



Mathematical Modeling of Hahnemann's Concept of Disease and Its Curing Process

ABSTRACT

A possible Mathematical modeling of disease and its curing process in the context of Hahnemann's Homoeopathic method is reported. The system is reduced to two variables, disease germs and phagocytes and the key parameter-Vital force, which is mathematically related to miasm. The Voltera's predecessor and predator model equa-



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tion is used for the reduced system. The possible behaviour of the system and its association to diseased and healthy states of human body are discussed.

KEYWORDS

Parameter, Phagocytes, miasm, predecessor, predator, species, nonlinear, coupled, differential, vital force, vortices, weeds, evolution,

I. INTRODUCTION

When somebody calls a theory scientific, what it means is there should be some established basic laws of science used to define those phenomena and put into mathematical expressions called equations; after which the phenomena can be studied theoretically using those equations. That is, we get a lot of insight regarding the respective phenomena that enable us to predict the experimental results in advance, this is the real advantage of modeling.

Mathematical modeling of biological systems is not well developed, it is still in its infancy. Regarding the interacting systems of multi-species, we have only two species and three species models. Those modeled equations are not easy to handle as they are "nonlinear coupled differential equations." Method of analyzing such type of equations is not well developed in Mathematics, and is also a major stumbling block in the modeling of biological systems.

II. HAHNEMANN'S CONCEPT OF DISEASE AND ITS CURING PROCESS

According to Hahnemann, the condition pertaining to occurrence of disease is called Miasm, and it is of the same potential dynamical force as the Vital force but acting in opposite direction. That is, miasm is the invisible disease producing force, which is able to lower the power of the vital force under suitable environment and that excites the fundamental cause of the disease. If we assume the vital force as an electric current then miasm is the resistance producing factor and disease or external symptoms is the heat produced by resistance.

An other example: assume the vital force is a small river's smooth flow, then miasm is the underlying big rock which produces lot of vortices and disturbances around the rock- the external symptoms. If water level or vital force is much above the rock or miasm then those vortices and disturbances almost never appear on the surface. When water level is lowered or vital force deteriorates, then those vortices and disturbances appear on the surface. The diseases are the floating weeds that gets trapped in vortices. An allopath with his partial eyes, sees those weeds alone and destroys them with heavy drugs, forgetting that more weeds are coming from upstream, the pre and post-natal contributions. And so it is a temporary relief. Whereas, a sincere



and intelligent homoeopath observes those vortices and disturbances, the external symptoms, not the trapped weeds or name of the diseases and realizes the underlying big rock or miasm and the lowering of the flow of the water that is vital force. Then the curing process is to reduce the size, and if possible remove the underlying big rock or miasm, or increase the flow of the water, boosting of vital force or do the both. Then all the vortices and disturbances on the surface or external symptoms subside naturally and the flow takes off the trapped weeds, the disease.

Along with the concepts of vital force and miasm, for curing purpose Hahnemann used the minimum dosage of drug principle of Paracelsus, but in potentised form. This is the great original contribution of Hahnemann to Medical Science. In a healthy body, miasm and vital force are in equilibrium, so that the population of the disease germ has an unfavourable environment for the fast multiplication or in a passive state. That is all the three: vital force, miasm and disease germs will survive harmoniously until the vital force deteriorates below a certain limit.

III. MATHEMATICAL MODELING OF DISEASE AND ITS CURING PROCESS

In Mathematical modeling of a biological system, first we identify all possible characteristics that are influencing the evolution of the system. The characteristics that change as the time changes are called dependent variables and that which are not changing are called constants. So we have three things, a single independent variable time or T, a set of dependent variables and constants. The present system, has the following characteristics:

- 01. Vital force
- 02. Miasm
- 03. Disease germs
- 04. Food habits
- 05. Climate
- 06. Daily routines

- 07. Humidity
- 08. Mental thinking process
- 09. Factors related to hygiene
- 10. Profession
- 11. Interaction with other persons
- 12. Physical structure
- 13. Heredity
- 14. Sleeping pattern
- 15. Temperature etc

Most of the above factors are generally varying or variables as time changes. If we consider all these factors, then we get nearly an exact modeled system, but that will be a set of same number of equations. Such large number of equations is not easy to handle with the present knowledge of the mathematics. So we will take most essential factors and keep the remaining factors as 'Parameters' of the problem.

