-pathological, type I, subtype b), Endoarteriolar Blocking Devices, EBD, localized in small

arteries, according to Hammersen (1968). As a consequence of above, briefly referred remarks, physicians are able nowadays to demonstrate the presence of typical pathological EBD in well defined microvessels, which play a central role in Inherited Real Risks.

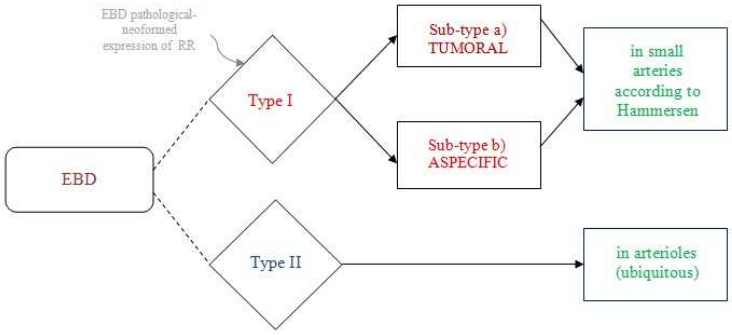


Scheme 4. CAEMH-a, QBS constitutions and associated real risks

Through the objective QBS examination in a few minutes, it is possible to recognize and quantify if a patient has got any QBS constitution and congenital Real Risk (RR) to have a disease by mean the observation of EBD, type I, subtype a) cancerogenous (Scheme 4, in yellow) b) nonspecific (Scheme 4, in gray, present in all the other more frequent and severe disease).

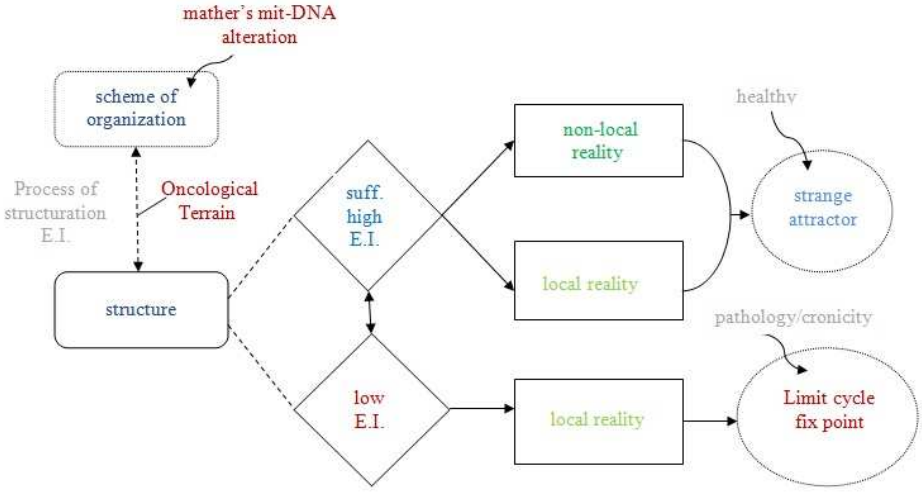
The EBD is a kind of dam which opening or closing itself regulates blood flow in microvessels directed to the parenchyma (tissue, substance of a body). With a simple stethoscope it is detectable if there is a clear genetic predisposition to have a disease such as cancer, diabetes or CAD, and it is possible to quantify and monitor it over time from the moment of birth. So there is the possibility to implement a prevention on a huge hall in individuals clinically finally selected in a rational way. This new way of prevention will not allow to materialize physical illness, which can be anyway potentially present (or be RR as "residual") at potential level. As similarity we can think of butterfly valves that regulate the flow and mixture of air and gasoline in car engines, since the EBD are dams that are simply regulating blood flow to the parenchyma[18], precisely cells of various tissues. If these DEB are tough, rigid, inelastic, there is RR.

There are EBD Type I - located in small arteries, according to Hammersen - and Type II – they can be found in the arterioles that are, according to Hammersen, between small arteries and capillaries (Scheme 5): only type II is ubiquitous, in the sense that it is observed everywhere, in all arteries (Scheme 15). Even these physiological types get sick or old. However, the other types, pathological-neo-formed, are expressions of the RR, of potential disease, they occlude more, but through therapy they can be transformed from the subtype a) tumoural, to subtype b) aspecific, and then in "physiological" type, decreasing gradually their amount[19].



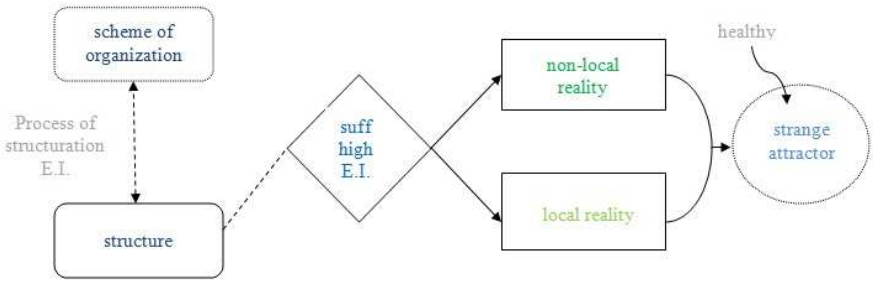
Scheme 5. Endoarteriolar Blocking Devices (EBD)

Summarizing, through QBS the doctors are able to evaluate the pre-clinical stages of the process of oncogenesis, and of many other diseases, of their patients, as shown in Scheme 3, so it is possible a pre-clinical diagnosis of the potential pathology, at bed-side, before the clinical diagnosis[20], i.e. the activation of 'sleeping' cancer cells (Stagnaro, 2004a), which start the clinical process of oncogenesis.



Scheme 6. Autopoiesis and Energy Information in presence of Oncological Terrain (OT)

As shown in Scheme 6, the QBS is able to diagnose the presence or absence of Oncological Terrain (OT) at birth, before the disease can appear, at an intermediate time between scheme and structure, allowing proper and timely preventive measures. If is detected at birth absence of OT, it is clear that no scheme could never structured in any of the cancerous diseases identified by Stagnaro. This is the boundary line.



Scheme 7. Autopoiesis and Energy Information in absence of Oncological Terrain (OT)

Scheme 6 shows that in human bodies there is physiologically the healthy co-existence of two different realities: local reality and non-local reality. The no locality disappears if the mitochondrial respiratory activity, and consequently EI, significantly decreases. For example Lory's experiment (Stagnaro 2008b) fails, if a stimulation is applied in a subject, following the Apnea test, with the result of an impaired mitochondrial activity. The compensation takes place because of 'nuisances' involving dissipative structural changes, but always subject to the power system's and its inherent conservative autopoietic organization.

The QBS congenital Real Risk therefore arises at an intermediate stage between the scheme of organization and the structure, a first 'structuration' from the scheme (not observable) on which we can identify it (in case there was) using simple clinical tests at bedside, in a vision in which if there were RR, it would be able to tend to a pathology (potential disease), a pathology which, if occurred, would amount to a fully 'structuration' of the scheme of organization (e.g., genetic alteration of mit-DNA) to disease. RR, if pathologically evolving, is the slow 'eventing' of disease events. Also considered in itself, whether static, is a manifestation of the structuring process of the organization. The process is reversible in the sense that - through melatonin-conjugated[21], administration of energy (e.g., NIR-LED, Near Infra Red light-Led), and proper diet understood in the etymological sense, etc. the RR can become "residual", so that will not disappear nor will evolve towards the structure.

The principle of the process is the Energy-Information (EI), catalytically in nature. The level of Vibration-Energy (EV) related to energy-information (EI) from the perspective of QBS is measured on the level of tissue oxygenation: namely the latency time of reflex, which is not a reflex in true. Indeed, stimulating the trigger-points of a biological system, such as the liver, "simultaneously" there is built up a sympathetic hyper-tonicity after a latency time dependent on the intensity of the stimulus: this is related to the intensity of liberation of adrenaline and nor-adrenaline in the biological system, so that we can observe the nonspecific gastric reflection, stomach swells, "simultaneously" when is reached the critical level of low energy or low oxygen.

Under these conditions, in fact the biological system has become thermodynamically isolated. We are in this case, in the non-local reality: there is simultaneity and synchronicity. On a completely healthy human being (without RR) EI is in fact high enough, and then there is simultaneity of information. Local and non-local reality co-exist, exist simultaneously but in parallel, they do not overlap. When EI decreases, EM –Energy Matter – as a consequence increases, and whether EI falls below a certain threshold, non-local reality "disappears" and we can observe just local reality. In summary, if there is enough high EI, there is not RR, while if there is low EI, non-transitory and not occasional - low EI in transient form, for instance, is with the Apnea test in individuals completely healthy without RR – since permanent, then there is RR (associated, e.g., with Oncological Terrain).

The production of EI may be endogenous - it is created endogenously in humans through a transformation of breath in subtle and vital energy, and through mitochondrial activity - or exogenous - through the release of substances like melatonin, the adoption of an appropriate diet, NIR-LED (near infrared light) – that stimulates the mitochondrial respiratory function[22], i.e., oxidative phosphorylation.

The endogenous EI born and is formed in the mitochondria, the power plant of human body. The autopoietic system self-produces EI, by transforming EM, including food, water and O_2 - which is converted into EV-EI. Endogenously we produce ourselves the EV-EI indirectly with the breath, in the sense that vital energy is a subtle energy that occurs through breathing (it is not air, it is not breath, but it travels and is created together with it).

Exogenously the EI is created by chemical transformations and biological properties of certain food we eat or through the release of specific substances (e.g., conjugated - melatonin) or certain stimuli (e.g., LLLT, including NIR-LEDs) to improve the mitochondrial respiration.

In biological systems the Energy-Information can be transmitted chemically - through metabolic processes - and/or electrically - with the neurotransmitters - peptides. The peptides can be imagined as an "antenna", which carry information (waves) non-locally, simultaneously and synchronously by resonance (in case of non-local reality with high EI), or locally in space-time.

In biological systems the EI is transmitted through the classic routes in the local reality, using substrates that reach the target tissue via blood, lymphatic, venous (hormones, cytokines, etc.) or through the nerve pathways (neurotransmitters) characterized by polarization - depolarization: there is time and energy consumption (if I move a substance from A to B, this imply waste of energy, and spending time). On the contrary, in non-local reality pure and catalytic EI acts according to what is known in the microscopic world, expression of entanglement, observable with the QBS, of both worlds. DNA, like an antenna, simultaneously to "intense" stimulation on certain trigger - points, starts to "vibrate" catalyzing the reactions without energy expenditure, between the compound A and B, with production of C. For example: abdominal lateral pinch of fat "simultaneously" active function of liver PPAR (the mill that burns fat and glucose) revealed by the "simultaneous" local microcirculatory activation[23].

