

Perspective

The growth of chronic conditions: Search for solutions to the problem

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Abstract

The chronic conditions growth is determined by an increase of cases of adaptive system imbalance following a recent disease. One of its most significant causes is decrease of crisis importance (a stage of disease) as a moderator of a qualitative changeover of an adaptive system. The contemporary treatment methods increase efficiency of pre-crisis adaptive responses, but simultaneously they equalize the crisis to a level, which is insufficient for complete after-crisis alignment of body defenses. But the crisis is the very key to a solution to a chronic conditions problem. One of the ways of the problem solving is medical interventions, which cause sparing provocation crisis and a successive changeover of an adaptive system. Based on this it is worth reviewing critically, studying and developing the existing experience of bio-regulatory therapy, where the principle of sparing provocation is often used. The new term definitions, such as “medical intervention”, “health problems”, “crisis” are described in terms of biomedicine. The patients and physicians should be motivated to deal with chronic conditions correction and the aforesaid sets new tasks before a health care system.

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Keywords: Chronic diseases growth; Adaptive system; Medical intervention; Health problems

Introduction

The steady increase in chronic conditions poses significant challenges to the global community. Dr. Chan, opened the 69th World Health Assembly (2016), pointed: “Three slow-motion disasters: a changing

climate, the failure of more and more mainstay anti-microbials, and the rise of chronic noncommunicable diseases as the leading killers worldwide.”

The chronic pathological conditions embrace almost all age groups of the patients. A growth of chronic diseases leads to investigation of problem emergence causes and the ways of its solution. What else has changed together with the growth of chronic conditions? Certainly — the character of the initial acute disease. A crisis, as a stage of disease course, has become less unambiguous within last decades. Multiplication of modern treatment methods has led to a early decrement of disease-producing factor on the one

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hand and it feasibly has caused a growth of chronic pathological processes on the other hand.^{1–3} Surely there is a reason why the disease process does not reach a complete denouement and extends further in the manifestation of chronic conditions. It is as an ellipsis is written at the end of a sentence instead of a dot. It is necessary to focus on “crisis” as the important stage of clinical course and it is to be considered by a physician in practice. An analysis of this problem in terms of biomedicine may more distinctly apprehend the essence of the processes of organism adaptive system (herein-after as AS).

Adaptive system

One should refer to known facts and try to find a new view of problem.

We know about two facts of noticeable changes in the nature of the disease in the past decades. Videlicet – a smoother soft stream of acute disease (without peaks) and frequent transformation of the initial acute disease into a chronic condition. It is obvious that these changes have been a certain trend and are associated with persistent changes in the human AS.

Comparing and logically analyzing these facts, we can represent a certain concept concerning the reasons for the growth of chronic conditions. This concept can be expressed in several statements.

A chronic condition is defined by incorrect activity of AS, a malfunction of the AS. The growth of chronic conditions occur together with changes in the nature of primary acute diseases, especially in a milder course of the disease, with no noticeable crisis. There is a direct causal link the quality of crisis and quality post-crisis restructuring of the AS. The crisis – a moderator post-crisis restructuring of the adaptive system. Artificial provocation crisis (using medical interventions), which is the same as the crisis of primary acute disease, but diminished (seared) – possible way to a positive correction of adaptive systems and overcome problem of chronic conditions.

Arguments in support of concept will be presented below.

The ancient Ayurveda text sets the fifth stage of a disease, recognizable as “manifestation”.^{4,5} As a rule the physicians describe this stage as “acute stage”, “peak” or “crisis”. A physician tries to understand the character of the symptoms growth while evaluating the treatment principles of a disease. Prior to antibiotics era a “crisis” was a well-defined reference point for a physician. A doctor could have been compared to a commander preparing to a great battle (crisis). The

result of that battle was determined by a level of such preparation and, of course, a margin of safety of a patient's organism.

Crisis is a natural stage of pathological process. But there are a lot of treatment methods nowadays. And it equalizes the crisis to its definite manifestation. “*Bird has being shot on take wing yet*”. A possible “big” crisis is often broken into a number of small, less acute processes which are easier tackled with even by a primarily weak body of a patient. In this regard, it makes sense to check whether there is a correlation between the problem of growth of chronic conditions and the changes of the course of diseases (smoothing of the crisis).