The parameters are also variables, but they can be kept as constants or not varying in a study. For example we can ask the patient to use a special type of food alone until the disease gets cured, so food habit is not changing, but is the constant parameter. Similarly we can admit the patient in a hospital so most of the factors are under our control, become the parameters. After the initial modeling we will change each parameter and see how they influence our modeled system. Then the essential variables left out are:

- 01. Vital force V (t),
- 02. Miasm M (t), and
- 03. Disease germ G (t).

All the above are dependent on time T, so we use above type of notations.

It is assumed that Vital force V (t) and Miasm M (t) increases when the Vital force V (t) decreases and vice-versa. So their relationship can be assumed as the following Mathematical relations.

$$V(t) = \frac{K_0}{K_1 + M(t)} \dots\dots(01)$$



General Theme

Where K_0 and K_1 are two constants and they are related to the parameters of the problem. The exact nature of K_0 and K_1 are unknown now, obtained only when the real nature of both vital force and miasm are known. From above relation we can drop one among $V(t)$ and $M(t)$. So the essential variables are:

01. Vital force $V(t)$ and
02. Miasm $M(t)$,

Along with the above two variable we introduce one more essential variable as phagocytes $P(t)$. The population of the disease germ $G(t)$ is controlled or become the food (engulfed) of the population of the phagocytes $P(t)$. So the essential variables are now:

01. Vital force $V(t)$,
02. Disease germ $G(t)$ and
03. Phagocytes $P(t)$.

In normal state of health, the vital force $V(t)$ is controlling the population growth of the disease germ $G(t)$ and that of the Phagocytes $P(t)$, so that none of them goes beyond certain limit. When miasm $M(t)$ dominates, the vital force $V(t)$ deteriorates, then the condition of fast multiplication of disease germ $G(t)$ arises, that leads to the diseased state. Obviously the vital force $V(t)$ is the controlling factor and so we call it as "controls variable". To reduce the system to two variables, we convert the controls variable vital force to a "controls parameter" $V(t)$. So the final form of the system is.

01. Vital force $V_0(t)$, a controls parameter
02. Disease germ $G(t)$, a variable and
03. Phagocytes $P(t)$ a variable.

That is, first we observe the interaction between the disease germ population $G(t)$ and phagocytes population $P(t)$ under a constant value of the vital force $V_0(t)$. Later we slightly vary the controller parameter value $V_0(t)$ and observe the change in the interaction between $G(t)$ and $P(t)$.

Then we find the range of values of the control parameter $V(t)$ the vital force for which what are the different properties arise in the interaction of $G(t)$ and $P(t)$, that is the disease and its curing process.

Now the reduced system is much similar to the interacting two species model of Volterra, so use the established results of that system, they are:

CASE 1

For all values of the control parameter $V_0(t)$ the vital force, none of the variable $G(t)$ or $P(t)$ is zero and their values are bounded. That is both disease germ and phagocytes population co-exist always and none of them completely extinct for any change in the vital force. This coincides with the Physical situation.

CASE 2

For a certain range of values of the control parameter $V_0(t)$, the $G(t)$ and $P(t)$ are highly sensitive and non-deterministic that is chaotic. That is the population of both disease germ and phagocytes are out of the control of the vital force in this range. So the disease germ multiply very fast and person is under the grip of a disease for this range of values of vital force.

CASE 3

Outside the range of values of case 02 of the control parameter $V_0(t)$, both $G(t)$ and $P(t)$ are well behaved and fully deterministic. That is population growth of both the disease germ and phagocytes are completely under the control of the vital force values in this range. That implies person is healthy and disease germ, phagocytes and vital force all survive harmoniously with non zero miasm.

