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A generalized concept of medicine emerging from homoeo-research

Abstract

Background: The first requirement of this concept paper is proper understanding of homoeopathy, which throws a tough challenge before science. How do high potency (beyond 12c) homoeo-medicines, which are devoid of original medicinal substances, differ from one another and how such medicines cure diseases- these two mysteries of homoeopathy are yet to be solved to the satisfaction of scientists in general. Many investigators are seriously trying to solve these two-century-old mysteries.

Method: This paper examines the works which are logically consistent and promising in nature. In this process it does not consider the works which try to explain the homoeo-mysteries in terms of presence of starting material in some form or other. It also examines the mechanism of action of main stream medicines.

Result: Analysis of various works on homoeopathy fulfilling the above criteria suggests that structures of water or chemicals can serve as medicines. Further, finding a strong parallelism between mechanisms of action of homoeopathy and main stream medicines this article arrives at the structural model as a generalized concept of medicines stated as: A substance is to be recognized as a medicine if it has the capability of curing disease(s) while its medicinal property is to be attributed to molecular structure of vehicle like water or of distinct chemical substance when it exists.

Conclusion: The structural model of medicines seems to have a general validity for all kinds of medicines - homoeopathy and non-homoeopathy.

Keywords: two mysteries of homoeopathy, structural model, generalized concept, non-homoeopath, clathrate model, quantum electro dynamic, coherent domains, iteratively nafionated water, mysteries, living bodies, pseudo-scientists, serial dilution, logical necessity, foreign molecules

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Abbreviations: CD, coherent domains; QED, quantum electro dynamic; INW, iteratively nafionated water; IFW, iteratively filtered water; EDS, extremely diluted solutions; PBPs, penicillin binding proteins; DHPS, dihydropteroate synthase

Background

This article professes to show that a generalized concept of medicine rolls out of homoeo-research. So its starting point must be proper understanding of homoeopathy. It is shrouded in mystery and not yet properly understood. Yet it has offered many incredible cures at minimum cost. They are so cheap that in India one can have more than 1000 doses of 30c potency for a USD!! Though devoid of starting materials different high potency homoeo-medicines act differently on living bodies and cure different diseases. Its explanation is a big challenge before science. Serious attempts are being made to solve these mysteries. As a result the cloud is thinning out. The present author believes that the day is not far off when we shall arrive at a satisfactory solution which will be logical, conform to experimental results and be acceptable to the scientists in general.

Methods

Acceptance criteria of works

The present discussion accepts the works which pass the preliminary scrutiny of logic. For example, there are some works which show their obsession to physical presence of the starting materials in some form or other even in potencies beyond 12c, which cross the Avogadro limit. They are not considered for the discussion here. Also no wild guess is entertained here. This article accepts only logical models (may not be exhaustive) with theoretical and/or experimental supports. It accepts facts as facts. If contemporary science fails to explain some facts then science has to accept its own limitation and strive to overcome it but not dismiss those inconvenient facts as is done by some pseudo- scientists. It is one of the conditions for science to advance. Now, let us see how various scientific endeavors meet the homoeopathic challenge satisfying these criteria.

Discussion on accepted works

High potency homoeopathic medicines are devoid of the starting materials but not devoid of medicinal value. Chemically they are only water, the vehicle of potentisation or shock-dilution. So, it is obvious that water has to have some special property by which it can hold some kind of medicine plus potency specific information in its molecular structures. This is a logical necessity. But, such an obvious thing was not given due importance. For explaining medicinal value attention was being glued to conventional chemistry. But turning the attention to physical structure, and that too without disturbing the chemistry, brings a dramatic change in understanding the fundamental issue. As per this author's knowledge first attempt in this direction was done by Barnard GO[1] as early as 1965. He advanced the concept as water polymer. But in absence of experimental support it did not get due attention of other scientists. Much later, in 1991 Anagnostatos GS proposed the 'clathrate model'.[2] But this also was merely a hypothesis without any experimental support. A few years back in 1985 almost