Analysis definitions such as “disease”, “medical intervention”, “crisis” from a general point of view of biology and medicine can provide the basis for useful conclusions regarding problem of the growth of chronic conditions.

As a first step, it's worth to revise a notion of “medical intervention” and represent a disease as one of the demonstrations of a organism AS activity.

Discussion

Medical intervention is in the medical activity basis. It is actually the main thing (major principle) that defines doctor–patient relations.

Medical specialists deal not just with complicated human organism, but actually with multi-level patient AS, which is dynamically changing under external environmental factors.

“All diseases have a sort of natural life; that is, they begin, grow; attain maturity, decline, and terminate”,⁶ «*In fact human (and animal) diseases are adaptation diseases, they are connected with general adaptation law, and if we want to elude disappointing troubles in medical practice, we should pay all our attention to this law with all its specific manifestations ... Actually, all so called pathological processes and diseases are only adaptive processes peculiarities, connected with subjective suffering (pathos)*».⁷

At first glance medical intervention is aimed at certain medical problem solving. However, the connection “cause-effect” is somewhat more complicated in this case. The thing is that medical problems solving is achieved through expected human organism reactions that appear as response to external factor (medical intervention) effect. That is to say the chain from medical influence (cause) to medical problem

solving, or clinical result (effect) is more prolonged. There is an important link in the middle, i.e. organism reaction in response to medical intervention. Medical activity characteristics are in many aspects determined by this link presence. A human organism always responds by adaptive reactions to various environmental factors. Medical intervention is also an external factor. However, its main difference is that medical specialists can to a large extent prognosticate the result of its influence on human.

Thus, appearance of additional external factor (medical intervention) among other factors, already reacting with organism (including pathogenic, morbid effects) is designated to change general adaptive reaction in such a way to eliminate negative reactions (disease, health problem). Medical activity is a specific human relations sphere, first of all because the doctors change (make react) individual patient AS through medical interventions. In other words, medical intervention may be estimated as external factor, controlled by a medical specialist, which causes expected adaptive reactions in a patient organism. Actually, medical intervention causes adaptive reactions, which change organism defense system in such a way that “socially uncomfortable” reactions (for example, inflammatory syndrome) change to “socially comfortable”, or prevention (prophylaxis) of possible health problems takes place. Correction of complicated human AS takes place.

Medical intervention is legal dosed influence on human, in order to receive as response, organism's expected reactions, aimed at medical and other problems solving in the interests of this individual.

This statement is universal and refers to any medical interventions, but in order to simplify the analysis the most widely used medical intervention such as taking medicine will be taken into consideration.

It is necessary to focus on the words combinations “dosed influence” and “expected reactions”. A physician uses an external factor (a medicine in an effective dose) to provide changes of an AS of a body. The goal is to overcome health problems.

Health problems - adaptive body responses (reactions), which arisen in the result of medical risk realization and having a negative impact on a state of complete physical, mental and social well-being of a person.

Unfortunately, the most important criterion of health improvement in everyday life is just rapid readaptation to work (return workable) nowadays by mutual agreement of a patient and a physician. Confidence (faith) of the physicians in ability of a body to 100% tend to

homeostasis (after acute disease) was (and is) a widely spread mistake. While talking about homeostasis it is usually meant a relevant level of PH maintenance in blood, a regular body temperature. But a body is a complex AS wherein many processes acquire various characteristics including a reaction rate to external agent. A tendency of a body to revert to an “ideal” homeostasis have been overrated.

For example, after elimination of external pathogenic agent, a body is supposed to adjust (return) its adaptive structures to initial level (with due regard to previous and current experience). It is like that a grand master has won the game and is getting ready for a new game and putting chessmen to their initial positions. A question arises: are all chessmen in time for the game? If they are not, how would it influence the next game? And may be “knight which is not in time for its initial position and not ready for a new battle” — one of the important questions of contemporary medicine.

Many issues of biology are evaluated in a larger scale than in medical science, for instance in terms of natural selection. Biology does not deal with “Socially uncomfortable” reactions of a certain organism (sufferings) which determine a medical notion of “disease”.

A body obviously tends to “an ideal homeostasis” in terms of biology. But it is not just one organism, it is a durable and prolonged chain of alterations, wherein the best ones are fixed (secured). The physicians should see this contradiction and take it into account.