Obviously, the diseased state of case 02 can be cured by changing the value of control parameter that is the vital force so obtained in case 03. By equation (01) the change of values of vital force can be obtained by two ways: either change the value of miasm $M(t)$ or alter the values of constants K_0 and K_1 . Where K_0 and K_1



are two constants depending on drug and other characteristics that we dropped in the beginning of the modeling.

V. DISCUSSION

One major difficulty we still have, the vital force parameter $V_0(t)$ appears in terms of numerical values. We don't know how to interpret those numerical values in physical situations. Until we are able to identify the exact nature of the vital force and miasm it is difficult to have a correct interpretation of these results.

If we assume the vital force $V(t)$ as the electrical conductivity of signal propagation through the

nerves and miasm is the electrical resistance along the signal propagation of the nerves, then everything can be solved. But those assumptions are to be supported by experimental verifications and clinical evidences.

It seems that the vital force and miasm are general features of all organisms. So to learn more about those, it may be comparatively easy to observe in a single cell or few cells organisms, than in a complex organism like human being. Perhaps for this purpose one can use a disease germ itself and see its behaviour in active and passive cases.



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11th SSMS 29 Jan' 2006: *Carcinosin*

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CARCINOCIN: THE NOSODE OF TODAY

On the 29th January 06, the 11th SSMS broke its own records set in 2005. It was oversubscribed and was overbooked. The packed audience was very conducive to great performances by all the speakers. It was conducted at the Nehru Science Center on the subject of *Carcinosin*. This well-attended gathering drew practicing Homeopaths from all over India.

Dr N L TIWARI, the opening batsman, presented the first paper on *Carcinosin*. This senior practitioner was candid enough to state that he had hardly used *Carc* and in a couple of cases he could now see that he missed it. On reflection he felt that where he had given *Calc-phos*, *Puls*, *Sil*, *Phos*, they would have been cases of *Carc*. Thanks to the seminar study, he went into a detailed analysis of the remedy from the various sources especially Dr Foubister. He found that the data from clinical provings far exceeded that from the actual proving.

Dr BIPIN JAIN brought out the psycho-pathological correlations of *Carcinosin*. He pointed out that 'Pathologia' was the study of emotions and psyche was the soul/ seat of the mind. In a few cases, he masterfully brought out the core of *Carc*- fastidious, perfectionist, sympathetic, ready to help even when tired, anxiety, restless, easily disappointed, sleepless. The oversensitive nature, getting attached to people easily, highly ethical, tendency to blame themselves were the characteristics he managed to juxtapose with information from the internet about personalities known to suffer from cancer.

In the *Materia Medica* of *Carc*, he said that the history usually shows one or both parents who are over-anxious, over-protective, over-demanding, yet willing to give support. This good, obedient child is

usually craving for 'true-life' as he is always living out somebody else's expectations. For the growth of a personality, the evolution of id (operating on pleasure principle), the ego (operating on reality principles) and the super-ego (the observer and evaluator of both) need to be harmoniously integrated. In *Carcinosin*, the Id is suppressed to a large extent, resulting in energies directed inwards. A tumor is un-lived vital energy because to live it, would have been 'bad'. The patient therefore turns his aggression inwards- allergies, insomnia and cancer.

Dr VISHPALA PARTHASARATHY insightfully brought out the evolution of *Carcinosin* by quoting from various homeopathic literatures to present a holistic picture. She gave a deeper meaning to the word Nosode. According to Dr S P Dey, a Nosode contains the cause of disease plus the reaction of the living organism to it. The combination of cause and effect makes it such a very powerful substance. She also said that a history of repeated inflammatory diseases from childhood, which were improperly treated, usually led to cancer. Eg suppressed skin led to asthma; suppressed rheumatic disease to valvular disease; suppressed Koch to insanity etc. Relentless suppression which the body tries to revolt against, leads to stoppage of differentiation of cells allowing quick mytosis and undifferentiated growth. Quoting Dr DEBORAH OLENEV she said that *Carcinosin* is like the Grand Central station in New York where people come and go and vet linked by transport. *Carc* symptoms are an adaptation to modern lifestyle. A love for travel plus the energy created by the transportation boom, is a cause for lowering of health in modern society. A workaholic syndrome, encouraging children to grow up too quickly with an over-emphasis on perfection can

be detrimental. Under this attitude lies chaos, lack of control and fear of letting go. She indicated that small pox vaccination makes alterations in the body similar to gonorrhoea.