a similar hypothesis was advanced by Mahata CR with experimental support from NMR spectra of Sulphur-30c, 200c, 1000c and Aurum Met-30c, 200c,1000c.[3] Based on a few special properties of water, observed by other scientists,[4–6] Mahata CR proposed a structural model[7,8] in its preliminary form. He provided additional experimental supports to this model in papers.[8–14] But, now Quantum Electro Dynamic (QED) investigation of water lays an elegant foundation of the properties on which Mahata based the structural model. How that happens is given in.[15,16] Scientists like Giudice ED and his co-workers[17–23] established a two-state model of water in which a substantial fraction of the molecules exists in hydrogen bonded state as coherent domains (CD) resembling ordinary ice. Thus with our knowledge augmented by QED the earlier finding of 'icicles'[6] in ordinary water can be identified as CD's. In a number of publications Konovalov AI et al.,[24–31] have shown presence of nanoassociates, that is, CD's in diluted aqueous solutions. The nanoassociates or molecular clusters of water, according to them, form a key to understanding of physicochemical and biological properties of highly dilute aqueous solutions.

Further, the shape and size of these molecular clusters are influenced by impurities, ions of other substances and even foreign molecules.[5,32] This property also plays a very significant role in homoeopathy. For, these influencing objects can very well be starting chemicals contained in lower potencies or nanoassociates of higher potencies and generate molecular clusters of different shape and size. Now, the question arises-There is a large number of homoeopathic medicines along with large number of their potencies. Does water have the potential to hold medicine-plus-potency specific information of all of them in its molecular structures? Fortunately, water has another striking property for satisfying this requirement. Each natural snow flake is distinct,[32] no two naturally occurring ice-crystals are identical and it implies that water has the potential to have infinite variations of shape and size of its molecular clusters. So, different influencing objects of serial dilution can transfer different information to water in the form of specific molecular clusters.

It is corroborated by investigations concerning the physico-chemical properties of water subjected to physical perturbations like Iteratively Nafionated Water (INW),[33–35] Iteratively Filtered Water (IFW),[35–38] Extremely Diluted Solutions (EDS)[39–44] and effect of hydrophilic surfaces.[45–49] Ref[47–49] also suggest changes in structure of water. These are direct or indirect evidences for existence of Coherent Domains (CD) in water. Thus water seems to hold the key to unlock the mystery of homoeopathy. Existence of CD implies existence of stable water-clusters speculated earlier as water polymers,[1] water clathrates[2] and induced water structures.[7,8] These water-clusters are claimed to be specific to homoeo-medicines and their potencies.[8, 9, 11–14]

Understanding high dilution medicines

These works suggest that various super-diluted substances of homoeopathy may be chemically just water but they differ from one another in the molecular structure of water (the potentising vehicle). They continue to cure diseases since the time of its discoverer Samuel Hahnemann. And if such medicines are nothing but structured water, then the obvious inference is that water structures do serve as medicines, particularly in higher dilutions.

We have the evidence that in homoeopathy Carbo-animalis and Graphites act as two separate medicines though chemically both are carbon. But owing to difference in the structural arrangement of their constituent atoms they generate different molecular clusters in water. Again, the homoeopathic medicine called X-ray does not have any chemistry even in its lowest potency. But X-ray irradiation can cause structural change of molecular arrangement of water, the vehicle of potentisation. These examples support the structural concept. Further, medicinal value is lost with loss of structure of homoeopathic medicines. This happens when high dilution medicines are exposed to direct sunlight or high temperature. It is likely to be similar to loss of structures of doped semiconductors at high temperature. Homoeopathic medicines simply diluted in water (that is, without any preservative like rectified spirit) lose their medicinal value after 3-4days due to their spontaneous disintegration with time, whatever be the temperature.[6] These examples suggest that structured water serves as medicines but cease to do so when the structures are destroyed by some means.

