

Psychodynamic Psychosomatic Aspects of Infectious Disease

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1. Relevance

In contemporary medicine the connection between infectious disease and stress is researched on and broadly accepted. In order to examine this connection, we first need to take a look at the definition of Psychosomatic Medicine and its psychodynamic concept.

2. Introduction

Psychosomatic Medicine is traditionally a branch of internal medicine investigating the reciprocal relationship between the mind and the body. Though its scientific branch is rather young in terms of modern medicine, the concept of connecting the psyche and social life to illness dates back as far the 11th century with Avicenna.¹ Even Hippocrates suggested: "Patients may recover their health simply through their contentment with the goodness of the physician."² Today, psychosomatic medicine investigates not only the mind and the body, but the doctor-patient relationship (compliance and adherence), the coping with illness and personality disorders as well as mood disorders.

2.1 The Three main areas of Psychosomatic Medicine

To illustrate the field of competence, Psychosomatic Medicine can be divided into three main areas:

1. Psychosomatic Medicine is a physicians' basic attitude to focus not just on the biological disease, but tries to integrate the psychological, sociocultural and interpersonal factors into the anamnesis and diagnosis.
2. Psychosomatic Medicine is a scientific branch, which researches the influence of biological, psychological and social factors, as well as their reciprocal relationship in the etiology and treatment of physical complaints. It focuses on the patients' emotional meaning of illness and the reasons for its upholding. The spectrum ranges from Psychooncology, Psychoneuroimmunology, Psychocardiology to issues of obesity and addiction.
3. Psychosomatic Medicine is an area of medical expertise, which mainly focuses on psychotherapy as a mean of treatment. While drugs are sometimes given, the symptom is regarded as a symbolic gate to unconscious conflicts and emotions, which should be investigated rather than dissolve. Psychotherapeutic treatment does not only focus on psychosomatic illnesses, but also on somatopsychic illnesses such as chronic illnesses like chronic heart disease, gynecological issues and oncological disease. This medical expertise can be approached by general practitioners, by private

practitioners in their practices and or in ambulatory or rehabilitation clinics.

2.2 Different Psychosomatic Approaches

Psychosomatic Medicine is a broad medical branch with different approaches. Diagnostic tools as well as device-based treatment such as Biofeedback and relaxation methods (mindfulness meditation, autogenic training, progressive muscle relaxation). Yet, two approaches are central to the clinical setting and separate the field in two opposing groups. The “psychodynamic approach” on one side and the “cognitive-behavioral approach” on the other hand. Both ways of treatment are different areas of medical expertise, though sharing a common approach, and work at its core psychotherapeutically.

2.3 The Psychodynamic Approach

The psychodynamic approach works in the tradition of the Freudian psychoanalysis with the distinction of a non-orthodox-analytical approach. While the Freudian psychoanalyst still regard the three-instance model of the psyche – Ego, Id, Superego – with the Id’s sexual drives as central to internal conflicts, psychodynamic psychotherapy is more inclusive of the latest psychoanalytical and scientific findings. Ego-psychology, Object-relations psychoanalysis as well as transference-based psychotherapy are just examples of this inclusion. This superficial explanation shall serve as an introduction to the topic, and was shortened to focus on the main topic. It is important to point out, that the

psychodynamic approach regards the reactivation of an unconscious conflict (from childhood) as the basis of (symbolic) symptom formation as well as the development of distress (here: clear distinction between stress, eustress and distress).

2.4 The Cognitive-Behavioral Approach

The behavioral approach could be described as a revolt against the psychoanalytical model in the middle of the 20th century and has, at its core, the idea of conditioned (learned) thinking, experiencing and behavioral patterns. A necessary question needs to be asked: Is this model a serious alternative against a conflict-based psychodynamic approach?

2.5 Argument for the Psychodynamic Approach

In the opinion of neuroscientist, both approaches will fuse more and more into a psychodynamic-cognitive-behavior therapy.³ In the psychodynamic approach, learning and unlearning(relearning) is a central part of the early childhood experience as well as the psychotherapeutical approach. In contrast to the cognitive-behavioral model, the learned and during the process of therapy relearned patterns are in close connection with the unconscious conflict and the defense mechanism, which protect ourselves from overwhelming anxiety and self-esteem threats. The conditioned is not only based on learned cognitive and behavioral patterns, but rather on a characteristically typical systematic approach.⁴ To put it simple: It is more

complicated than conditioned behavioral patterns, yet it is a crucial and included part of the psychodynamic approach. Stavros Mentzos tries to elaborate on this concept with the concept of depressive patients. Depressive patients have not learned pessimism or negative thoughts from their parents, clinical evidence shows that the negative thoughts have a defensive function, a pseudo-solution of the initial conflict, which compensates the emotion of guilt, reconciliation and the to appease the internalized early caregivers.¹ While CBT tries to resolve the negative circle, the pessimistic thoughts often return after a short period.

