

PROF. VINCENZO SORESI



THE RELATIONSHIP BETWEEN MIND AND BODY IN LIGHT OF NEUROSCIENCE KNOWLEDGE

Our brain has always been studied as an immanent organ, with its anatomic structures defined by scientists like Cayal and Golgi and is divided in neural nets, glial cells and structural tissue. Only in the last years the brain has been given more importance as the most active endocrin organ, since its capability in linking through receptors, neuro-mediator or neuro-peptides with all the other organs.

An additional important discovery, made in the last years, is the fact that cerebral cells have (“incretive”) properties and secreting neuropeptides and that electric signals activated by the neural net during the cognitive phase of an individual transform in biochemical signals with the consequent liberation of substances defined neurotransmitter that lay down on the cellular receptors.

These same receptors of these neurotransmitters are located also on the surface of white blood cells known as lymphocytes which are key organ of the immune system.

Lymphocytes behave as sensors circulating in our body which have many receptors on their cell surfaces; these receptors can identify the neuropeptide stimulus and set free neurohormones in function of the necessity of the tissue in which there are conflicts.

In the last years it has been discovered that if the organism is affected of an inflammatory stimulus, lymphocytes that are set free in this area they produce a micro amount of opiates that

sedate the pain. Similarly to the opiates, it has been demonstrated that lymphocytes produce neurohormones identical to those produced from limbic structures of the brain.

In conclusion it has been noticed that the production of neurohormones centralized on the brain and particularly in an area called hippocampus, is controlled quantitatively by the same neurohormones produced by the lymphocytes elsewhere with a perfect feed-back mechanism that can be inhibitory or activator which keep the level of these neurohormones constant in the blood flowing. (Blalock 1995)

The general neurochemical communication net of our organism is spread through an anatomical system defined "neuroendocrine" which there is in every organism and that it can activate if stimulated. This neuroendocrine system appears to be the answer to what was expressed on the Veda, Hindus sacred texts of the 1500 BC, which say that the body and the mind of every human being constitute the sacred place where the original cosmic duality embodies.

Traditional Hindu anatomy and physiology says that our body contains a very intricate network of "nadi" (which mean tubes) which are the channels through which the "prana" (our vital energy) flows. We could now say that the neuroendocrine system represent the answer of modern medicine to the question that doctors, biochemists were wondering regarding the meaning of those energetic pipe.

On my book "The anarchic brain" published by UTET, I tell some singular clinical case and I give them an interpretation using the new biological network, which is well explained by PNEI (psycho neuro endocrine immunology).

On a particular chapter I develop the biological interpretation of the placebo effect that represent the premise of a good clinic reaction in the relationship among doctor and patient. An example of the placebo effect, validated by scientific studies is the one that makes a comparison between the painkiller effect of morphine and a placebo.

The experiment consisted in giving to some patients affected from chronic pain inert substance and to some others morphine. The first group affected from the placebo effect resulted to heal in a percentage of six out of ten, while the second group had an eight out of ten result.

Many scientific publications have faced this topic in the last years event though they used a psychological stamp, which considered the placebo as an effect of pure suggestion.

In reality the recent explosion of research in neurosciences allows us to rebuild the scientific interpretation of the placebo effect in an entirely different and more accurate way. This effect is indeed for each individual a biological heritage which comes from a complex evolutionist collective history, but also as an expression of an individuality with many cognitive experiences, meaning with cognitive, a sensorineural stimulus which can modify the receiving of the central nervous system.

Already explained, the key of interpretation of the placebo effect is the PNEI which explains how communications among central nervous system, neuroendocrine system and immune system. This communication is developed by neuromediator or neurotransmitters which are produced both by neurons and by lymphocytes and generally by all effector organs of the immune system. (splenociti,timociti,mast-cellule,macrofagi ecc.).

Mentioning the immunologist Blalock we can say that : “ The immune and the neuroendocrine systems do represent a circuit of information integrated that communicates with receptors bonds. The possibility of decipher a common biochemical language between brain, immune system and endocrine system opens new interpretative paths on the entire biological behavior “.

Communications between these systems happens thanks to cell receptors, which are protein located on the surface of the cell that activate when the specific chemical substance appears and the protein tie with it. The molecules that activate receptors wedge in with them like the key with the lock. With the molecular key instead, the receptor changes its own configuration and originates a series of events in the inside of the cell that can lead to specific actions inside the cell itself.

Neuropeptides and neurotransmitters are little molecule, such as acetylcholine, dopamine and serotonin that interacting with the neuronal receptor they can excite it or inhibit it. Another fundamental group of neuromediator is the one of cytokines, molecules which have certain regulative properties and that have a remarkable role in defending the host, in the damage of the tissue, in the growth and in the cell differentiation.

Cytokines are represented by interleukins and interferons and act in multiple levels of our organism such as hypothalamus, bone marrow, liver, bones, lipid metabolism and so forth. As a consequence these intercellular messengers are active on the immune system, the central nervous system and the endocrine system. Basically this complex network of receptors and neurotransmitters that is disseminated in our entire organism represent the very system that puts in communication psyche and soma and that allows us to understand how phenomena of spontaneous therapy can exist.