There is a continuous structural coupling bodies-environment in all directions. If there is a tendency to disease (RR), the complex dynamics in biological system decreases: there is no chaos or lesser according to the fractal dimension (fD), detectable through the reflex-diagnostic-percussio-auscultatory (Stagnaro, 2004a), with the simple use of the stethoscope, measuring the latency, intensity and duration of reflexes. The absence of the strange attractor or of deterministic chaos, is signal of low EI, the entropy is tending to zero, then in this case there is a local reality of information transmission, there is not the non-local reality. We must therefore enter EI (or create the conditions to increase it) in order to restore a sufficiently high level of EI.

In accordance to Angiobiopathy (Stagnaro, 2009a), improving mitochondrial activity in the parenchyma and in microvessel cells is involved favorably intracellular free energy and are improved various biological activities: the microcirculation will be normalized. QBS allows accurate and direct study of being and functioning of microvessels and only indirectly of the related parenchyma[24]. If it improves the way of being and functioning of the microcirculation does mean that it also improved the way of being and functioning of its parenchyma. This is done by stimulating the activity of mitochondria by acting on the vehicles that transmit EI: metabolism (chemical process), peptides' net (electric-electronic process), but also improving, normalizing tissue oxygenation, expression of the normal operation of mitochondrial oxidative phosphorylation. Indeed, the mitochondrial functional cytopathy is the *sine qua non* of more frequent and severe human disease and not.

Exogenous prevention and therapy (with environmental action) is done directly on EI (and related EV) at chemical level: proper diet, conjugated melatonin, NIR-LED, or at electric level: such as acupuncture, which also acts on neurotransmitters or peptides. Endogenous prevention and therapy (autopoietic) can be implemented for example through: improving the quality of breath, improvement of lifestyles and rhythm styles and slow pace of the same (e.g., eating serene, calmly, as appropriate as possible) choice of appropriate physical activities (exercise, sports), yoga, meditation, prayer.

We are composed of a continuum of biological systems which interpenetrate and interact each other, and in health conditions show a chaotic behavior, measured by the fractal dimension, as shown in Table 1.

Fractal Dimension fD	Equilibria	State of health
fD = 1	fix point	chronicity – chronic and acute pathology
1 < fD < 1.9	limit cycle tending to fix point	pathology – tendency to chronicity State of variable severity of disease evolution
1.9 ≤ fD < 3	limit cycle	initial implementation of the tendency to disease /potential pathology- i.e. Oncological Terrain (TO) – initial evolution to disease
3 ≤ fD < 3.81	limit cycle tending to strange attractor	tendency to physiologic condition (only potential phase)
fD ≥ 3.81	strange or chaotic attractor	Physiologic condition – healthy state

Table 1. State of health, equilibriums and fractal dimension

Legend: the fractal dimension (fD) is calculated as simply as the time of the disappearance of gastric aspecific reflex, before the appearance of the next. Important is that the fD is directly related to (d) or inversely (INV) related with:
A) (d) the local microcirculatory functional reserve - (vasomotility and vasomotion) and then
B) (d) with the presence, or not, of the local congenital Real Risk;
C) (d) with the latency time of gastric aspecific reflex and then with tissue pH;
D) (INV) with the duration of the gastric aspecific reflex

In the autopoietic living biological system (e.g., nervous system, immune system), if there was a disease, the autopoiesis would still function. The organization would remain intact, it is stable, continuous, always on, it is a conservative system, and if there were not, the structure and the system would disintegrate, it would disappear the life itself! In macro-interacting biological systems there is a "mind" synthesis of an autopoietic system that is based on a composite unit (e.g., psycho-neuro-endocrine-immune system).

If the system was fully healthy, there would be actually a non-local reality (parallel to the local reality) - simultaneity and synchronicity - and the presence of deterministic chaos (chaotic or strange attractor). If there was disease, the autopoiesis would still be present, but the non-local reality and the correlated strange attractor equilibrium, corroborating the presence of deterministic chaos, would disappear so that we would observe just limit cycle equilibrium in the case of pathology, and fixed points in case of chronicity. The presence of just the local reality is a consequence of the reduction of EV and EI, but with proportional increase of EM.

Chaos appears to be one of the sources of life. If chaos is not (or is missing) we can create the conditions that it emerges again. Chaos in biology is related to life: whether is missing and at the same time we can not restore it, is the end. For example, through the use of melatonin conjugated, the energy level raises and then EV-EI increase fostering and perpetuating the non-local reality parallel to local reality. If there were only local reality (which denotes a tendency to disease or pathology or potential disease) it would then need to return to a more complex order (chaotic attractor), but only if there is deterministic chaos arising from well-functioning mitochondria.

Quantum Biophysics Semeiotics and Psychokinetic Diagnostics

The term psychokinesis (from the Greek “psyche” and “kinesis”, literally “movement from the mind”), also known as telekinesis, is a term referring to the direct influence of mind on a physical system that cannot be entirely accounted for by the mediation of any known physical energy. Examples of psychokinesis could include distorting or moving an object.
The study of phenomena said to be psychokinetic is notoriously an aspect of parapsychology.

According to the causal interpretation of quantum theory, Bohm (1980) introduced the idea of implicate order, a particular kind of hidden enfolded order that guides the explicate order, which corresponds to a world view in which the basic notion is one of separate objects moving on trajectories in Cartesian coordinates, through a dual movement of enfoldment and unfoldment called holomovement[25]. The whole implicate order is present at any moment, in such a way that the entire structure growing out this implicate order can be described without giving any primary role to time. Particles are no longer considered as autonomous and separately existent: everything implicate everything in an order of undivided wholeness.

The holomovement includes not just physical reality, but life, consciousness and cosmology. As Bohm sums it up: "Our overall approach has thus brought together questions of the nature of the cosmos, of matter in general, of life, and of consciousness. All of these have been considered to be projections of a common ground. This we may call the ground of all that is".

According to Bohm, the intrinsic unity of consciousness and matter, can offer a possible explanation of the phenomena of psychokinesis. On this basis, psychokinesis could take place if the thought processes of one or more persons are refocusing on the meanings which are in harmony with those basic processes that drive the material systems in the framework of which this psychokinetic should be triggered. Psychokinesis is not the result of causality and cause-effect, but is the result of a 'resonance of meaning' with non-local features. This non-locality is a more profound and complex quantum non-locality, so it is better to call it 'super non-locality'. Psychokinesis and telepathy can therefore be understood according to the holographic model.

According with the work of David Bohm, Karl Pribram (1993) developed of the holonomic brain model of cognitive function and his contribution to ongoing neurological research into memory, emotion, motivation and consciousness.

Pribram's holonomic model of brain processing states that, in addition to the circuitry accomplished by the large fiber tracts in the brain, processing also occurs in webs of fine fiber branches (for instance, dendrites) that form webs. This type of processing is properly described by Gabor quanta of information, wavelets that are used in quantum holography, the basis of fMRI, PET scans and other image processing procedures (Pribram, 1991).

Gabor wavelets are windowed Fourier transforms that convert complex spatial (and temporal) patterns into component waves whose amplitudes at their intersections become reinforced or diminished. Fourier processes are the basis of holography. Holograms can correlate and store a huge amount of information - and have the advantage that the inverse transform returns the results of correlation into the spatial and temporal patterns that guide us in navigating our universe.

David Bohm suggested the idea of a universe as a hologram (Bohm, 1990). Pribram extended this insight by noting that were we deprived of the lenses of our eyes and the lens like processes of our other sensory receptors, we would be immersed in holographic experiences.

Furthermore, Lory’s experiment provided by Stagnaro proved the existence of non-local reality and entanglement not just in sub-quantum fields, but even in biological systems, so that there is the theoretical and experimental bases to test the ‘zero hypothesis’ whether or not there is the possibility that quantum entanglement can link distant people, i.e. to verify if the doctors can remotely visit their patients with the quantum-biophysical tools of QBS.

In other words, Stagnaro try to visit a known patient far away from his office in a strict manner, in order to see if trigger-points modifications in the patient would bring about identical modification in the trigger points of the doctor and vice versa, according to the results of Lory's Experiment. To do this, he stimulates 'with the thought' the body of another person using his own body. This is the key-point of Psychokinetic Diagnostics, because in such a way the doctor connects remotely with the patient. The doctor connects through the will and the thought with the patient using the properties of entanglement and non-local reality. The patient may be unaware of this visit, but it is important that there is a good degree of empathy and love between the two entities so that the experiment succeeds. In fact, if there were no such requirements, it would not be possible to connect: impossibility of entanglement.

For instance, "intense" digital pressure upon patient's precordium, i.e., heart skin projection area, even far away thousands of kilometres from the doctor, brings about "simultaneously" heart gastric aspecific reflex (H.A.G.R.) also in the later, exclusively when the first is involved by any cardiac disorders, e.g., by CAD. This QBS diagnosis is called Caotino sign and will be explained deeply in next chapter.

As a consequence, we are authorized to consider such as fact, psychokinetic in nature, in the sense that doctor's heart trigger points were "simultaneously" stimulated in the same way as patient' ones, causing heart-gastric aspecific reflex - H.A.G.R. also in the doctor, but showing parameter values identical to those of the subject away (generally different from those of the doctor): latency time, duration, intensity, and so on.

As a matter of facts, what happens under such as experimental condition is really complex, but completely enlightened by QBS. Starting from these theoretical bases – zero hypothesis, to confute – Stagnaro did a large number of experiments, in order to study what happens in "his" body, when he stimulates different trigger points with the thought, i.e., done by the mind, on a well defined subject, both healthy or ill, even lots of kilometres far away from him, at the condition that he knows the patient, at least *per picture*, ignoring completely his (her) health condition. Obviously, he carried out such experiments also on known ill patients, but without knowledge about their precise diagnosis.

Interestingly, he subsequently applied the "mental" stimulation also on exact point of inner part of well-defined biological system, and this proved to be more precise, obviously. For instance, he suffered from outcome of lower myocardial infarct; exclusively when he stimulate just "by thinking" the precise site of left ventricle involved by infarct scar, H.A.G.R. shows a pathological latency time of 3 seconds. Otherwise, latency time of H.A.G.R. results normal, i.e., 8 seconds, when he 'mentally' applies digital pressure upon all diverse part of his heart. In fact, all other coronaries, both macro- and micro-coronary vessels, are normal, according to coronagraph examination, and, more precisely, to QBS results, which are the only ones able to give information about coronary micro-circulatory bed.

Despite some human errors and late diagnoses, at least at initial stages of disorders, like those of Stagnaro's colleagues working in famous hospital, the interesting diagnoses, subsequently corroborated by means of direct examination, and then through laboratory and image diagnostics, were. i.e., flu, pleurisies, pneumonia, Oncological Terrain, breast cancer, arthrosis, and so on. In other words, Stagnaro examined at distance, utilising the psychokinetic diagnostics, 120 subjects, and he provided their clinical diagnoses, corroborated subsequently by laboratory and image diagnostics, as the same individuals can readily confirm.