The medical specialists are experienced in therapy of various acute diseases. Then comes after treatment and holistic recommendations. And the hope, that “all chessmen will occupy their correct positions”. In fact a considerable growth of chronic diseases has been observed all over the world. For instance, the number of people with chronic conditions in U.S.A. is growing by an average of 5 per cent every five years. This value could reach 171 million people by 2030. (Source: Wu, Shin —Y and Green, Anthony. Projection of Chronic Illness. Prevalence and Cost Inflation. RAND Corporation, October 2000).

A human AS is an absolutely self-adjusting system with many feedbacks, receptors etc. It is a multilevel complex system in which any change will impact on the whole system. In other words, an AS is like a river that is constantly changing. Any impact will remain a trace and due protective response experience. If we are dealing with the current disease, then one way or another, to overcome the problem is necessary to pass through the crisis. Therefore, the study of the mechanisms of AS activity with regard to the crisis, the crisis

management — the key to the solution of health problems.

A crisis (a stage of disease) is a qualitatively new protective response of AS, as a result of critical increase of insufficiently effective pre-crisis adaptive reactions against the pathogenic factor. The crisis may be as a result of artificial provocation for therapeutic purposes.

The crisis is characterized by a more intensive and general reaction of an AS. It is like an answer to the answer. To put it in other words, a crisis is launched not just by a hostile agent but mostly by initially ineffective response, growing changes from the adaptive reactions (i.e. provocation). It is in many cases corresponds to a term of *heterostasis*. The AS activates and tunes up itself. It is self-adjustment based on a level of current tasks solutions. It should be taken into consideration since nature suggests a recipe for health tasks solution.

The example of self-regulation is an inflammation. The role of inflammation as a regulator of adaptive processes is the subject of research nowadays: “Inflammation can be considered a central physiological mechanism that supports the body's ability to resolve dysfunctional states in order to regain tissue functionality, and in a way that tissues cannot accomplish themselves. Inflammatory processes can therefore play a cardinal role in both disease progression and regression⁸.” This bivalence (progression and regression) of inflammation is determined in many ways by the crisis within inflammation process.

The efficiency of a primary adaptive response determines intensity (extent) of a crisis. An inverse relationship. A crisis solves several tasks; the major ones among them are elimination of the most hostile factor (factors) and changeover (overload) of the AS based on response experience to a pathogenic cause. These changes of the AS imply completion of the major adaptive reactions (including less effective ones). What factors may lead to chronic states? For example, the pathogenic bacterias penetrate into our body. If primary protective responses are not enough for urgent external factor elimination, then further development of protective responses burst through a crisis or even through a number of scale varying crises. The contemporary treatment methods may promptly and directly eliminate a pathogenic factor. This is a major accomplishment of science, which helps even a weak body to cope with a dangerous causative agent. However, a physician increases an efficiency of pre-crisis adaptive reactions by means of powerful medicine. Simultaneously a signal, that determines an extent of a crisis situation, weakens. A changeover of the AS occurs, the aforesaid evidences an obliterate crisis. Can one be sure that this overload of the

system is complete and qualitative? The accumulation of chronic conditions in “a grey area” increases a danger of medical risk implementation, that is manifestation of new or exacerbation of old health problems. The more such chronic conditions are available the higher starting background for a new disease is and the more often a patient suffers of clinical manifestation of the AS work. A person does not feel himself/herself healthy; he/she becomes a patient who seeks a doctor's assistance. Even common external factors may serve as triggers. An outstanding example is season acute conditions of chronic diseases.

It can be seen below a relative graphic model of general health problems of the 45-year old patient within 6 months (as a example for visibility).

