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ARE MICROGLIAL CELLS INVOLVED IN THE SUCCESS OF THE MEDICAL ACT?

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Abstract. An important component of medical treatment is doctor patient relationship, which has an important role in the success of medical care. There have been shown the possibility that microglial priming in the brain by the psychoimmune memory activates the unconscious mind through the brain-mind structural system in the specific transfer situation that marks doctor patient relationship**.** Microglia, as a key player in connecting the two worlds, consciously and unconsciously, also can make the connection between mind and brain / body, can be a interdisciplinary bridge between the medical and psychological, becoming the star of neuroscience.

Keywords: brain, immune, microglia, neural, transference.

INTRODUCTION

I approached the doctor patient relationship bidirectional trying to integrate medical / biological knowledge and psychological ones.

Doctor patient relationship includes the therapeutic alliance,, defined by transferance and counter transferance, concepts drawn from psychoanalysis.

Therapeutic alliance is an agreement / contract between doctor and patient rational in order to support the treatment. The contract may be simple by mutual cooperation or can be complicated by a hidden agenda: unconscious and unspoken desires and needs of the patient (patient's unconscious feelings of transfer) or by unconscious feelings of doctor from counter transference, which will distort the therapeutic relationship. The distortions may occur in the patient understanding in terms of relationship with the doctor.

Transference

Situations in which a person (the patient) is relatively powerless or feeling anxiety increases the need for a protective relationship. The patient would intensively like a very close relationship, intimately, with its doctor and also can be afraid of this relationship, becomes deeply attached, and still harbors feelings of trust in the doctor and treatment success. Thus, decreasing compliance to treatment and therapy unconscious sabotage occur. Some patients have a destructive agenda, with the desire to engage the physician in a therapeutic approach, with the ultimate goal of proving that his patient is untreatable. A relationship in which the patient feels recognized and understood enhances cooperation and frequent changes of doctors may damage the compliance.Hughes,2000

To the physician, patient consultation is part of the daily routine, and must be constantly aware that the patient's emotional needs go almost inevitable beyond the rational contract of the therapeutic alliance.

Transference in reverse

If the transfer of expectations from previous relationships can happen in all relationships, we should expect it to affect also the physicians. We all know that apparently doctors think they are God, and that patients and staff are expected to fulfill a complementary role properly. We also know physicians who are compulsive mothers or who are afraid of the demands of patients, or are excited by high-risk treatments.

REACTION AND REFLECTION

The doctor reaction could be for example to get into the role of savior prescribed unconscious by the patient, or reject it and then we deal with feelings of panic or anger of patients. There would be better to not let challenged and tolerate without panic, showing that

we understand what is happening and do not react in the mirror to reduce our own anxiety while we have to tolerate and not understanding what is happening.

Reflection requires a reasonable level of awareness of their own thoughts and feelings, to detect those emotions that can come from the patient reflection .Best practices include:

- reflexive attitude towards their own feelings and motives
- understanding the fact that we are afflicted by patient feelings
- understanding that patients are affected by the behavior of doctors
- recognition of the fact that patients often have strong feelings toward medical personnel
- introducing psychology workshop / personal development to become more aware of our personal needs and fears.Hughes,1999

MIND BRAIN RELATIONSHIP. PSYCHOLOGICAL CONCEPTS AND NEURAL MECHANISMS

Freud, S. (1950 [1895]). "Project for a Scientific Psychology," wrote in 1895, in order to explain biological psychological phenomena, attempts to correlate neural mechanisms with psychodynamic concepts and thus to integrate psyche, mind, brain and body.

Sigmund Freud, initially a neurologist, investigated neuronal cells, trying to locate exactly in the brain the speech disorders, made a sketch of the synapses, in a private letter (Freud, 1950 [1895]) and had the idea of the existence of a source of energy required for brain functioning.

Considered a failure by its author, Freud's project then went to Freud's focus on exclusively psychodynamic issues such as ego, dreams, unconscious, transfer, Freud becoming the founder of psychoanalysis.

Eventually, Freud's project led to the correlation of neuroscience with psychoanalysis in neuropsychoanalysis which mainly focuses on linking psychodynamic concepts such as dreams, unconscious, ego, with specific psychological functions (eg, cognitive and affective).

THE BRAIN AND GLIAL CELLS

Neuroscience, traditionally seen as a branch of biology and physiology, involving also psychology and medicine led to an interdisciplinary approach to the field of study of the nervous system.

Presently, the neuroscience recognizes the role of glial cells in mental activities, besides what has already been known about the intervention of neural networks and synapses.

Glial cells known for their immunological / inflammatory functions seem to have a role in psychiatric disorders. The role of microglia to be directly in permanent contact with synapses even in normal brain led to the hypothesis that microglia can modulate human behavior.