Mechanism of action of homoeo-drugs

So far our understanding is that super-diluted substances of homoeopathy are chemically nothing but water with specific molecular structures or templates and they are endowed with curative powers. So, the mechanism of their action on living bodies needs to be explained through structures. We cannot escape this logical compulsion. We also note that due to various reasons the bio-molecules of a living organism may change their form to some extent. But when this develops to a considerable extent they reach diseased states. With this understanding let us examine action of water structures on bio-molecules.

All healthy bio-molecules fit in nicely within the hollows of water molecules or ice. If it had not been so we could not preserve foods in refrigerators. But, when there is a misfit with the structure of ice the larger molecules are crushed and the smaller fragments are driven away. That is why the ice in Arctic Ocean is fresh-water ice-free from all salts.[6] As such, it becomes highly probable that suitably structured water molecule of potentised medicines will bend near-matching bio-molecules to get a desired fit and may bring them to their healthy state. In reality also we find that when ice-crystals are frozen onto damaged bio-molecules then they get repaired,[6] water structures serving as correcting templates.

A study of cell water reveals that water of diseased human cells is rather disordered as compared to water of healthy cells.[50–54] It carries an impression of diseased bio-molecules in its structure. As water structures can serve as correcting templates it is quite natural that introduction of suitable water structure into the body is very likely to bring the diseased bio-molecules to their normal condition and thereby restore health. Hydrotherapy may be working on this principle. But, for homoeopathy it may be just the starting point and a 'hint'-cure starts with structural interaction of bio-molecules with near-matching structured molecular clusters of water. This concept embraces low potency homoeopathic medicines also as they contain chemicals having their own specific structures as well as structured water following potentisation process.

In this context it may be noted that in respect of mechanism of action Khuda-Bukhsh AR and his team proposed 'gene regulatory hypothesis' in.[55–61] In some other experiments they got the evidence of 'modulation of signal proteins'.[62] Both are mechanisms of action of high dilution homoeo-medicines, variation depending on the case. In some cases the genes are the targets and proteins in some other cases. What is the reason for selection of different targets? Can structural matching/binding of medicinal macromolecules with bio-molecules be the reason for this? Our answer is-yes. Research on mechanisms of action of mainstream medicines, as shown below, strengthens it. So, the 'hint' gets formal scientific validation.

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This leads to the structural model of medicine (till now limited to homoeopathy): A substance is to be recognized as a medicine if it has the capability of curing disease(s) while its medicinal property is to be attributed to molecular structure of vehicle like water or of distinct chemical substance when it exists. It is to be noted here that all non-homoeopathic medicines (which are all un-potentised) and low potency (< 12c) homoeopathic medicines have their own molecular structures (as they are not devoid of the starting material) for serving as medicines. In higher potencies (>12c) water structures are only available substances to serve as medicines. This forces us to appreciate the powerful role of structure in biological systems.

Structural concept in non-homoeopathy

Firstly let us have a look at the different mechanisms of action of mainstream medicines.[63] describes them briefly as below.

Physically acting drugs

Bisacodyl: A drug prescribed for peptic ulcer. This drug physically binds to the portion of ulcer surface in the stomach. Thereby it prevents further attack of gastric acid on to it. Due to lack of further exposure to acid, the ulcer portion of stomach gets healed faster.

Charcoal: Activated charcoal is used as an antidote to poisons. Scientifically it is called activated as it is in powdered form and made to readily adsorb matter. This charcoal neither gets digested not absorbed in the gut. But it has a special tendency to adsorb substances. In case of poison it physically adsorbs poison in the gut and prevents it from being absorbed into blood. Thus it minimizes poison effect.

Chemical reactions

Acidity of stomach is neutralized by an alkali like sodium bicarbonate or antacid tablets of aluminum hydroxide etc. Kidney stones of alkaline nature are dissolved by taking acidic juice in large quantities.

Note: acid/alkali treatment do not handle actual physiological problem of hyperacidity or stone production.