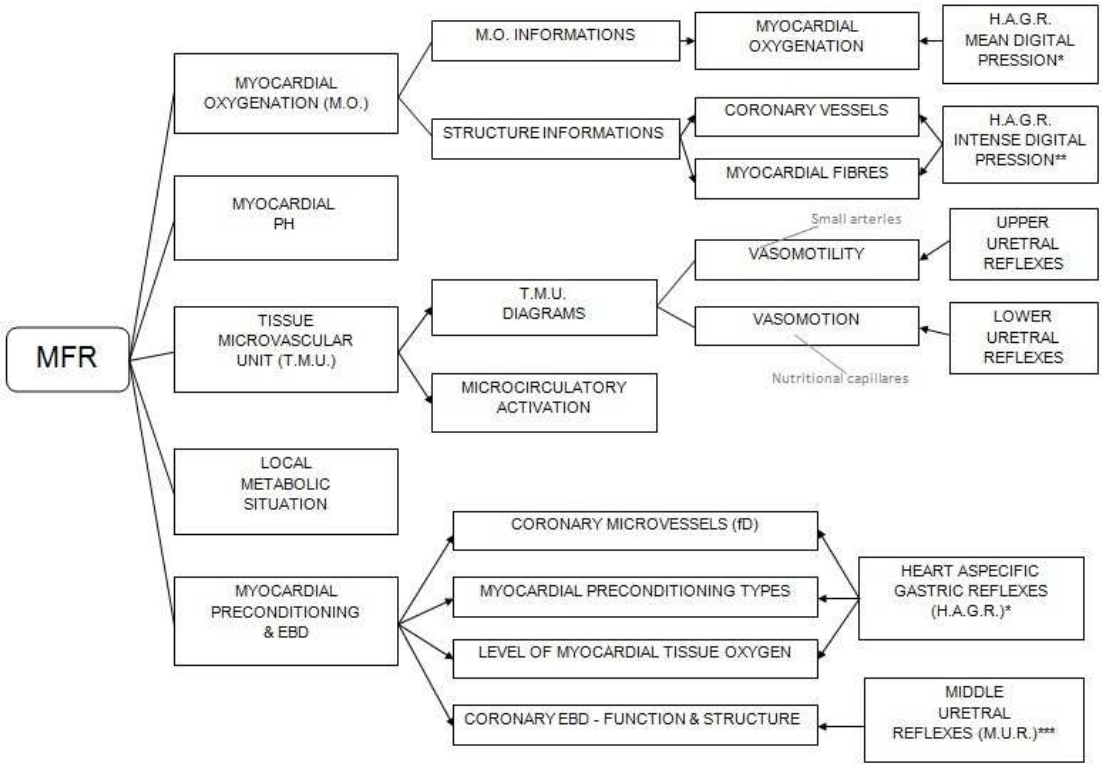
2. Clinical Evidences and Psychokinetic Diagnostics in CAD

QBS and Microcirculatory Functional Reserve

Alterations of mit-DNA and n-DNA cause CAEMH in myocardial area, a parenchymal gene mutation which induces, in case of intense CAEMH-'a', a local microcirculatory remodeling (LMR). LMR is a congenital microvascular remodeling which is possible to evaluate and investigate getting information about heart parenchymal cells through several QBS signs and behavior. For instance, through the observation of EBD and their structure and functioning on coronary microvessels, we can study the LMR and investigate if there is CAD or inherited real risk of CAD and endothelial dysfunctions.

A lowering microcirculatory blood flow induces a LMR due to EBD type 1 subtype b), aspecific, synonymous of reduced tissue oxygenation (Scheme 5). Through biophysics semeiotics we can measure and evaluate the Microcirculatory Functional Reserve (MFR) activity of related coronary microvessels. MFR is correlated with microcirculatory bed or Tissue Microvascular Unit (T.M.U.) and is possible to evaluate it through the observation of myocardial oxygenation, myocardial pH, T.M.U. structure and function, local metabolic situation, myocardial preconditioning and EBD investigation (Scheme 8).

Quantum Biophysical Semeiotics and Microcirculatory Functional Reserve – MFR -



Scheme8. Microcirculatory Functional Reserve

*Legend: MFR (Microcirculatory Functional Reserve); EBD (Endoarteriolar Blocking Device); fD (fractal Dimension); H.A.R.G. (Heart Aspecific Gastrix Reflexes); M.U.R. (Middle Urethral Reflexes); T.M.U. (Tissue Microvascular Unit); M.O. (Myocardial Oxygenation); * (Table 2); ** (Scheme 9); *** (Table 3)*

Myocardial Oxygenation

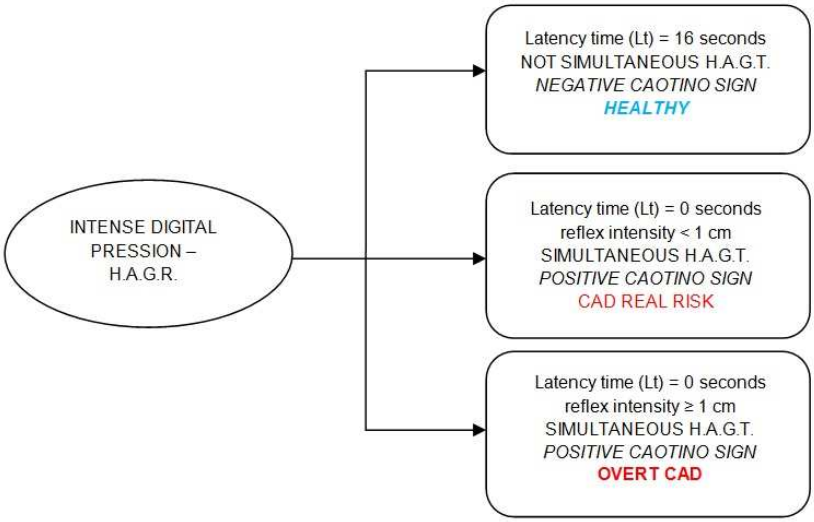
Myocardial oxygen supply can be assessed clinically in a precise way (Stagnaro, 1996). In healthy, digital pressure of "mean" intensity, applied upon skin projection area of the heart (precordium), brings about heart aspecific gastric and caecal reflexes (H.A.G.R.) after a latency time (Lt) of 8 seconds (Table 2), informing on myocardial oxygenation at rest, as well under stress situations, such as Valsalva's Maneuver - which allows doctor to assess bed-side endothelial function - lasting about 7 seconds (Stagnaro, 1994). In fact, primary reduction in myocardial blood flow rather than increase in demand seems to be responsible for many angina episodes, even clinically silent.

In addition, Lt of both caecal and aspecific gastric reflexes (i.e., caecal and gastric dilation) increases significantly (negative Caotino sign), raising to 16 seconds (Scheme 9), when digital pressure becomes "intense", because it stimulates, directly or even lots of kilometers away from the patient in the case of Psychokinetic Diagnostics, coronary vessels and myocardial fibers, hence inducing local metabolic regulation of tissue-microvascular-units (T.M.U.), i.e. activating microvascular functional reserve - MFR (Goldberger, 1987).

In pathological states such as overt CAD, digital pressure of "mean" intensity on precordium brings about H.A.G.R. after a Lt less than 7 seconds (Table 2), while a Lt between 7 and 8 seconds informs us about a CAD inherited real risk in evolution.

Furthermore, *Caotino sign* is positive in case of intense digital pression (Lt = 0) revealing a CAD real risk if the reflex intensity is less than 1 cm, and an overt CAD if the reflex intensity is 1 cm or more (Scheme 9). In this last case H.A.G.T. is simultaneous and its intensity is correlated to the numbers of EBD type 1, subtype b), aspecific, pathological neo-formed in small coronary arteries, accurate assessment on the basis of the parametric values of middle urethral reflexes (Table 3).

Heart Aspecific Gastric Reflex (H.A.G.R.)
intense digital pression on cardiac trigger points (precordium) – Caotino sign



Scheme 9. Caotino Sign

Legend. H.A.R.G. (Heart Aspecific Gastric Reflex); CAD (Coronary Artery Disease); Lt (Latency time)

Heart Aspecific Gastric Reflex (H. A. G. R.)
mean intensity digital pression on cardiac trigger points (precordium)

Latency time (Lt) in seconds	Latency time after preconditioning (pause of 5 sec.)	MFR in seconds	fD & equilibria	EBD	Preconditioning	Diagnosis
Lt = 8	Lt = 16	3< MFR <4 normal MFR, associated activation, outcome +	fD ≥ 3 (ideal value fD=3.81) stange attractor	Normal EBD phisiological function	Type I Physiological tissue microvascular unit	Health
Lt = 8	Lt < 16	MFR = 4 compromised MFR, dissociated activation, outcome ±	2<fD<3 limit cycle	Normal, slightly modified EBD function, small number of pathological EBD	Type II A Intermediate tissue microvascular unit	CAD Inherited Real Risk
7<Lt <8	Lt < 16	4< MFR≤ 5 growing compromised MFR, dissociated activation, outcome ±	1<fD≤2 limit cycle	Modified EBD function, increasing number of pathological EBD	Type II B Intermediate tissue microvascular unit	CAD Inherited Real Risk in evolution
Lt≤7	Lt < 14	MFR>5 absent MFR, dissociated activation, outcome – (MFR≈8 angina pectoris)	fD=1 fix point	Normal EBD function pathological, large number of pathological EBD	Type III Pathological tissue microvascular unit	Overt CAD

Table 2. Heart Aspecific Gastric Reflex (H. A. G. R.)

Legend: MFR (Microcircular Functional Reserve); EBD (Endoarteriolar Blocking Device); CAD (Coronary Artery Disease; fD (fractal Dimension); Lt (Latency time)

Myocardial pH

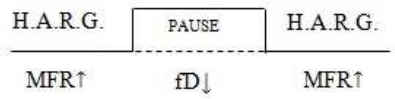
According to clinical and experimental evidences (Stagnaro, 2004a), tissue myocardial pH is related to the reduction of latency time (Lt) and to the extension of the duration of the H.A.G.R., which expresses the local MFR - microcirculatory functional reserve. MFR is inversely proportional to fractal dimension (fD), calculated as simply as the disappearing time of H.A.G.R. before the appearance of the next one (Scheme 10).

Summarizing, fD is directly (d) or inversely (INV) related to:

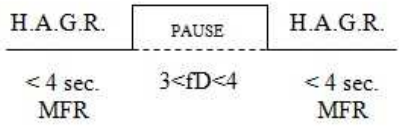
A) (d) the local MFR (vasomotility and vasomotion);

B) (d) the presence, or not, of CAD or inherited Real Risk of CAD (Scheme 12);

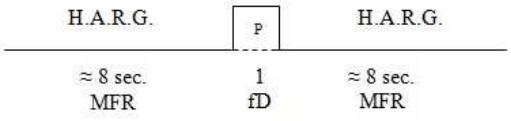
C) (d) the Lt of H.A.G.R. and then to tissue myocardial pH (Table 2);
D) (INV) H.A.G.R. length (Scheme 11, Scheme 13).