2.6 Psychodynamic Conflict versus Stress

As mentioned before stress is a key factor of being prone to infections due to the decreased immune function. In 1936 Hans Selye's defined stress as "the non-specific response of the body to any demand for change". In his experiments, he recognized that physical and emotional stimuli (demand) lead to pathological changes (non-specific response). This is still relevant today. Humans who experience negative stress (distress) over a long period often develop pathological changes (mentally and physically). Over the last decades, stress became a fashionable word for work load, family life and strenuous relationships; or simply for exhaustion or fatigue (or tiredness). Psychosomatic medicine

acknowledges the negative effect of distress on the body, the immune system and health in general. Clinical evidence regards stress triggered by intrapsychic tension due to a conflict as more severe and the most common form of stress, while the general stress (without a conflict) is usually well tolerated.⁵ Often a certain situation, relationship pattern or a developmental trigger leads to the stress. Stress is general is not harmful, yet distress due to an underlying unconscious conflict is.

2.7 Different conflicts

Psychodynamic Medicine categories people into three personality organizations. Psychotics (which are avoided stress due to existential terror with immature defense mechanisms), Borderlines (mainly experiencing stress due to their longing for a relationship and repulsion by it, as well as a poor emotional impulse control) and Neurotics (Which are developmentally mature and tend to have a neurotic conflict). The majority of people ranges in the neurotic spectrum and not one conflict is responsible for the development of an infectious disease. The broad range of conflicts worked out by the OPD will just be mentioned for completeness. One should remember, that conflicts are unconsciously avoided by patients due to their anxiety inducing character. Eight life-determining conflicts have been sought out by the OPD-2:⁶

express anger, thus turning it against the self and a guilty feeling.

¹ Note: The generally accepted theory for depressive personalities emotional conflict investigates the helpless inability to

- Dependency vs. Autonomy conflict
- Submission vs. control conflict
- Care vs self-sufficiency conflict
- Self-value conflict
- Guilt conflict
- Oedipals-sexual conflict
- Identity conflict
- Deficient awareness of feelings and conflicts

3. Introduction to Infectious Disease

Infectious disease result from an invasion of an organism's body tissues by disease-causing agents, their multiplication, and the reaction of host tissue to the infectious agents and the toxins they produce.⁷ This may be present on a different spectrum of severity, ranging from pathogens of viruses with a common cold to HIV, Hepatitis viruses or Ebola Virus. Bacteria, Fungi and Parasites are infectious agents. The crudest critic could be: Why should an invasion of an infectious agent be influenced by our mind and our body? As we already explained, stress can turn to distress when an emotional conflict is at its root. In case of distress our endocrine system, our nervous system and our immune system react to the stimulus. The medical field investigating the connection is referred to as Psycho-neuroimmunology.

3.1 Psychoneuroimmunology - A Basic

Introduction

A broad Introduction to Psychoneuroimmunology can be given simply by asking a student how he or she felt before an important exam or any other distressing situations. Some students might be calm, while the broad majority will have gastrointestinal problems, sweating of the palms (or generalized), increased breathing or tachycardia. These situations are influenced by distressing fear which activates our sympathetic nervous system. Patients and doctors already understand that in stressful situation our autonomic nervous system reacts and leads to the formations of certain symptoms. The long-term, as well as the short-term expose of the activated autonomic nervous system influences our immune system.

In the case of stress and fear, an additional system is activated by the hypothalamic-pituitary-adrenal axis. The cascade is induced by the conscious or unconscious perception of a fear- and stressful situation. The paraventricular nucleus of the hypothalamus starts to release corticotropin-releasing hormone (CRH) as well as vasopressin, which activates the anterior lobe of the pituitary gland. This process leads to the secretion of ACTH, adrenocorticotrophic hormone, also known as corticotropin. Corticotropin in turn acts on the suprarenal gland's adrenal cortex which produces the glucocorticoid hormone cortisol. Cortisol could be described as a

double functioning hormone, since it does not only act on the metabolism, but also on the immune system.