Physiological modifications

a. Opposite effect - morphine in painless diarrhea by reversing intestinal motility.

b. Related effect - diuretic for high blood pressure by reducing blood volume

c. Unrelated effect- zandu balm forces to forget actual pain due to new irritation.

None of them rectifies the physiological problem.

Acting through receptors

Receptors are situated at cellular surface or rarely inside. When drugs bind to them, they bring changes in the cellular level and help relieve symptoms. Most drugs used in depression, schizophrenia, anxiety and drugs of abuse function through this mechanism.

Acting by replacement

In Parkinson's disorder, there is low concentration ratio of Dopamine with that of acetylcholine in the brain. To minimize them, Levodopa is given. This is similar to dopamine in chemistry. In the brain it breaks down into dopamine and enhances the concentration. Thus the imbalance in the ratio of dopamine and acetyl choline is minimized. Due to this the Parkinson symptoms subside. This does not handle the actual cause.

Drugs acting by substitution

This is the mechanism of action of anticancer, antiviral and antibiotic drugs. They substitute vital metabolite of cell physiology with a function-less molecule and lead to death of cancer cells, bacteria and virus. It is a case of binding with bio-molecule.

This is a list of all the possible modes of drug actions. Most of the drugs fall into one or other category of mechanism of action as mentioned above. Note that only 4th and 6th kind of mechanism rectify the defects. Interestingly, in these cases structural fitting/binding plays the curative role.

The structural concept advanced above for homoeopathy has strong similarity to action of antibiotics as they also work through structural locking/binding. It is known that different antibiotics kill different bacteria by inhibiting their different functions such as protein synthesis, RNA synthesis, cell wall synthesis etc.[64] Pathways, targets or action-sites do vary from case to case. But the action starts with structural matching/binding to specific bio-molecules. For example, penicillin (or other beta-lactams) bind to specific proteins, called penicillin binding proteins (PBPs), in the cell wall and inhibit formation of cross links between peptidoglycan chains. This activates autolysins that degrade the cell wall and lead to bacterial cell death. Quinolones target DNA replication and repair by binding DNA gyrase complexed with DNA, which drives double-strand DNA break formation and cell death.[65] These are examples of destroying a cell from the outside in. On the other hand some antibiotics block a cell's ability to make what it needs to proliferate from the inside out. Macrolide antibiotics are protein synthesis inhibitors. The common macrolide antibiotic erythromycin works by binding to specific molecules-subunits in a cell's ribosome, destroying the cell's ability to form the proteins it needs for cell growth. Sulfa antibiotics (sulfonamides), which have been used to fight bacterial infections since the 1930s, target specific chemical reactions within a cell the metabolic pathways by binding to an enzyme called dihydropteroate synthase (DHPS), which then blocks bacteria's ability to synthesize dihydriofolic acid. When this type of bacterial cell ceases to metabolize folate, it can no longer grow or multiply.[65] In all these cases, action starts with binding to case-specific bio-molecules. Such bindings obviously mean structural fitting and thereby support the structural model of medicines.

Result

In the domain of biology, from metabolic to curative processes, physical structure plays a very predominant role without disturbing conventional chemistry. High potency homoeo-medicines are essentially clusters of structured water molecules. They exert curative action on bio-molecules through structure-to-structure interaction. Side by side, mainstream medicines which influence the physiological system of living bodies also operate through the structural principle. Structure comes out as the key word for medicinal action in a generalized way. A substance is to be recognized as a medicine if it has the capability of curing disease(s) while its medicinal property is to be attributed to molecular structure of vehicle like water or of distinct chemical substance when it exists.

Conclusion

It rolls out from research for finding the scientific basis of homoeopathy that structural model may be the generalized concept of medicines, particularly those influencing the biological system deeply. Properly selected high potency homoeo-medicines, which are nothing but water structures, can act only through structural principle and it may be the reason for their edge over other kinds of medicines in many cases.

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Conflicts of interest

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