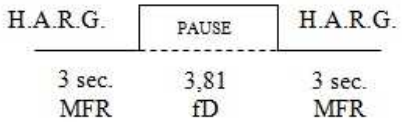
Scheme 10. MFR and fD are inversely correlated



Scheme 11. Physiological MFR – healthy state



Scheme 12. "Angina pectoris" and related fD



Scheme 13. An optimal MFR and physiological fD

Tissue Microvascular Unit

According to Tischendorf's concept of Angiobiotopie (Curri, 1986), biological tissue-microvascular system can be described as formed by single units: the tissue-microvascular units.

In its turn, the tissue-microvascular unit (T.M.U.) is made up by three fundamental components:

1) *microvessels*, diameter < 100 μ,
2) *the blood*, flowing in them,
3) *perivascular connective*, periangium, interstices or "environment" in which microvessels are placed, formed by water, free- and bound- water, cells and connective fibers, and interstitial matrix, glucosamino-glycanes.

Microvessels can be subdivided as follows (Pratesi, 1990):

1) *Para-microcircle*: small arteries and arterioles, according to Hammersen, venules of I, II, III order, shunts or Arteriovenous Anastomoses (AVA), functionally speaking (Bucciante, 1949);
2) *Microcircle*: nutritional capillaries, post-capillaries venules, "meta"- arterioles.

With the aid of QBS, doctor is able to evaluate, in dynamic manner, T.M.U. of every biophysical system, from both structural and functional view-point, according to a synergistic[26] pattern, i.e. the clinical evaluation of microvascular dynamics.

Notoriously the microvessels carry on a motor activity, autochthonous and deterministic chaotic, which represents one of the most remarkable manifestations of microcirculatory hemodynamic, characterized by a *flow-motion* and hematocrit rhythmically fluctuating due to the particular behaviour of both *vasomotility* and *vasomotion*[27].

A biological system, as the tissue-microvessel system, so much highly evolved and well differentiated, as regards anatomy and physiology, can not react to attacks, different in origin, which involve it, by a lot of ways.

As far as tissue-microvessel unit is concerned, cells, transformed in *smooth muscle cells* and in *ramified smooth muscle cells*, when stimulated, either contract or dilate, although there is a residual possibility of further response.

On the contrary, smooth muscle cells of the media of great arteries – elastic and muscular – which are less differentiated, react to various stimuli, even, de-differentiating and, then, evolving towards cells with secretory activity (Simonescu 1990, Gimbrone 1997).

These concepts account for the reason of the restricted number of tissue-microvascular unit reactions, doctor can observe at the bed-side by biophysical semeiotics and Clinical *Microangiology*[28].

According to biophysical semeiotics, in a supine healthy subject, psycho-physically relaxed, with his (her) open eyes, aiming to inhibit melatonin secretion, digital pressure of "low-mean" intensity, applied upon the skin projection area of heart, brings about upper, middle, low-urethral-, gastric aspecific-, caecal-, and choledocic- reflexes, i.e., upper-, mean, low-urethra as well as stomach, caecum, and choledocus dilate, the latter three after a latency time of 8 seconds.

In health, the dilation of upper and low urethral reflexes, appears after 6 seconds and lasts for 6 seconds, while all other reflex duration is less than 4 seconds. The latter parameter value proved to be of paramount importance, from diagnostic viewpoint, informing precisely about local microvascular structures and function, as well as microvessel remodeling. In fact, such as digital pressure brings about "low-mean" stimulation of coronary trigger-points, inducing "rapidly" oscillations of upper and choledocic reflexes (small arteries, according to Hammersen) and subsequently those of lower urethral (arterioles, nutritional capillaries), which parallel fluctuations of the related microvessel structure, according to a synergetic model (Stagnaro, 1994).

The oscillations of "upper" reflexes define the vasomotility – the general dynamics of microcirculatory vessels, while those of "lower" one express the vasomotion – capillary- venules dynamics (Figure 1).

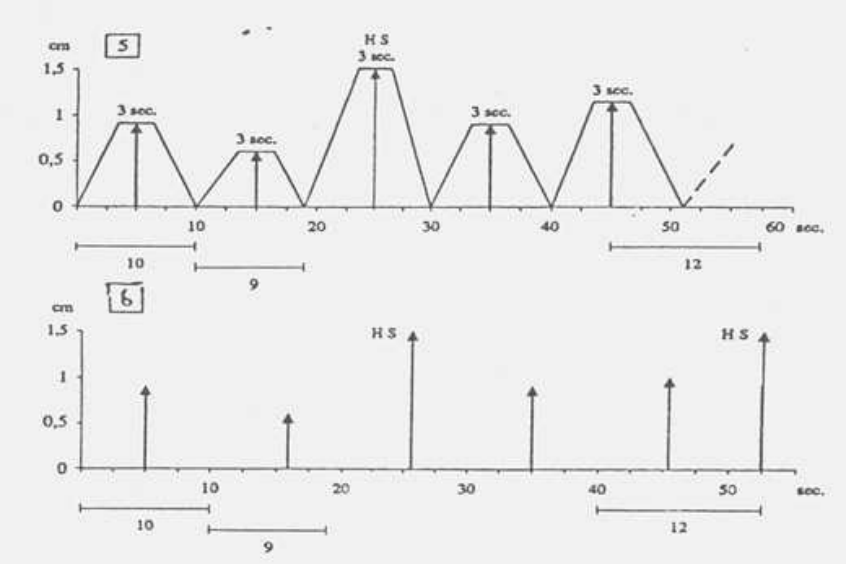


Figure 1: *Physiology fluctuations of upper and lower urethral reflexes, at rest (vasomotility and vasomotion); HS stands for Highest Spike or highest oscillation*

In Figure 1 we can see how are practically evaluated vasomotility and vasomotion. Drawing a Cartesian diagram, in the x-axis is represented the reflex's duration (in seconds), while in y-axis is represented the reflex's intensity (dilation of parenchyma, in cm). Interestingly, the period of oscillations is not fixed or constant: under physiological condition, it varies from 9 seconds to 12 seconds showing 6 cycles per minute. The average duration of fluctuations is 10.5, i.e., a fractal number. Furthermore, the intensity of "normal" oscillation is variable in a unpredictable manner, varying in health from 0.5 cm to 1.5 cm. Physiologically, after two normal, different in intensity, unpredictable fluctuations, we observe an highest oscillation - highest spike (HS) – that

corresponds to "quantum", maximal, periodic adrenalin and nor-adrenalin discharge from autonomic nervous system endings, which occurs exactly every 25 seconds. Finally, these signs can usefully be evaluated under stress tests (Stagnaro, 1996).

In health, either mean-intense digital pressure or skin pinching, lasting for the duration of manoeuvre, pancreatic trigger-points, brings about fluctuation of both upper and lowers urethral reflex: vasomotion and respectively vasomotility. Transferred the parameter values of these fluctuations, even mentally, on Cartesian axes system, doctor obtains diagram and 'tachogram', very rich of information (Figure 1).

On the contrary, in individuals involved by initial diabetes, even by diabetic constitution-dependent inherited real risk, under above-mentioned experimental condition, "simultaneously" occurs gastric aspecific reflex, showing intensity related to underlying disorder.

It is easy to understand that this behaviour of gastric aspecific reflex is identical when are stimulated either directly or by "thinking" the trigger points of all other biological systems.
In all tissues really exists also non-local reality, so that, for instance, "intense" digital pressure upon radius or vertebra bone is simultaneous to pancreas size increasing as response to endogenous osteocalcin. The second phase, different in nature, is brought about by the contact of osteocalcin with relate receptors on beta-cell outer membrane in Langherans's islets (Caramel, 2010b). At this point, in a few words, Stagnaro emphasises here the unavoidable role of "intense" stimulation, which is followed by rising in cell free energy (ATP), bringing about consequently quantum entanglement (Stagnaro et al, 2007e).

As a matter of fact, in a healthy individual to examine, even if the examiner stimulates exclusively by "thinking", e.g., pancreas trigger-point pancreatic "simultaneously" appears in Langherans's islets microcirculatory activation type I, associated.

As a consequence, in health, "intense", virtual, stimulation only by "thinking" of the doctor, does not bring about any gastric size increasing -pancreas pH persists normal (Caramel, 2010b).

Vasomotility and vasomotion of every T.M.U. physiologically show a highly complex type of variability, "constrained randomness", reminiscent of chaos (Goldberger, 1991; Murry, 1986), which may be evaluated nowadays at the bed-side with the aid of biophysical-semeiotics, as demonstrated for the first time clinically (Stagnaro, 1994).

QBS allows doctor to detect the chaotic behavior of both intensity and period of urethral (and choledocic) oscillations, i.e. vasomotility (upper urethral reflex: small arteries) and vasomotion (low urethral reflex: nutritional capillaries) of the microcirculatory bed of all organ and tissue, including the heart (Figure 1).

In addition, more intense stimulation provokes numerous, pressure-dependent, middle urethral reflexes, informing respectively on different types of EBD and AVA, according to Bucciante (1949). Middle urethral reflexes are correlated with EBD both physiological and newborn-pathological (Table 2). Furthermore, low urethral reflex oscillations give information on nutritional capillaries. Interestingly, mean digital pressure upon Th-1 – Th-2 dermathomeres stimulates cardiac β-adrenal-receptors. Physicians assess the capillary diameter as intensity of low urethral reflex. Highest spike (HS) intensity divided for minimal oscillation gives a ratio 3/1 under physiological condition. This value is unavoidable in calculating biophysical-semeiotic fractal Dimension (fD) of microvascular deterministic chaotic systems. It is perfectly identical to the value of differential latency time of heart-aspecific gastric and –caecum-reflex, surely easier to be evaluated (Table 2).

Middle ureteral reflexes

Low intense stimulation: 1 cm.; 7 sec. duration;
6 sec disappearing time. = type II EBD.

Mean-moderate intense stimulation: 1,5 cm.; 15 sec. duration;
6 sec. disappearing time = type I, A, AVA

Moderate-intense stimulation: 2 cm.; 20 sec. duration;
6 sec. disappearing time = type I normal and newborn-pathological, subtype b) EBD.

Mean intense stimulation: 1,5 cm.; 15 sec. duration;
6 sec. disappearing time = type II, AVA.

Intense stimulation: 2,5 cm.; 20 sec. duration; 6 sec.
disappearing time = type I, newborn- pathological, subtype a) EBD.