It is known, for instance that the spontaneous or induced hypnosis may accelerate the healing of a wound, cause inflammation, increase or decrease blood pressure, increase body temperature. If, as neuroscientist Edelman says, the mind of an individual isn't on its brain but it's represented by a cognitive “I”, we deduce that the placebo effect comes from a sum of experiences lived by an organism. The most recent neuroscientific discoveries identified a “pool” of genes that defines the placebo making for each of us a “PLACEBOMA” which is responsible of our individual answer to medicines.

CURRICULUM VITAE OF PROF. VINCENZO SORESI

I have put my efforts into lung tumor diagnosis and therapy for thirty years, from 1968 to 1998, at the pneumology division of the hospital Ca' Granda di Niguarda.

Particularly one of these, the “microcitoma”, whose structure is neuroendocrine, seemed to be a curable tumor in the 70s with chemotherapy and radiotherapy.

Sadly, the neuroendocrine features, which make this tumor very sensitive to therapies, in the meanwhile facilitate the metastasis and eventually the tumor always won.

I resigned from the hospital in the '98, and the thought I put into this kind of tumor and its neuroendocrine structure stimulated me to write a book, “Il Cervello Anarchico” (the Anarchic Brain) edited by UTET in 2005.

In this book I discuss the relationship between neuroendocrine system, immune system and the mesolimbic structures of the brain that are the emotional structures. Upon these basis is born a new science in USA in the '80s: the PNEI (Psycho Neuro Endocrine Immunology) whose founder can be considered the immunologist Edwin Blalock.

One of the most famous discovery of this scientist is that that white blood cell lymphocyte, when they produce antibodies against a particular antigen, in the meanwhile they free hypothalamic hormones.

In this book I narrate about an amount of clinical cases explaining how the placebo effect and the nocebo effect are strictly related to the emotional state of the individual and thus also diseases can be related to the psychological state of the patient, as philosopher Antifonte supposed about 300 years BC leaving this draft “it is the brain that manages the body into health or sickness or anything else.”.

PNEI clarifies the correlation between stress and immune system and it allowed to highlight the contribute of stress in the demolition of the immune defenses that leads to vulnerable conditions, with an increase of the probability of developing diseases even serious. The physiology of stress

implies the activation of both hypothalamus, pituitary gland and adrenal gland which increase their production of neurotransmitter, hormones as adrenalin, noradrenalin and cortisol.

As a consequence the immune cells, can be widely altered by chronic exposition to stress thorough the excessive stimulation of membrane receptors cause by glucocorticoids.

In 2010 after reading “Why we have to love kids” of an Oxford psychoanalyst called Sue Gerhardt edited by Raffaello Cortina, I organized a conference in which several experts explained what was this colleague's intuition, that is that physical discomfort of kids, which already develops in the first years of life, must be related to the construction of the brain which takes place in the last six months of fetal life and in the first two years of neonatal life.

In this period motor programs but also emotional programs are built and it is for thi reason that the psychosomatic disease has its biological roots in this neonatal phase, as psychoanalyst have always affirmed.

Upon these concepts in 2012 I published a book called “Guarire con la nuova medicina integrata” (Healing with the new integrated medicine) with the collaboration of two scientific journalists Pierangelo Garzia and Edoardo Rosati and edited by Sperling Kupfer. In the book we explain, particularly in oncology, the importance of using the integrated medicine to support in a better way the impact with the toxicity of anticancer therapy and the importance of the psychological asset to know how to face with the right “resilience” the impact with the disease.

Resilience is related to the construction of the brain in the first years of life, but it can be improved with the support of all the people close to the diseased with affect and abnegation.

Resilience is the ability of tollerating a long term stress without altering irreversibly the biological equilibrium.

IN DETAILS:

1963 degree in medicine and surgery at University of Milan

1966 specialization in fisiologia and diseases of the respiratory system at University of Milan

1967 assistant in pathological anatomy at hospital Ca' Granda di Niguarda (Milan)

1969 specialization in pathological anatomy and laboratory technique at University of Milan

1970 assistant at respiratory division at hospital Ca' Granda of Niguarda

1974 specialization in clinical oncology at Turin University

1982 I served as helper of the primary at respiratory division at hospital Ca' Grande of Niguarda

1986-1998 professor of respiratory diseases at University of Milan

1990 primary at the respiratory division at hospital Ca' Granda of Niguarda

primario di ruolo presso la divisione di pneumologia dell'Ospedale Ca' Granda

di Niguarda

1998 emeritus primary, honour with golden medal at hospital Ca' Granda of Niguarda

(The respiratory division at hospital Ca' Granda of Niguarda put its effort into the care and the assistance of sick people suffering of lung cancer establishing the first chemotherapy clinic in the area and the first association for domestic assistance to cancer patients.

^ Author of more than 160 scientific publication on national and international magazines

^ Supervisor and moderator in several scientific national and international congress

^ 1975-1998 Member of the International Lung Cancer Society (IALSC)

^ 1975-1998 Founder and president of the APEC-TP association for the prevention and the domestic care of cancer patients.

dei malati affetti da tumore polmonare.

^ 1976-1998 Member of the European organization against lung cancer (EORTC)