Areas XA and AB are health areas, wherein the adaptive responses do not create prerequisites for health problems. The chart is mostly in these areas for young years and if it reaches the upper limits it comes back with a stronger immunity. A grey area BC is a potentially dangerous area of medical risk implementation based on not restituted adaptive responses. The chart starts in this area which is more probable for 45-years old people. CD area is an area of clinical manifestations. One of the problems of the contemporary medicine is that the medical interventions are mostly done in CD area (see Fig. 1). However, the medical interventions in the grey BC area are mostly effective in terms of disease prevalence decrease and prior to acute manifestations of diseases. The absence of clinical manifestations in this area creates a latent and thus a dangerous situation. A medical risk implementation in this area is taken place and a new disease is developed. Quantity of new health problems or exasperation of old health problems directly depends on the values in the grey area. Therefore, we can note that one of the possible solutions to the problem of the chronic conditions growth is the impact to a potentially pathogenic processes in the pre-clinical period. The problem is that the medical expert has to deal with subtle implicit processes (without symptomatic) in the grey zone. Thereby, it is clear that the task of medical interventions is to receive such feedback restructuring of AS, where adaptive reactions supporting a chronic condition are absent. Here, hidden biological processes as the points of application of the possible medical interventions implies delicacy of treatment impact. In fact, it means bio-regulation as a tool for the correction of chronic conditions.

The definition of the term “bio-regulatory therapy” is not entirely clear, as any medical intervention causes the AS to react and in a certain sense regulates biological processes. Still under bio-regulatory therapy

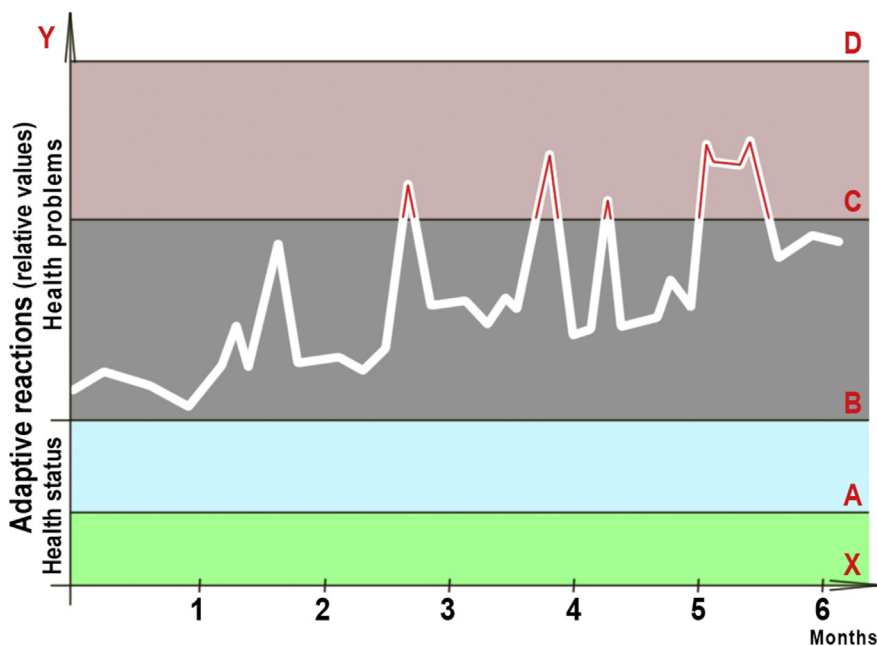


Fig. 1. Relative graphic model for the presentation of adaptive system activity. The wavering round axis C amid pre-clinical adaptive reactions and modulations with the clinical manifestations (disease).

usually understand delicate management of biological processes, trying to prove the suitability of a particular method on a cellular (micro) level. By the bio-regulatory therapy is often referred acupuncture, homeopathy, homotoxicology, autohaemotherapy, herbal medicine, etc. Scientists estimate controversially methods of bio-regulatory therapy, but nevertheless it is a place where we can find a starting point in the search for solutions to the problem of chronic conditions.

Traditional Chinese acupuncture has a history from the origins of healing. It is millenary history. Here we see samples of a very delicate medical interventions, based on the large experience of many generations of physicians. Undoubtedly, AS changes under the influence of acupuncture should be carefully explored.⁹

“Systems biology has become practically available and resembles acupuncture in many aspects and is current key technology that serves as the major driving force for translation of acupuncture medicine revolution into practice, will advance acupuncture therapy into healthcare for individuals.”¹⁰

A fundamental principal of homeopathy “*Similia similibus curantur*” which means “Likes are cured by likes” is worth considering. Nature can give us many useful things, which was mentioned before, while a

role of a crisis was characterized in respect of the AS changeover. It is clear that elimination of “hung”, “stuck” adaptive responses, that mostly determine chronic conditions, requires new approaches to diagnostics and treatment. The holistic approach without any active medical interventions cannot solve the problem of chronic conditions by itself. A search of more aimed diagnostics tools, e.g., using biomarkers, more “deep” reference range for testing (a norm within a norm) and chronic states treatment is important for the health care system. An optimal tool in such situation is medical intervention which is aimed at sparing provocation of crisis, after which a harmonization of the AS takes place. The same crisis (in character, but not in power) as a crisis of acute specific disease, predecessor of chronic condition.