Table 3. Parametric values of different middle urethral reflexes as well as their significances

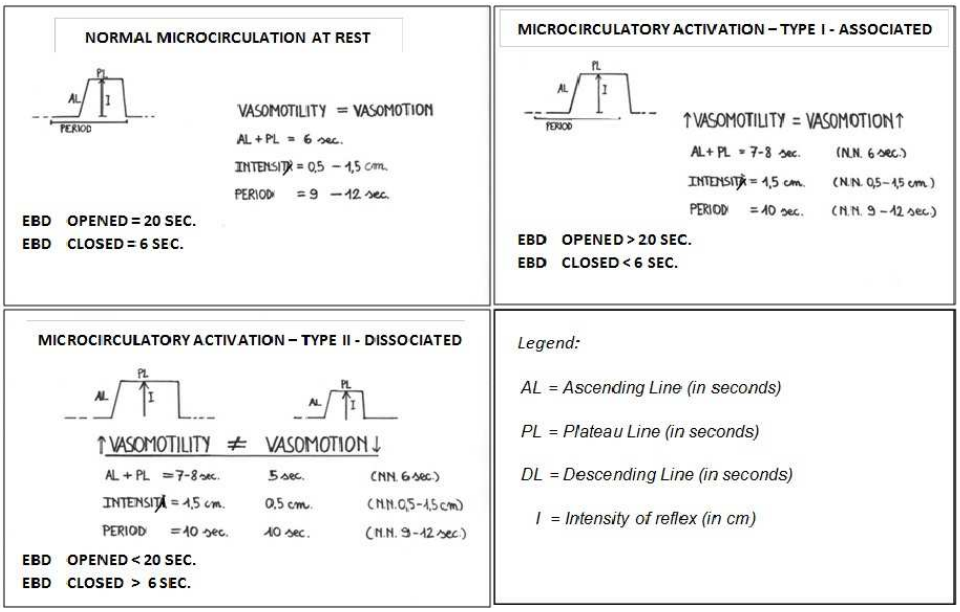
Several conditions, physiological and pathological, bring about "rapidly" modifications of deterministic-chaotic fluctuations of the small arteries, arterioles, nutritional capillaries, post-capillaries venules, and AVA, functionally speaking, in particular EBD, ubiquitous structures, essential in causing flow-motion in the microcircle of biological systems. It is easy to understand that such microcirculatory modifications aim to adapt in a better way the biological system to new conditions. Obviously, the activation of "peripheral heart" aims to realize and maintain a sufficient flow-motion in nutritional capillaries in relation to actual functional situations of local parenchyma, whose local microcircle has to supply material-energy-information in a perfect way.

The normal microcirculation at rest can become physiologically *active* when the parenchyma starts to work. The important set of microvascular dynamic events, related to *microcirculatory activation - M.A.*, can be subdivided in three types (Scheme 14):

- type I or "associated", "physiological", in which both the *vasomotility* and *vasomotion* result increased and consequently blood-flow in nutritional capillaries and post-capillary-venules is augmented, due also to right AVA reaction; (e.g. during parenchyma work);

- type II or "dissociated", "pathological", in which the *vasomotility* shows increasing of both intensity and oscillation duration, while the *vasomotion* shows a highly differentiated behaviour, in relation to the presence of microcirculatory "compensation" or "decompensation" (failure), as we will say later on. (e.g. during pathological conditions);

- type III or "intermediate", when vasomotility is activated, while vasomotion shows basal activity, and hemoderivative structures are not activated. The transition from type I to type II goes through numerous intermediate stages, which from the compensation reach the total irreversible decompensation of microcirculation, showing a large variety of different and significant forms.



Scheme 14. Vasomotility and vasomotion. Microcirculatory activation types

M.A. - type I shows the increasing of oscillation waves: the sum of AL[29] (ascending line) and PL[30] (plateau line) duration is equal to 7-8 seconds, maximal intensity (1.5 cm) as well as a period of 10 seconds. Arrows indicate the activation[31] of both vasomotility and vasomotion. Consequently, fractal dimension appears clearly reduced (Scheme 14). The under curve area "shows" microvessel sagittal surface during their highest and prolonged opening phase so that, under such condition, microcirculatory blood-flow is greatest.

In healthy, who is invite, e.g., to bend and extend repeatedly homolateral foot or, more easily and refined, to "think" of perform such movements, adventitial arterial microcircle of common femoral artery moves rapidly from basal microcirculatory condition, characterized by microvessels deterministic-chaotic oscillations, revealed by upper and lower urethral reflex fluctuations (Figure 1), where fD is 3,81, to the typical type I, associated, activation, in which all fluctuations show the same, greatest, intensity (*highest spikes*) and fractal dimension lowers from 3.81 to 1.5 (Figure 2).

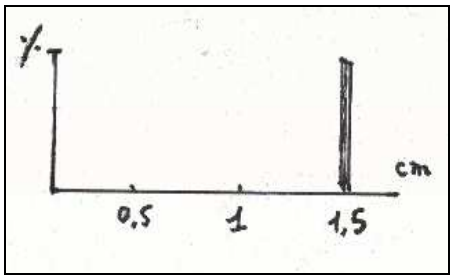


Figure 2

Figure 2 illustrates the "at far column" type of Fourier's transformation of oscillations observed in the M.A., type I, associated, in which capillary as well as arteriolar fluctuations intensity are all identical and highest, showing value of about 1.5, as conventional measure.

Among microcirculatory structures, a primary role in the microvessel blood-flow is played by Endoarteriolar Blocking Devices (EBD), which are largely present in human body (Scheme 12).

Physiological Endoarteriolar Blocking Devices
Type and Type II: location

Type I and Type II:

Skelatal Muscle, right cerebral hemisphere
(individuals positive for CAEMH-alpha), etc.

Type II: really UBIQUITOUS

Brain (without CAEMH-alpha), Heart, Lung, Stomach,
Duodenum, Liver, Gall-Bladder, Prostate, Womb and Ovaries,
Endocrine Glands,e.g., Adrenal, Pituitary, Thyroid Glands,
Diencephalic NeuroneCenters, Adipose Tissue, etc.

Scheme 15. Physiological EBD – type I and II

Doctor who knows the exact location of physiological type I EBD (skeletal muscle, right hemisphere of individuals CAEMH-positive, conjunctival mucosa) can recognize in easier way the type I pathological DEB, that play a pivotal role in diagnosing QBS real risk of most common and serious human disorders (Scheme 15).

Both physiology and anatomy of EBD, evaluated "clinically" for the first time, play a primary and pivotal role in diagnosis and prevention of the most common and serious human diseases, including diabetes, hypertension, ATS, CVD, and cancer, permitting, for the first time "clinically", to define the link existing between *genetic* factor and *phenotype*, according to the theory of Angiobiopathy (Stagnaro, 2004a).

EBD, derived from arteriolar medial layer, and located in a single point of vascular wall with two (arterioles) or more (small arteries, according to Hammersen) layers of smooth muscle cells, protruding to the lumen, show very different structure and form, under physiological and pathological conditions: small cushions with wide base, polyploidy formations, generally pedunculated, sphincteric formations, intimal contractile architectures (Figure 3).

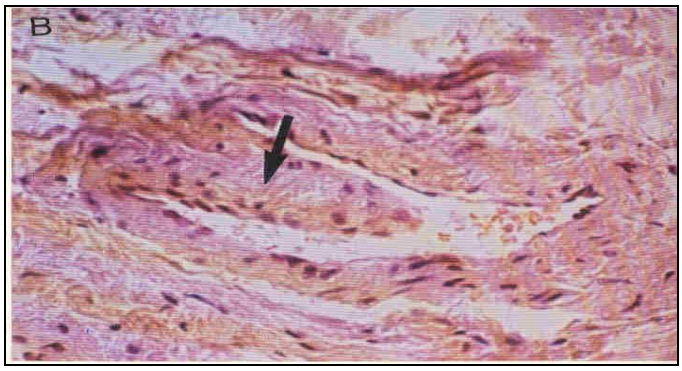


Figure 3. For kind permission of Curri S.B. (1986), the figure shows a refined imagine of EBD with a large base of the type "proboscides"

They are ubiquitous since they are located in all biological systems; more precisely speaking, only type II, normal, EBD, localized in arterioles, according to Hammersen, are ubiquitous. EBD are playing a primary role in the regulation of local microcirculatory *flow-motion*, as the following clinical evidence demonstrates: when abnormal, at least from functional

biophysical-semeiotic viewpoint, EBD bring about impairment of MFR, which contribute to conditioning the "real risk" of disorders, like CAD, whose onset will possibly occur after years or decades.

EBD contraction, i.e. the contraction of its muscular cells, at the base of mean urethral reflex (arteriolar opening), brings about blood flow increase in the capillaries, microcirculatory stasis and, then, if lasting, possible hypertensive damage of related capillary net, and subsequently dilation at first, and, thereafter, basal membrane thickening. In case of microcirculatory activation type I, associated, EBD contribute significantly to increasing matter-energy-information supply to parenchyma, according to the physiological behaviour.

During M.A, *type I, associated,* EBD are "open" mean urethral reflex, brought about by "middle" digital pressure on the artery, lasts for > 20 seconds (NN = 20 seconds), i.e., for a time longer than that observed at baseline, and, moreover, reflex disappearing (EBD de-contraction, expressed by reflex cessation from biophysical-point of view) is < 6 sec. (NN = 6 seconds). These functional "vasomotion" modifications aim to increase the blood-flow in nutritional capillaries of arterial wall external, outward third and, consequently, to remove efficaciously H^+ as well as various catabolites.

On the contrary, M.A., type II, dissociated, in which *vasomotion* is reduced, is always associated to EBD dysfunction, indicating pathological local microcirculation: *microcirculatory bad distribution of blood flow*[32], according to S.B. Curri (1986).

In M.A., type II, dissociated, pathological, in which occurs the microcirculatory phenomenon of the so-called "blood-flow centralization", due to the greater opening of AVA, and subsequent removal of capillary blood, we observe an insufficient blood-flow to parenchyma, that flows mostly in AVA, shunting therefore it away from parenchymal cells.

For instance, in case of chronic arteriopathy, arteriosclerotic as well as of other origin, it is present the *dissociated type of activation*, which brings about tissue acidosis, recognized at the bed-side by caecal, gastric aspecific and upper urethral reflexes.

From the above-referred remarks *M.A.*, type I, associated, physiological, event secondary to the increased demand of blood supply from the related tissue in a stage of activity greater than normal, indicates an emergency or stress situation, as regards the biological system in a precise moment.

Symptomless obstruction of a large arterial vessel (50%), for example, represents an *emergency* situation as far as biological system downstream is concerned, even at rest, which worsens obviously during physical activity, also slight.

In practice, such as condition influences favourably both the diagnosis and the prevention. For instance, in a patient "at rest", involved by "silent coronary artery disease", who does not present any clinical phenomenology, the "light" digital pressure, applied on skin projection area of right or left ventricle, allows doctor to recognize the *microcirculatory activation, type I, associated,* by urethral reflexes evaluation (table 2), indicating the symptomless coronary pathological condition.