The mind brain theory proposed by Kato TA and Kanbe S (2013) describes microglia involved in a psychoimmunologic reaction called psychoimunitary memory which can lead to the onset of certain emotions, traumatic reactions, psychiatric symptoms, even suicidal behavior, and transfer via cytokines secreted by its activation.

ENERGY FOR THE MIND

The nervous circuits work in a similar way that computers consist of metal complex circuits. In addition, the pathophysiology of mental illness has also been found to be disruption of neural circuits in the context of the neurotransmitters.

Initially, Freud and the psychoanalytic researchers conceptualized "energy", similar to the concept of thermodynamic energy by importing physical theories of metapsychological perspective (Freud, 1895, 1933, Penrose, 1931, Erdelyi, 1985). On the other hand, recent studies have suggested that the biological inflammation and oxidative stress, the two most important energy in the brain, play a major role in the pathophysiology and of various mental illnesses. (Ng et al, 2008;. Kato, et al. 2011a; . Maes et al, 2011, 2012)

The theory links brain and mind (Kato TA and Kanbe S, 2013) through structural system of the mind brain having as a star the microglia as an energy source and modulator in the brain ,from the neuropsychoanalytic approach (Solms 2012).

MICROGLIA

The immunocompetentes cell described by Hortega in 1919 is a crucial player in immune inflammatory processes / brain through movement and release of cytokines and free radicals (Block et al, 2007. Hanisch and Kettenmann, 2007).

The glial cells are described as critical to "every major aspect of the development, function and disease" (Barres, 2008), constantly monitor the status of synaptic contacts and receive information from neuronal networks. Potentially, at least, microglial cells are also able to remodel neuronal connectivity and thus participate in physiological processes within neural networks. “brain pathology is, to a very great extent, a pathology of glia” (Giaume et al., 2007) such as neurodegenerative diseases and neuropathic pain by inducing inflammation and oxidative stress (Inoue and Tsuda, 2009; Graeber, 2010; Graeber and Streit, 2010;

Kettenmann et al, 2011;. Ransohoff and Stevens, 2011).

Studies have found T cells and microglia to maintain neurogenesis in the hippocampus and spatial learning abilities. Microglia may play an active role in the functional integrity of the CNS and its normal physiological performance even at the level of learning and behavior. Links between immunological and neuropsychiatric disorders could thus also involve disrupted microglia activity.

TRANSFERANCE AND MICROGLIA. PSYCHOIMMUNE MEMORY

Psychological experiences during childhood among close people have an important echo throughout life (Freud, 1900, 1905). Unconscious reactions that are stored during childhood, are then reflected in all areas of life. Unconscious reactions developed by client to psychologist are called transferance.

Transferance and related mechanisms underlying this can be explained by microglial priming paradigm.

Bilbo and Schwarz suggest that microcroglial activation performed by infections during early stages of development will be stored, so that pre-activated microglia in this way will turn faster than a microglial non activated status in a process called microglial immune memory (Bilbo and Schwarz , 2009). Another study claims that the stressors in early developmental stages of the mice influence the formation of memories in later life by microglial immune memory (Williamson et al., 2011).

Different impact stress agents, not only infection but also psychosocial stress during childhood can be stored inside the origin of microglia unconscious drives, which we call " psychoimmune memory." Later in life similar stress situations would activate microglia and also cause various maladaptive psychological reactions, like transference reactions during interpersonal relationships, psychiatric disorders and also suicidal behavior. Psychological interventions can improve these maladaptive psychological reactions by suppressing microglial activation.

Melanie Klein proposed "memories in feelings" in her representatives book "Envy and Gratitude (Klein, 1957). "Memories in feelings" means that strong primitive feelings of childhood are stored psychological, and these feelings are enacted later in life, as in transfer.

Recent epidemiological studies have revealed that maladaptive parent-child relationships and childhood trauma are crucial risk factors for psychiatric disorders in later life (Alvarez et al, 2011;. Bebbington et al, 2011; Hovensa et al, 2012; . Morgan et al., 2012). A recent study suggests that childhood trauma induce inflammatory reactions (Rooks et al., 2012). This evidence supports the theory that psychological immune microglial memory may develop psychiatric disorders later in life.