“Skillfully guided in this complex process of vital activity (a disease here), a doctor by actions helps a body to adapt itself to support its activities, to reduce the degree of impairment, damage and, finally, as to restore the adaptive capabilities of the organism, that is, ensure its recovery.”¹¹

One should critically reconsider, study and develop the experience of bio-regulatory therapy. The treatment approaches of homotoxicology make an appeal to subject of this article. It is worth saying that we face a

sample of sparing provocation crisis without having been absorbed in theoretical backgrounds of the method. It is innocuous and at the same time with effective dose, as well as in respect of provocation crisis algorithm. The preparation for “a shake, aggravation” is done. A detoxification (drainage) is always performed, the necessary functional structures of a body are supported. There are medicines that trigger AS to an aggravation and also to deeper quality AS restructuring on the same “field”, where specific chronic condition manifests itself. It is as a mild push of a stuck ball in a right direction. It should be noted the effectiveness of the homotoxicology means especially in relation to chronic conditions.

The principles and methods of bio-regulatory therapy are getting more in demand among the medical specialists. However, many methods of bio-regulatory therapy relate to “alternative” ones. Unfortunately, a word “alternative” often means “incomprehensible”. A fair criticism means understanding, studying and practical application.

Scientists think about the creation of Bioregulatory Systems Medicine nowadays.⁸

“With regard to treatment, it is possible that with the ability to mimic or inhibit extracellular matrix functions, we could provide a novel means to influence and resolve chronic inflammation and reveal promising therapeutic targets. Another potential option in treating chronic inflammatory disease might be to permit the restoration of autoregulatory processes in the extracellular matrix, including physiological inflammation, by removing any toxins, stresses, deficiencies, or other perturbations that are interfering with its structure and function.”⁸

Objectification delicate processes of adaptive system will provide incredible opportunities. First of all, in the evaluation of medical interventions. Undoubtedly, it will be seen that we often try “to play Chopin on the piano using hammer”.

“Medications should be designed to mimic, modulate, or promote the body's natural resolution mechanisms instead of interfering with them.”

“By addressing these underlying dysregulations through optimization of the autoregulatory system, the bioregulatory approach is potentially drug sparing and may lead to diminished incidence of iatrogenesis, patient morbidity, and patient mortality.”⁸

To summarize the abovementioned, it should be said that any means of chronic conditions correction

will not be effective unless the society changes its attitude towards this problem. A “grey area” is almost invisible and does not attract attention. It is important to find a way to change the attitude of the patients and doctors and push them to focus on the “underwater iceberg”. It is also important not only to have the effective ways of chronic conditions treatment but to make them demanded as well. The health care system is facing these difficult assignments and it is important not to let them pass to “prolonged chronic condition”.

Conclusions

The chronic diseases growth is determined by an increase of cases of adaptive system imbalance following a recent disease. One of its most significant causes is decrease of crisis importance (a stage of disease) as a moderator of a qualitative changeover of an adaptive system. The contemporary treatment methods increase efficiency of pre-crises adaptive responses, but simultaneously they equalize the crisis to a level, which is insufficient for complete after-crisis alignment of body defenses. However, the crisis is the very key to a solution to a chronic conditions problem. One of the ways of the problem solving is medical interventions, which cause sparing provocation crisis and a successive positive changeover of an adaptive system. Based on this it is worth reviewing critically, studying and developing the existing experience of bio-regulatory therapy, where the principle of sparing provocation is often used.

The modalities of the adaptive system in conjunction “Crisis as stage of acute disease” and “Restructuring of the adaptive system in the post-crisis period” require more in-depth research.

The patients and physicians should be motivated to deal with chronic conditions correction and the afore-said sets new tasks before a health care system.

Conflict of interest

The authors declare that they have no conflict of interest.

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