Myocardial preconditioning and EBD

In healthy individuals – in supine position – digital pressure of mean intensity, applied on skin heart projection area, brings about heart gastric aspecific reflex[33] (H.G.A.R.) after a latency time (Lt) of 8 seconds. H.G.A.R. lasts less than 4 seconds, soon thereafter disappears for 3-4 seconds. Disappearing time corresponds to *fractal dimension – fD* (Scheme 10). Afterwards, a second reflex occurs. The duration of H.G.A.R. unfolds the microcirculatory functional reserve (MFR) activity of related coronary microvessel, thus correlated with the function and anatomy of the microcirculatory bed, or microvascular tissular-unit - M.T.U.

At this point of investigation, the physician quickly interrupts the digital pressure for a length of exactly 5 seconds. Than, Lt and H.G.A.R. are evaluated again: Lt raises to 16 seconds, H.G.A.R. lasts less than 4 seconds, disappearing after roughly 4 seconds: these values evidence a *physiological preconditioning*.

At this point, if doctor apply really, for the first time, directly, "mean-intense" digital pressure on his (her) own heart skin projection, after precise 5 seconds, namely performing heart preconditioning, the second latency time raises physiologically to 16 seconds, former corroborating heart distant stimulation, due to psychokinetic event: the psychokinetic diagnostic theory is thus corroborated.

To summarize in a few words, stimulating patient's trigger-points only "by thinking", i.e., "mentally", despite the real distance between doctor and individual to be examined, brings about the possibility of physician's preconditioning of every biological system, demonstrating thus the truth as well as the scientific significance of such diagnostics, made for the first time.

In summary, physiological Lt of H.G.A.R. is 8 seconds at the first evaluation (*basal-line value*), but increases clearly in the second (is double) as well as in the third one, due to the physiological activation of MFR.

In individuals at risk of CAD, Lt at *base-line* is physiological during the first evaluation (8 seconds). However, H.G.A.R. lasts 4 seconds or more and disappears for less than 3 seconds: lowering of fractal dimension[34]. Moreover, preconditioning results "pathological", as Lt is less then 16 seconds: these values evidence a *pathological preconditioning*.

Interestingly, in patients with coronary heart disorder, even clinically silent, the *basal value* of latency time of gastric aspecific reflex appears to be less than 7 seconds at first evaluation and becomes lower in the second one, in relation to the seriousness of underlying disorder.

Another note-worthy preconditioning permits to discover subjects at "real" risk of arteriosclerosis, as well as arteriosclerotic patients, even clinically silent: digital pressure of mean intensity, applied upon femoral (or other) artery of healthy individuals provokes gastric aspecific reflex, after a latency time of 8 sec. or more, that increases in successive evaluations as far as 12 sec.: *physiological preconditioning*. On the contrary, in subjects, even apparently healthy, but at risk of, or already involved by ATS - arteriosclerosis, *preconditioning* results *pathological*, in relation to the degree of disorder or of its risk.

The above-described QBS method is proper for clinical preconditioning of almost every organs, it is proved to be useful and suitable for mass preventing or detecting ischemic heart disease, kidney disorders (including future stones), arteriosclerosis, even clinically silent, arterial hypertension, diabetes mellitus, and so on.

In healthy the *preconditioning* brings about, as natural consequence, an optimal tissue supply of material-information-energy, by increasing local *flow-motion as well as flux-motion* - preconditioning, type I. On the contrary, if real risk is present, *preconditioning* data are almost the same as the basal ones, but Lt is a little shorter than physiological one - preconditioning, type II. Finally, in overt disease, *preconditioning* shows an altered and shorter Lt of reflex in relation to seriousness of underlying disorders - preconditioning, type III (Table 2).

At this point, we come back to the former example: in the initial phase of coronary heart disease, which evolves very slowly toward successive phases, "basal" QBS data can "apparently" result normal. However, under careful observation, the duration of H.G.A.R. is equal or more than 4 seconds (NN < 4 seconds), indicating a local microcirculatory disorder.

Really, in these conditions, EBD function is clearly compromised, but for some time the increased *vasomotility* counterbalances efficaciously the impaired supply of normal blood amount to parenchyma: also the *vasomotion*, at rest, shows parameter values oscillating in physiological ranges, due to the augmented arteriolar sphygmicity; such a condition can be "technically" defined *peripheral heart compensation*.

Noteworthy, from the diagnostic point of view, are also the cardio-caecal and -gastric aspecific reflexes, when accurately assessed: after a Lt still normal (8 seconds), doctor observes a reflexes duration, before the successive one initiates, of 4 seconds (NN < 4 seconds), and a differential Lt (fD or duration of reflex disappearing before the beginning of the following) of just 3 seconds (3 < NN < 4).

Clinical recognizing of these "slight" abnormalities, really useful in diagnosing initial and/or symptomless disorders, although not difficult to perform, requests a good knowledge, a steady experience and a precise performance of the new semeiotics.

In these cases, *preconditioning* allows in simple and reliable manner to recognize the pathological modifications, mentioned above, which indicate the altered physiological adaptability, even initial or slight, of the biological system to changed conditions as well as to increased tissue demands. The various parameters of caecal, gastric aspecific and choledocic reflex, type of activation and, then, EBD function, related to a defined biological system, parallel and are consistent with the data of *preconditioning*.

Summary and conclusions

Quantum Biophysics Semeiotics – QBS, an extension of classical semiotics, uses chaos and quantum theory in order to interpret deeply the qualitative and quantitative signs and information that gives us the human body, allowing diagnosis, prevention and treatment of serious diseases that humans can suffer today such as diabetes mellitus, cancer, and cardiovascular diseases, long before the onset of their clinical expression.

There is a significant theoretical coherence between deterministic chaos and causal interpretations of quantum theory provided by David Bohm, as both relate to the apparently probabilistic behavior of deterministic nonlinear dynamical systems. The interpretation of Bohm corroborates aspects of non-locality (tested in sub-quantum world by Alan Aspect) and of entanglement, and QBS in practice highlights the importance of these joint and of quantum chaotic behavior in biological systems.

To better understand this aspect is useful to recall the theory of autopoiesis proposed by Maturana and Varela, which defines the scheme of organization of living systems, typically conservative, which may give rise to different structures whose behaviors are typical of dissipative systems far from equilibrium as defined by Ilya Prigogine. That which links scheme of organization to structure is the process of cognition, whose principle, identified by Stagnaro, is the Energy Information (EI) which has got catalytic nature. Similarly, according to Bohm, the scheme of organization can be explained as the implicate order, characterized by a non-local reality and by the entanglement, which unfolds the explicate according with an incessant feedback enfoldment-unfoldment (different possible structures, that billions of times per second become active, they are 'structured' from the implicate potential order) by the process of holomovement.

According with the research of Stagnaro, it turns out that in biological systems, in their physiological state, there is the parallel co-presence of local and non-local reality, quantified by the presence of fractal dimension, above a certain threshold, that identifies the chaos deterministic and complex dynamical equilibriums of the type 'strange' or chaotic attractor, while in the trend or evolution to disease, in the potential disease, disease itself or chronicity, non-local reality locally decades, so there remains just the local reality (energy consumption in space-time) quantified by a reduced fractal dimension, demonstrating the mere existence of equilibriums such as limit cycle and / or fixed point (i.e., the loss of physiological conditions typical of a healthy biological system, associated with the deterministic chaos).

In non-local reality, space-time is not that one of the local reality characterized by three dimensions of space and the one-way arrow of time (3D-1T), since it is a four-dimensional 2D - 2 T, where time and space take on a different meaning. This allows the existence of the phenomena of simultaneity according to the concept of space, and time following the concept of synchronicity, i.e., entanglement, telepathy, psychokinetic, simultaneous transmission of information and synchronous resonance in the human body through DNA that acts like an antenna with its receptors which are present in us.

For instance, we are able to understand why the first phase of hormone action is simultaneous with very beginning of whatever stimulation (i.e., intense digital pressure upon a bone, e.g., radius, is simultaneous to pancreas size increasing as response to endogenous osteocalcin). The second phase of hormone action mechanism, different in nature, is brought about by the contact of osteocalcin with relative receptors on beta-cell outer membrane of Langherans's islets (Stagnaro, 2004a; Stagnaro et al, 2007a; Stagnaro, 2007c; Stagnaro, 2008h). The existence of non-local reality in biology is demonstrated by the experiment of Lory.

What does the sentence 'to measure the quantum-chaotic behavior of a biological system' mean exactly? The behavior of biological systems in the human body is generally non-linear and under physiological conditions, as just discussed, is strictly deterministic chaotic. These systems are dissipative systems far from equilibrium, which however raises the question of how to measure quantitatively and qualitatively their behavior. Stagnaro's insight is to study the behavior of microvessels, intimately connected with their parenchyma, so that if it met any functional and/or structural abnormal behavior in them, this would also indicate a real or potential malfunction of their parenchyma, everything in these cases due to the genome, or more exactly, to the genetic alterations of mit-DNA, present from the moment of birth. The study of microvessels is appropriately stimulating the trigger-points of a well-defined parenchyma, i.e., of the stomach, so that by QBS the doctor induces the particular biological system observed, i.e., coronary microvessels, at a certain phase coherent local behavior that causes, i.e., one or more gastric aspecific reflexes well classified and characterized mainly by three factors such as well-quantitatively measurable latency time, duration and intensity of the reflection.

Based on these data we can draw a very detailed case studies by which it can be said if the investigated biological system is healthy (physiological), in pathological conditions or chronic, and moreover, thanks to the QBS only, if there is a tendency or progression to disease, potential or real risk of diseases such as cancer, diabetes or CAD, i.e. as shown by mean of Caotino sign.

In summary, the microvessels behave as dissipative systems far from equilibrium, and, if properly stimulated, they lead to consistent local behaviors giving important qualitative and quantitative information about their structural and functional state of health, and indirectly they inform about their relative parenchyma. In physiological conditions there is the co-presence of local and non-local reality, supported by equilibriums of type 'chaotic attractor', which diminish to equilibrium such as limit cycle in case of illness or even fixed point in case of chronicity. Energy Information – EI plays important role: this is a thin and catalytic energy dense of information, similar to the quantum potential of Bohm, who directs and facilitates, locally and globally, all biological processes and their networking systems. EI then catalyzes and rules the cognitive process that links the conservative autopoietic scheme of organization to the dissipative structures which constantly create and renew.

Treatment and prevention, according to the QBS, must be geared to the increase in EI, restoring or bringing it to a sufficiently high level in order to ensure a lasting non-local reality and the presence of deterministic chaos, by mean of improving the breath of mitochondria, e.g. through diet etymologically intense, electro-stimulation with infrared low frequency (i.e., NIR-LED) histangioprotectors (i.e., conjugated-melatonin), prayer, meditation, appropriate lifestyles (i.e., sport activities, walks).

Stagnaro term the original diagnosing method as 'Psychokinetic Diagnostics' (Stagnaro 2008a, Stagnaro 2008b, Stagnaro 2009b), which represents the paramount advancement of QBS: when physician is "thinking" about a well-known subject (analogously, to turn on a radio), i.e., having the subject on own mind, due to quantum *entanglement*, both peoples become part of a cosmic hologram, and can communicate each other, exchanging information.