Physiological outcomes suggested interesting physiological data regarding the contribution of microglial immune memory affective psychological and emotional reactions . As shown in the studies in rodents , severe stress , including psychosocial stress would activate microglia (Frank et al, 2007 ; Schiavone et al, 2009; Sugama et al, 2009; Tynan et al, 2010; Wohleb et al. , 2011; . Hinwood et al, 2012) . Acute stress is shown to induce morphological microglia activation in several brain regions, including the midbrain periaqueductal (PAG) , an area that plays a crucial role in behavioral and emotional responses to stress uncontrollable threat , anxiety, and pain. , (Sugama et al., 2009) suggested that the c-Fos protein induced by stress from activated neural cells may play a trigger role to microglial activation . Recently , Hinwood and collaborators made a series of studies to rodent investigating how the physiological stress affects microglia (Hinwood et al., 2012) . They found that chronic psychological stress increases the internal complexity of microglia, and that chronic stress significantly increases the expression of beta 1 - integrin (CD29), a protein previously implicated microglial ramification and beta 1 - integrin may be a possible modulator between psychological stress, the activity of neural networks and microglial ramification (Hinwood et al., 2012b).

The exact process of how microglial activation and / or neuronal emotional experiences affect feelings and behavior has not been well understood. Interestingly, recent animal study suggested that microglial activation is linked to behaviors such as anxiety and suppression of microglial activation with minocycline take to relieve anxiety (Neigh et al. , 2009) . This report suggests that microglial activation may contribute to the emergence of anxiety. Microglial cells have been recently recognized to have direct and continuous contact with synapses (Wake - et al. , 2009) . In addition, microglial cells are known as having various neurotransmitter receptors and neurotransmitter affects not only neuronal system but also microglia (Pocock and Kettenmann , 2007, Kato et al, 2013.) . Therefore, in our opinion , microglial activation may induce a neuron - microglia communication disorder, at least to some extent, the neural systems that organize emotional and psychological experience and behavior can be over activated.

CONCLUSIONS

There have been shown the possibility that microglial priming in the brain by the psychoimmune memory activates the unconscious mind through the brain-mind structural system in the specific

transferance like situation that marks doctor patient relationship.

The success of therapy depends on the diagnosis and treatment, well led by health professionals and also on the optimal management of the doctor patient relationship.

The transferance is part of how we relate to each other inside and outside psychotherapy, psychiatry and medicine, and we have to manage it as best as we can. Much of the time it is simply part of the complexity of any relation, and not a problem for any of us.

Sometimes, inappropriate feelings and behaviors can dominate patient relationship and hinder the therapeutic act. . To the extent that transference feelings are unconscious agenda for the patient, it is helpful for the physician to recognize the extent possible, so that an understanding of what the patient wants or expects may be used for planning clinical management.

The medical practice of clinical management should include and recognize patient feelings for physician, with proper strategies to promote a secure and calm relation. If the patient can not always recognize the professional nature of the relationship, it is important that the doctor and his team may impose. The patient should feel that someone recognizes his or her problems and feelings, and that the employment relationship is quite stable and predictable.

Professional boundaries of the doctor-patient relationship provide structure where treatment can take place. This includes monitoring and setting limits both the patient and doctor behavior.

Of course, we want to recognize our own prejudices and weaknesses, so to not impose too much on relatively helpless patients (or colleagues). Honest discussion with team members can help. Personal psychotherapy of doctors can be useful to explore the attitudes and beliefs that patients are not fully aware of.

Dealing with counter transference

Working with people who have difficult mental states, can be stressful. Such patients have a strong ability to design painful state of mind in the people that treat them. The doctor might feel confused, desperate, angry, or even criminal. This type of stress can contribute to low morale and bourn -out syndrome. Useful strategies to cope include:

- Reflection and self-awareness
- team help to clarify its own difficulties in relationship
- using a therapist to help the patient understand unconscious communication through his behavior

An understanding of transference and countertransference is essential for good practice in general psychiatry, and may be helpful in general medicine, particularly general practice. Being aware of the hidden agenda clinical relationship will help the doctor to recognize some of the desires and fears of the patient who is not fully conscious and can contribute to conflict or intense addiction. The doctor is then more likely to be able to stand back a little emotional demands of the patient and avoid getting caught in a notebook in which he or she too react emotionally rather than thoughtfully. This is therapeutic for the patient, whose clinical management will be informed by a better understanding of needs and its grounds, and the doctor who is less vulnerable to being exhausted by projection unrecognized and intrusive. On the other hand the where unconscious projections of transfer occur

microglia could be a key factor in our mental activities that could make the connection between the world of the mind / psyche with the world brain / body.

The early life of an individual is very important in shaping how the immune system and therefore the brain develops with significant consequences / adaptative as well as maladaptive / brain and behavioral responses to complex / transferential for the entire life.

The immune system is critically involved in normal brain function and in pathological cognitive / behavioral. Remains to clarify the influence of highly complex immune system activity on neural development, immune response and the role that the brain plays in adaptive behavior, both in the case health and disease.

Future perspectives

Microglial changes could create a new strategy for intervention in psychiatric disorders.

Microglia, as a key player in connecting the two worlds, consciously and unconsciously, also can make the connection between mind and brain / body, can be a interdisciplinary bridge between the medical and psychological, becoming the star of neuroscience.

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