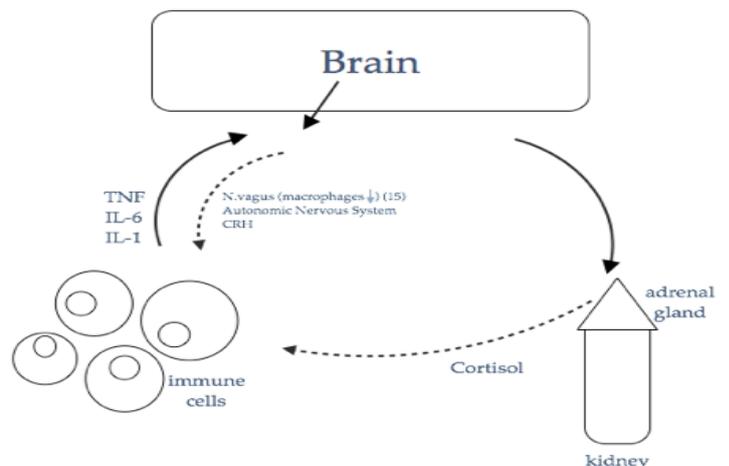
This axis is central to the understand of psychosomatic illness and could be argued to be the reason for unconscious conflicts leading to mental and physical illness. Long-term stress and fear's cortisol release turns to a vicious cycle if it is not interrupted. In the case of long exposure, the limbic system, the hypothalamus and hippocampus become damaged and more sensible to new stressors.

While infectious diseases are fought by our immune system, this system is also responsible for allergic, autoimmune, neoplastic diseases and the postoperative recovery. At the base of this defense system are antibodies, secreted by B-cells (mostly differentiated B-cells called plasma cells) in the blood stream or the mucosa. In most cases, this process is aided by T-helper cells exposure of the antigen to the B-cells.⁸

Cortisol influences our immune system in a distinct way, it lowers the antibody production and the interleukin production.⁹ At the same time Noradrenalin, Adrenalin and Cortisol increase the activity of inflammation influencing antibodies and thereby increase the allergic and autoimmune diseases leading to illness such as inflammatory bowel disease.¹⁰ The effect can be seen in recent studies show the risk for common cold infection 1-5 times higher in case of stress¹¹. In the same way, a pessimistic people (which

differs from distress or fear, but acts as a way of coping with a psychodynamic conflict. A pessimistic patient might unconsciously think: "If I expect bad things, the bad which has happened and will happen to me is less hurtful") have significantly lower immune response than optimists.¹²

A summary of research regarding humans and the mind can be seen in Klußmann "Psychosomatische Medizin – Ein Kompendium für alle Fachbereiche". In these summaries events of separation such as the death of a partner (8 weeks ago) lead to significant decrease of the T-cell function. Psychosocial loneliness and reactivated depression (keeping in mind that in the



Graph 1 Taken from Kamiar-K. Rueckert's Lecture "Is Psychosomatics real?"

dynamic approach regards depression as a conflict between anger and helplessness, which is then turned against the self significantly decrease the activity of natural killer cells and the ability of T-cells to react to stimuli.

3.2 Psychoneuroimmunology – The childhood likelihood

Trauma(s) develop(s) in childhood and lead to a decrease of the immune system due to the increase of cortisol, noradrenalin and adrenalin. This makes patients prone to stress and fear. The underlying effect might be explained by the mechanism of epigenetics. While our genes are inherited by our parents, our bodies are able to methylate and demethylate certain genes in order to change their activation (or deactivation). This mechanism, on one hand, is highly influenced by the patient's lifestyle and normal factors such as aging, dieting, environmental factors (workplace noxes, chemicals, pollution) and pharmaceuticals and, on the other hand, by developmental factors in uterus as well as early childhood hood (trauma). It is common for doctors to not regard the psychodynamic idea of conflicts at the core of stress, while the accept trauma broadly. It is important to repeat, that in the psychodynamic theory, traumas often lead to the development of emotional conflicts. Early childhood traumas (micro traumas) and their protective measures are mentioned by Egle et al as such¹³:

3.3 Specific early traumas

- Lack of a secure care giver and/or a long period of separation from this person during the first year of life
- Emotional neglect
- Chronic family discord
- Chronic physical or mental illness in one parent
- Physical mistreatment
- Low socio-economic statuses

3.4 Protective functions

- long-term good relationship with at least one primary care giver
- secure attachment behavior'
- large family, compensatory parental relationships
- relief of the mother
- good substitute environment following early loss of mother
- above average intelligence
- robust active and communicative temperament
- social support
- gender: girls less vulnerable than boys

3.5 Psychoneuroimmunology – Neuro-, Endocrine and Immunological changes

The neurological as well as the endocrine changes have been discussed in chapter 3.1's introduction to the topic. An in-depth approach shall be given during this Chapter.

Interleukin activity

Chronic Stress does not only activate the sympathicus and deactivates the parasympathicus, responsible for relaxation and recreation, it also leads to changes in the immune response. Distress increase the release of interleukin-6¹⁴ as well as interleukin-1.¹⁵ The cytokine Il-6 leads to a proliferation of pathological white blood cells (lymphocytes Th-17) as well as a reduction of the number of suppressor cells (T-cells). In addition, Il-6 stimulates the production of the tumor necrosis factor alpha (TNF-alpha).¹⁶ These cells

might be helpful to fight invasion by infectious pathogens, unfortunately they generate a feeling of malaise, fever, fatigue, listlessness and anorexia by the activation of the hypothalamic stress reaction^{17,18}, yet they play an important role in the set off of autoimmune disorders and their preservation (Mechanism illustrated in Graph 1).