Importantly, at this point, if Vibratory Energy (ATP) – strictly connected with EI - is lowering in one or both communicating individuals, any exchange of information immediately stops. In addition, if examining doctor "imagines" the other subject as not lovely, even hateful, communication is not possible, in my opinion, demonstrating that Information Energy EI is linked with LOVE!

As a consequence, in spite of the distance between them, when doctor is stimulating "by thinking" some trigger points of an individual to be examined, the related visceral reaction, e.g., aspecific gastric reflex, appears also in doctor's stomach, showing identical value parameters.

Interestingly in order to understand quantum nature of these events is the fact that if either doctor or subject to examine does not breath (Apnoea test), lowering significantly tissue energy level, subsequently worsening mitochondrial respiratory chain activity, above-illustrated events stop quickly, after only one second, indicating the real nature of these events: reducing body Vibratory Energy (ATP), also Information Energy EI lowers rapidly, so that quantum entanglement interrupt suddenly (disentanglement), after only one second (Stagnaro, 2007d).

The appearance of quantum non-locality inherent in biological systems is demonstrated by the 'Experiment of Lory', where it has been scientifically demonstrated the entanglement between two twins, strongly, holistically and intertwined together coming from a single embryo, even if thousands of kilometers away from each other. This experiment inspired the fact that the distance communication may be possible not only between twins, but also between doctor and patient, even separated by several kilometers apart.

Is Energy-Information - EI - simultaneous and not transmitted spending time and wasting energy, as it happens throughout biological systems, identical from embryogenesis view-point, both in the same individual and from subject to subject (not necessarily twin, as in Lory's Experiment), regardless the distance between them (Stagnaro, 2007d)?

The clinical and experimental evidence provided by Stagnaro demonstrate the existence of 'Quantum Entanglement' between doctor and patient, making possible distance visits according to QBS, provided however that exists between them a degree of empathy and love. This is explained by the fact that only a sufficiently high level of EI (upgradeable and through meditation, a good life, etymologically intensive diets, etc.) allows physiological states of health, or i.e., the presence of non-local reality. If there were not non-local reality, which is essential for the entanglement, it would mean that the EI would have fallen below a certain threshold, but the EI is directly related to meditation, prayer, love, empathy, harmony between people: if these factors lost significance this mean that non-local reality 'collapses', it is not possible the entanglement (dis-entanglement), and therefore even psychokinetic diagnostics.

Promising trials about diagnostic psychokinetic are ongoing, taking into account the two-dimensional space - time and 2D - 2T typical of non-local reality, which justifies regressive diagnosis (the doctor goes mentally back in time, 'carrying' with him the patient), and progressive diagnosis (forward in time) over time taking into account the sensitive dependence on initial conditions and free will, and furthermore, diagnosis localized in space 2D.

Thanks to Psychokinetic Diagnostics, physical examination has profoundly improved, showing an epochal amelioration and paramount efficaciousness. In addition, such unavoidable medical procedure can be applied in very short time, helping doctor to make until now impossible diagnoses. As a matter of fact, physicians facing patients ask themselves, first of all, in what biological system the disorder is located.

For instance, when a patient is acutely suffering from abdominal colic-like pain, doctors want to know, as soon as possible, if it is brought about by hepatic, renal, pancreatic, gastro-intestinal, and so on. In Stagnaro experience the new begin of physical investigation, described as follows, proved to be reliable, useful and precious in making quickly the correct diagnosis.
Due to no local reality in biological systems, beside the local reality, "intense" stimulation, even by thinking, of a single trigger-point of whatever apparatus, allows doctor simultaneously to gather information about the entire system. As a consequence, at begin of physical examination, it is advisable to apply "intense" stimulation upon a "unique" trigger-point of brain (skull), lung (thorax), heart (precordium), gastro-intestinal tract (upper oesophagus skin projection area), urinary apparatus (lateral abdominal quadrant), endocrine glands, and so on.
In healthy state, such as intense stimulation, even realized by thinking, does not bring about gastric aspecific reflex, simultaneously with "intense" stimulation beginning.
On the contrary, in case of a disorder of whatever nature, located in investigated biological system, gastric aspecific reflex occurs "simultaneously", whose intensity parallels the seriousness of underlying disorder. Interestingly, the behaviour of reflex can sometimes give precious information on the real nature of disease: for instance, in case of appendicitis, the reflex, simultaneous with upper oesophagus stimulation, is followed rapidly by the characteristic Gastric tonic Contraction, as in case of gastro-intestinal malignancy. In addition, Gastric tonic Contraction is typical of renal cancer, even very initial or in its stage of renal cancer Inherited Real Risk, caused by "intense" stimulation of urinary tract single trigger point: Pollio's Sign (Stagnaro, 2009f).
When the disorder has been correctly localized, before utilizing every sign a manoeuvre of the original semeiotics, doctor has to assess all QBS constitutions: in healthy, the "intense" stimulation of related trigger-points does not cause gastric aspecific reflex. On the contrary, in presence of related constitution as well as constitution-dependent inherited real risk, simultaneously occurs the reflex, showing intensity directly correlated with underlying disorder seriousness (Stagnaro, 2009c).
Finally, if microcirculation of a biological system can be activated according type I, associate, physiological, doctor may exclude the presence of newborn-pathological, type I, sub-type a) Oncological, and b) Aspecific Endoarteriolar Blocking Devices - EBD, and thus the inherited real risk of whatever diseases, according to Angiobiopathy theory (Stagnaro, 2008h), facilitating the diagnostic procedure.

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[1] Mendel (1822-1884), studying the behavior of chromosomes in the nucleus, showed that the hereditary characters are transmitted as a unit. Chromosomes are located in individual hereditary characteristics of these units, then called genes. The transmission of characteristics from parents to offspring is called heredity: the majority of such characters of an organism passes from parents to children when organisms reproduce. But he had no knowledge of the existence of mitochondria described by Altmann in 1894 and rediscovered by Benda in 1897, who baptized them with their current name.

[2] The human mitochondrial DNA is inherited by matrilineal (not Mendelian inheritance) as during the process of fertilization of sperm mitochondria are marked with ubiquitin, a protein that binds to other proteins to be degraded. As a result, the mitochondrial genome of the offspring will be

almost equal to the mother (subject to possible mutations) and also if the mother is suffering from a mitochondrial disease transmission, then all children inherit. In literature there are very few reported cases in which the mitochondrial DNA seems to derive from the father or both parents.

[3] The Royal Society, London, 1986

[4] Lyapunov Characteristic Exponents – LCE – is a statistic measure to test the presence of 'sensitive dependence on initial conditions' – SDIC – in a system. SDIC is at the root of the 'disorderly' behavior of deterministic dynamical systems and is responsible for their random appearance and unpredictability.

[5] Fractal dimension is a measure of the way orbits fill the phase space under the action of a flow or a map, suitable for fractal objects, characterized by a non-integer dimension.

[6] Entropy is a measure of the uncertainty in deterministic dynamical systems, or equivalently is the amount of information we get on the average by making an observation. In particular, the presence of positive entropy indicates that the observation of the system continues to generate information for an arbitrary long interval of time. Consequently, unless the position of the system can be observed with absolute precision, there will forever remain uncertainty about its future course, even when the dynamical rule governing the system is known with precision. Zero entropy is interpreted as absence of chaotic or complex behavior, typical of linear or periodic systems with fixed point or limit cycle equilibrium, so that they are fully and exactly predictable: none new quality information emerges for an arbitrary long interval of time.

[7] The particle paths fluctuate chaotically, so that causal interpretation is not strictly deterministic as in Newton physics: unpredictability and uncertainty are intrinsic property of the deterministic dynamical systems observed, as in chaos theory, and not random or casual like in classical interpretation of N. Bohr.

[8] This electron turns out not to be a simple structureless particle but a highly complex entity that is effected by the quantum potential – QP - in an extremely subtle way. Indeed QP is responsible for some novel and highly striking features which imply qualitative new properties of matter that are not contained within the conventional quantum theory.

[9] Unlike the particles of Newtonian physics, the electron is never separated from a certain quantum field which fundamentally affects it, and exhibits certain novel features. This quantum field satisfies Schrödinger's equation, it is therefore causally determined.

[10] The form of QP can dominate behavior: information contained within QP will determine the outcome of a quantum process. There is active information, a form having very little energy enters into and directs a much greater energy. There is an energy form acting to inform.

[11] In the local reality there are obviously 3 space dimensions and 1 time dimension – 3S – 1T.

[12] Quantum entanglement, also called the quantum non-local connection, is a property of the quantum mechanical state of a system containing two or more objects, where the objects that make up the system are linked in a way such that one cannot adequately describe the quantum state of a constituent of the system without full mention of its counterparts, even if the individual objects are spatially separated. This interconnection leads to non-classical correlations between observable physical properties of remote systems, often referred to as nonlocal correlations. During the formation of quantum theory, this property of entanglement was recognized as a direct consequence. Quantum entanglement is at the heart of the EPR paradox that was developed by Albert Einstein, Boris Podolsk, and Nathan Rosen in 1935, and was experimentally verified for the first time in 1980 by the French physicist Alain Aspect.

[13] Information, from the latinum verb 'in-formare', which means 'to give a form' is a truly more primitive fundamental activity than energy and matter, is something that precedes every physical form (Aristotle). Information's action is therefore related to the potential codification plan of producing an objective form and in turn we can perceive an object as form's of information transmission.

[14] See the article about quantum-chaotic determinism in http://www.scienzaeconoscenza.it/articolo/la-semeiotica-biofisica-quantistica.php

[15] Manuel is born on February 28th, 2010, and he is negative for OT (Oncological Terrain) even if both mother and father are positive for OT, but they accepted to be under QBS treatment with Conjugate Melatonin by Di Bella-Ferrari, before having children, so that their Real Risk of Cancer became residual, and furthermore their son, Manuel, is living and will live without any risk of cancer forever. Stagnaro et al. (2004b) argued the chance to act directly on the mit-DNA in order to defeat cancer, and their theory and forecast became reality for the first time last April 2010. This fact demonstrates that the scheme of organization (alteration of mit-DNA) is reversible, giving real hope that cancer can be completely eradicated. Furthermore, in this sense causality is just potential, an ex-post interpretation, and it is legitimate the free will. Quantum-chaotic determinism is based on SDIC (sensitive dependence of initial conditions), quantum no locality and discontinuity, and free will, where this is possible.

[16] Metabolic syndrome is a combination of medical disorders that increase the risk of developing cardiovascular disease and diabetes. It is also known as metabolic syndrome X, syndrome X, insulin resistance syndrome, Reaven's syndrome. The pre-metabolic syndrome, as defined by Stagnaro, is the syndrome that precedes the metabolic one, and is linked with congenital real risks and their associated biophysical semiotics constitutions.