Referring to Dr TINUS SMITHS, she opined that massive vaccination drives suppressed inflammatory processes in childhood and the meta-talk in this was a mistrust of the body's inherent capabilities to help itself. A cancer patient allows the tumor to grow without activating one's defense mechanisms. *Carcinocin* the remedy, helps by establishing reactivity, increasing self confidence, restoration of hope and connecting with inner vital forces. Through the works of Dr PAUL HERSCU the cycle of *Carc* was described. Fear → let themselves be taken care of (inwardness) → resentment → frenetic breaking out → breakdown → back to fear.

Dr DON WEBLEY looks at *Carc* as having polar opposites which is amorphous and the great masquerader, as it has aspects of various remedies in it. Compromised family history with long-lasting suppressions; like *Medo* but no cruelty; like *Tub-b*, but with concern and regard for others, which is fundamental to its existence. Dr WHITMONT is quoted as saying 'Cancer, being a penalty for 'unlived' life'.

Dr PRAVEEN KUMAR enthralled the audience talking about minute differences between *Carc* and the others; he said that there are many polycrests inside *Carc*. He spoke about a 10 year old backward child with fear written all over his face especially when seeing his mother. Shy and introverted, slow in comprehension, this smart looking kid, was not allowed to play with other kids who came from poorer backgrounds. He was born late to elderly parents who had very high expectations. *Carc* parents set their own standards while in *Aur-met*, he makes his own and fails despite doing a lot. DD- Comprehension slow of maths- *Sil*; DD- Learns very slowly- *Nat-mur*, *Kali-c*, *Sulph*, *Tub*, *Lyco*. *Carc* helps the child tremendously. He spoke about other differences. Fastidious, imposed due to disease- *Carc*, born fastidious- *Ars*, *Nux*.

Dr FAROKH MASTER, despite a fracture 3 days ago, honored his teacher Dr SARLA SONAWALA and

presented a Case of Squamous Cell Carcinoma of tongue with 3 times glossectomy; with *Carc* no recurrence even after 7 years. Through this case he showed how *Carc* feels out of group/ family as it suppresses real self/ emotion. Prolonged unresolved grief, self-depreciation, perfectionism which is forced upon; therefore fear of, failure, exams, anticipation and narrow spaces; Self-sacrifice despite misery and pain.

Dr AJIT KULKARNI summed up the *Materia Medica* in his inimitable style. Oneness was an important characteristic; conflict between softness externally with aggression breaking down internally. Breaking of attachments are very difficult for *Carc* for whom links are important. Gentle and vivacious *Carc* wants to please everyone and in the process, has an identity crisis. There is also a bi-polarity of symptoms. *Carcinocin* is a blend of *Acid-ph*, *Aur*, *Caut*, *DNA*, *Ign*, *Nat-m*, *Sil*.

In the case presentation competition, Dr PRASAD RASAL won. Dr ANJALI HARIHARAN presented a skit based on the *Materia Medica* of *Carcinocin*, which was well received.

All of us went back after the intensive session, fully confident of identifying *Carc* easily!

EDITOR: This report has been given in brief as the second issue has been devoted to Carcinocin so as to give all the detailed papers available to the whole NJH family. The atmosphere which has been epitomed by the attached photo of the seminar, gives the joy and the atmosphere of learning and sharing created by the speakers and audience jointly. The photo was a special effort by Balubhai the photographer to capture that essence.

But it had a sad ending: Balubhai who has been covering the SSMS from its inception, gave too much of himself for this one. It burned him out, and he passed away at the untimely age of 50 on the 6th of February after having placed in our hands all the copies and the CD's of the SSMS on Friday the 4th. We shall miss him sorely. We already missed his masterly touch at the MLDT fund raiser- Jagjit Singh Nite on March 3rd 2006.