Viral infections

Cohen et al. (1999) evaluated psychological stress in healthy participants of a study and infected them with the influenza A virus. The patients were kept in quarantine for eight days and examined daily. The result of the study illustrated, subjects who were stressed more at the beginning of the study expressed more severe complaints of the upper airways as well as an increase of the before mentioned IL-6 concentration. Many studies replicated the influence of stress with chronic as well as acute virus disease for example with EBV, HSV-1, HZV and HIV. Glaser and Kiecolt-Glaser 1998 demonstrated the effect of exam stress on medical student leading to a reactivation of EBV and HSV-1.¹⁹

The earlier discussed childhood experiences leading to an insecure attachment to the caregiver were connected to increased values of EBV-Viral-Capsid-Antigen-IgG-antibodies.²⁰

3.6 Summary

Early childhood trauma and malignant relationship with caregivers, lead to changes in the brain and genes expression of children and correlates to an increased lifelong risk for

psychosomatic disorders (depression, anxiety psychosomatic pain), which in turn leads to an increased risk of infectious disease.^{21,22,23,24,25}

Current distress leads to a susceptibility of viral infections.

3.7 Implications

In correlation with the WHO definition of health^{26,27}, which regards health not merely as the absence of disease or infirmity but as a state of complete physical, mental and social-well being, we should rethink the term "infectious disease". Rather the term "infectious illness" should be used to include the biological, social, interpersonal and personal aspects of the infection as well.

4. Aspects aside from the co-etiological conflicts

When talking about trauma and conflicts influencing the development of infectious illnesses, one is likely to forget another psychosomatic field of competence. Chronic infectious illnesses cause a burden to patient's coping and the stigma associated with it. A common example for this is HIV and AIDS. The process of coping as well as the processing of the illness are influenced by the quality of the early relationship with the caregivers.

4.1 Example of HIV and AIDS

In contrast to other life-threatening disease, AIDS is still regarded as punishment for an immoral and unrestrained life. The illness is associated with lack of inhibition, promiscuity (especially homosexual) and intravenous drug-

use. The stigma opposed on this group can be illustrated by the fact, that 40% of surveyed people blame AIDS patients for their own illness.²⁸ The social critic Susan Sontag describes AIDS as still having “an aura of cancer and syphilis in one.”²⁹ The feelings of fear, guilt, shame and loneliness (social isolation) may be present in these patients and often cause the largest issue in developing a solid doctor-patient relationship.

Especially in a patient group with an unconscious conflict formed around one or many of these emotions, the development of a healthy doctor-patient relationship might be impaired and the stress associated with it might be more severe. This is more important in the light of Cole (2008) which found out that the stress hormone noradrenalin triggers the HIV-1 replication.³⁰ Distress does not only lead to unfavorable influence, but in contrast positive psychosocial factors lead to the opposite effect.³¹

An unpleasant or troubled doctor-patient relationship is at the core of non-adherent HAART intake and is associated with a higher mortality rate.³²

As mentioned before the associated feelings as well as the coping with the illness are influenced by the quality of the early relation with the caregivers (understood not only as the absence of trauma and micro-trauma, but also the ability of the patient for closeness, and introjection of the good qualities of the parent) and affect the course of infection severely.³³

5. Summary

Early childhood trauma and malignant relationship, lead to changes in the brain and genes expression of children and correlates to an increased lifelong risk for psychosomatic disorders (depression, anxiety psychosomatic pain), which in turn leads to an increased risk of infectious disease. The occurrence of a trauma in at a certain developmental point of the child leads to the development of a conflict between two wishes or emotions. F.ex. the child’s wish for autonomy will not be integrated with his or her wish of closeness. To remind ourselves of the holistic etiology and coping with infectious agents, we as physicians should rather refer to it as infectious illness.

5.1 Approach for Treatment

It might not be suggestable to remind the patient in a clinical setting and in an acute situation of an emotional conflict or search for a traumatic childhood event. An aiding factor in recovery has shown to be the good relationship with the doctor and support. Nowadays, the doctor-patient relationship has shown to be at the core of recovery due to the patient’s subjective experience of “goodness” as well as increasing the compliance.^{34,35,36}

In the light of a good doctor-patient relationship and the presence of an infectious agent, the drug-based treatment should never be disregarded as it is shown evidently to have a significant effect on the recovery. The drug-based treatment should be the first-line treatment in case of a specific agent.

6. Literature

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