[17] Biophysical semeiotic constitutions, detectable since birth, are the inherited congenital ground or terrain of well defined potential diseases clinically hidden, which can last several years before appearing, in the slow transformation process from potential (pre-metabolic syndrome, pre-clinical stages) to effective pathology (metabolic syndrome)

[18] The parenchyma is a characteristic substance of the bodies such as the liver and the lung parenchyma.

[19] See Microangiology in http://www.semeioticabiofisica.it

[20] Metabolic syndrome is a combination of medical disorders that increase the risk of developing diseases. The pre-metabolic syndrome, as defined by Stagnaro, is the syndrome that precedes the metabolic one, and is linked with congenital real risks and their associated biophysical semiotics constitutions.

[21] Melatonin is a natural substance that our body produces itself. It is produced by synthesis in the laboratory and placed in the body is to act on mitochondria, especially increases mitochondrial phosphorylation, it produces more EV and therefore greater EI and this must be for the benefit of the entire body, improves breathing (especially at night; we produce melatonin mainly from the early hours of the night until around dawn), and therefore this is a hormone that is universal and is good for the treatment of multiple diseases, or tendencies to pathology, and then to make the RR residual. It is also a good neurotransmitter.

[22] In therapy, based on what has been observed in patients with Oncological Terrain places on the nodes of Curry or Hartmann (worsening of PNEI - psycho-neuro-endocrine-immune system), these energies released will improve and normalize respectively, by their influence on the alignment device, the orbital motion of subatomic particles, including the mitochondrial respiratory chain, which first reacts.

[23] Lory's experiment is based on the fact that "all" subatomic components and then atomic and molecular structured to form a cell and the whole cell or parenchyma, are correlated between themselves and with "all" the other branch of the same embryological in a four-dimensional space, like they are just "plot" (entanglement) two electrons observed by Aspect in his famous experiment. The effect of' entanglement means that the

information takes on a “non-local” dimension. Lory’s experiment is as follows: if it is done a digital pressure applied over a parotid gland, or a salivary gland sublingual, of a "single ovular" twin sister, simultaneously it is observed microcirculatory activation type I associated in the pancreas of the other twin sister, regardless of the distance that separates them: meters or kilometers (see in the references Manzelli and Stagnaro).

[24] The micro-circulatory remodeling is directed by the way of living and working on the parenchyma: if the subject is healthy, is healthy the related parenchyma on the microcirculation (see angiobiopathy theory, dealing with diseases of blood and lymph vessels in accordance with the semiotics biophysics). Certainly a loss, rheumatism, immune, infectious, can act both directly and indirectly. See [http://www.semeioticabiofisica.it/microangiologia/common.htm]. It may be that in the long run re-organization becomes difficult or impossible because the flow decreases more, and then are built up of feedback mechanisms for which are to activate dormant cancer cells. Aging with free radicals that accumulate contributes to further damage both micro vascular and parenchymal: even endothelium (cell layers lining the inner surface of blood vessels and heart chambers) and smooth muscle cells possess mitochondria. Remodeling micro circulatory type cancer is an expression of mutations of genes within cells in that forum: any change in gene expression - cell finds its expression in the parallel alteration of its microcirculation (microvascular tissue units): the tissue here is around the vessels, interstitial, not the parenchyma! If these processes are blocked, stops the entire organization. Very important is that if there are congenital abnormalities, genetically transmitted through the mother (see CAEMH, mitochondrial cytopathy or mitochondrial functional pathology in the site www.semeioticabiofisica.it) amending the unfolding vital physiological processes occur the most serious human diseases, and not, now real epidemics. Autopoietic networks must therefore regenerate themselves continuously in normal and physiological way, to maintain its organization.

[25] The implicate order is fundamental while the explicate order is understood as having unfolded from the implicate order. The particles of physics are like dynamic structures which are always grounded in the whole from which they unfold and into which they enfold. There may be a further unknown set of entities, each having its implicate order which goes deeper and deeper without limit and is ultimately unknown and indescribable totality is called holomovement, which acts as the fundamental ground of all matter. The term holomovement is one of many neologisms which Bohm coined in his search to overcome the limitations of the standard Copenhagen interpretation of quantum mechanics. The new form of insight can perhaps best be called Undivided Wholeness in Flowing Movement. This view implies that flow is, in some sense, prior to that of the ‘things’ that can be seen to form and dissolve in this flow. He notes how each relatively autonomous and stable structure is to be understood not as something independently and permanently existent but rather as a product that has been formed in the whole flowing movement and what will ultimately dissolve back into this movement. How it forms and maintains itself, then, depends on its place function within the whole. For Bohm, movement is what is primary; and what seem like permanent structures are only relatively autonomous sub-entities which emerge out of the whole of flowing movement and then dissolve back into it an unceasing process of becoming. to emphasize undivided wholeness, we can say that the holomovement, which is an unbroken and undivided totality, ‘carries’ implicate order. In certain cases, we can abstract particular aspects of the holomovement (e.g. light, electrons, sound, etc.), but more generally, all forms of the holomovement merge and are inseparable. Thus in its totality, the holomovement is not limited in any specifiable way at all. It is not required to conform to any particular order, or to be bounded by any particular measure. Thus, the holomovement is indefinable and immeasurable. As the interconnected totality of all there is, the holomovement is potentially of an infinite order, and so cannot be pinned down to any one notion of order. The starting point for Bohm's articulation of what he means by a "new order in physics" is his notion of wholeness. Thus crucial for understanding the holomovement is his notion of how interconnected phenomena are woven together in an underlying unified fabric of physical law. In the following section, called "Law in the Holomovement", he takes up the question of order, and the laws of organization which relate the parts to each other and to the whole. This is what he calls the "law of the whole", or holonomy. Rather than starting with the parts and explaining the whole in terms of the parts, Bohm's point of view is just the opposite: he starts with a notion of undivided wholeness and derives the parts as abstractions from the whole. The essential point is that the implicate order and the holomovement imply a way of looking at reality not merely in terms of external interactions between things, but in terms of the internal (enfolded) relationships among things: "The relationships constituting the fundamental law are between the enfolded structures that interweave and inter-penetrate each other, through the whole of space, rather than between the abstracted and separated forms that are manifest to the senses (and to our instruments)".The implicate order has its ground in the holomovement which is, as we have seen, vast, rich, and in a state of unending flux of enfoldment and unfoldment, with laws most of which are only vaguely known.

[26] The *synergetic* enables us to study the relation between microscopic level and the macroscopic one, with the principle of “self-organization”. This is possible exclusively if, at microscopic level, complex system can modify in qualitative manner; let’s think about the fluids in Bènard’s cells and the laser. Technically speaking, we define “order parameters” macroscopic observables, which describe the macroscopic behaviour of a system, and “enslavement principle” the behaviour of microscopic elements, according to which it becomes defined when originate “macroscopic observables”.
The laser gives us the best example that illustrates the general rule: the casual emission of waves, under a defined current supply, becomes coherent; when it is exceeded, however, the emission moves toward a deterministic chaotic behaviour. The synergetic, therefore, studies the characteristics of “complex” systems, without considering the nature of their elements, outlining strict analogies between the macroscopic behaviour of the complex systems in spite of the fact that they are really different.

[27] In all tissues, a part from their local different architecture, microvessel diameter oscillates rhythmically during time. The term *vasomotility* refers to small arteries and arterioles sphygmicity, according to Hammersen, and *vasomotion* is the subsequent oscillation of capillaries and post-capillaries venules diameter.

[28] Book in progress. See http://www.semeioticabiofisica.it/microangiologia/common_eng.htm

[29] It is called ascending line because the reflex’intensity is growing for few seconds.

[30] It is called plateau line because reflex’intensity is steady for few seconds.

[31] Microvessels with diameter of 100 μ show a motor activity of 2-3 circles/min. and diameter oscillation intensity of 10-20%. As far as vascular diameter lowers, motor activity progressively becomes more intense and rapid; in terminal arterioles, the frequency is 10-20 circles/min. and the width can reach 100% of mean diameter, causing periodically opening and closure of the microvessel.

This rhythmic activity is mainly spontaneous and direct consequence of periodic contraction of smooth muscle cells of arterioles with 20-90 μ of diameter. Diameter oscillations of small vessels is due to the properties of smooth muscle sells, which have a labile membrane potential and, then, depolarize periodically.

Smooth muscle cells activation by well-known polarization-depolarization processes, which bring about periodic vasoconstrictions, is caused by nervous, hormonal, local biochemical stimuli and also by myogenic stimuli, characteristic of myocells. These stimuli provoke in smooth muscle cells of small arteries and arterioles, according to Hammersen, the onset of depolarization and consequent ionic fluxes and, then, intracellular storage of Ca^{++}, partially due to release from cytoplasmic and membranous storages, which bring about the phosphorylation of myosine, that in turn interact with actine, to start contraction mechanism in presence of phosphorylated nucleotides with high caloric content, produced in mitochondria.

The "vasomotion" varies in relation to temperature fluctuation, O_2 concentration, pH variations, and ionic concentration of vascular wall. In fact, it has been demonstrated that Ca^{++} and K^+ fluxes, due to channels voltage-dependent and, respectively, voltage and calcium dependent, at the base of the periodicity of these transports, brings about the rhythm of arteriolar contractions, ruled also by transmural pressure (Gonzalez-Fernandez J.M., Ermentrout B. On the origin and dynamics of the vasomotion of small arteries. Mathematical Biosciences. 119, 127-167,1994).

[32] Likely, typical *vasomotion* behaviour of dissociated activation, type II, pathological, represents a *defence* mechanism against increased endocapillary pressure. In other words, one may suggest the hypothesis that the lowered *vasomotion*, secondary to blood increased supply (*increased vasomotility*) to capillary net or *microcirculatory misdistribution*, could be caused by a less elastic, more tonic state, with subsequent functional damage of endothelial as well as myocellular mitochondria of EBD and of local microvascular wall, including local periangium, under these circumstances oedematous. As a matter of fact, the described micorcirculatory situation ends into interstitial obstruction, first, and subsequently into basal membrane thickening of capillaries themselves. From the above remarks, it does exist a strict relation between "vasomotion" and EBD behaviour, under physiological and pathological conditions, and the abnormalities of EBD is counterbalanced, for months or years, by the increase only of vasomotility, which aims to preserve a physiologic *vasomotion* (dissociation); this fact explains the importance of such structures as regards the regulation of microcirculatory blood-flow, corroborated *clinically* for the first time.

[33] In the stomach, body and fundus dilate; on the contrary, antral-duodenal region contracts.

[34] H.A.G.R., when pathologically lasting 4 seconds or more (NN < 4 seconds), indicates local microcirculatory remodelling, and thus MFR impairment due to newborn-pathological, type I, subtype b), aspecific, EBD, which reduce tissue oxygenation, through lowering microcirculatory blood-flow.