INVESTIGATIONS FOR THE DEVELOPMENT OF SCIENTIFIC BASIS FOR HOMOEOPATHY

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Abstract

A scientific enquiry into the physical nature and the biological activity of homoeo potencies is proposed.

Introduction

It was demonstrated by Hahnemann, the founder of homoeopathy, that medicinal substances have curative powers beyond the limit of their existence in solutions. The successive dilutions (typically 1:100) of the medicinal substance in a selected medium such as distilled water, pure ethyl alcohol, lactose, sucrose etc., with some mechanical energy imparted to them are called potencies. The n^{th} potency has 10^{-2n} parts of the medicine in one part of the solution. This fact rouses curiosity in some people and scepticism in others, since for potencies with $n>12$, there can be no medicinal content in the medium, and yet it acts! There have to be then some modifications in the physical and chemical nature of the medium posing a challenging problem to physicists and chemists. The ability of a medium to act as a medicine in this limit is also an exotic aspect for a bio- scientist. Investigations of these fascinating mediums require coordinated interdisciplinary scientific approach involving techniques and efforts of physicists, chemists, engineers, biologists and medical practitioners in order to bring their different facets to limelight.

The present proposal describes some objectives regarding this problem and an approach to achieve them.

Status of Research in this area

Clinical success has been the only criterion for the present acceptance of homoeopathy in the world. Recently, Davenas et. al[1] have demonstrated that degranulation of human basophil occurs with the action of potencies made from antiserum against IgE. Apart from this there have not been any reports on the ,investigations of homoeopathic potencies in the regular scientific journals of international repute, excepting in those devoted to homoeopathy. This is amazing in view of the acceptance of homoeopathic treatment even among reputed scientists in this country and abroad. Further, the existing efforts are by individuals and do not represent an interdisciplinary approach necessary for probing the fundamental questions raised above. A few review articles give the literature survey upto 1978[2,3]. A recent report by Dua and Jussal[4] gives physical, chemical, biochemical and electrophysiological investigations of some of the homoeo drugs, the results of which are highly promising. Subanna et al[5] have demonstrated that there is an increase in the blood flow at the location of interest in patients with vascular disorders within half an hour of the administration of constitutional remedies in a high potency. Thus, there is enough evidence in favour of homoeo potencies to justify encouragement for research in this field.

Aims and Objectives

The proposed studies are aimed at unravelling the potential of solvents used in homoeo preparations hidden under the observation that homoeopathic medicines act, apart from putting homoeopathic system of medicines on a sound scientific footing so that it becomes a quantitive rather than an empirical science. The main objectives can be summarized as follows:

1. To establish that there is a difference between pure solvent and n^{th} potency of a solute prepared in this solvent.
2. To investigate the structure and dynamics of the solvent as a function of decreasing medicinal (solute) concentration, for simple dilutions as well as for potencies and to identify characteristics with which to differentiate between same potency of different solutes and also between different potencies of the same solute.
3. To trace and understand the pathways of action of a potency in a biological system.
4. To establish a unique relationship between a medicine and a set of physiological parameters thus eliminating the subjective symptomatic description of the medicine.
5. To monitor the therapeutic response in patients with demonstrable pathology by various techniques such as neurological, haemodynamic or radio-immuno

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assays, in order to establish curative action of potencies scientifically.

Proposed Research Plan

Development of techniques to probe potency

It is necessary to establish that the pure solvent (control) and the n^{th} potency ($n>12$) of a medicine prepared in it (sample) are different. The information stored in control/sample can be termed as a signal. The requirement then is to device a probe which will distinguish the two signals. Any living system such as microbial, botanical or zoological can be chosen as a probe as these are claimed to respond to potencies. The experiments designed should be easily reproducible. Medicinal property in a potency is preserved over a long period. Hence, the distinguishable features should be checked with a sufficient time gap after the preparation of the potency.

Investigations of structure and dynamics of the medium

Once it is established that the sample and the control are distinguishable, the most promising problem will be to identify the nature and site of storage of differences between them. It is believed that basic differences between the control and the sample lie in the hydrogen bonded network of the medium[6]. Conventional spectroscopic techniques such as Raman, Infrared, can throw light on hydrogen bond energy distributions which are not expected to differ as the gross properties of potentized solvent are not reported to be different from those of the pure solvent. Further, the energy transfers involved in these techniques may destroy the signal of interest. Preliminary calculations indicate that the energies involved may be in the far infra-red (FIR), micro-wave (μw) or radio-wave (rw) regions. NMR is sensitive in μw region but cannot be used as the associated high magnetic fields and sample spinning may modify the structure of the sample as suggested by the observation that solvents exposed to magnetic fields are medicinal. Some feasibility experiments in these spectroscopic regions can be carried out to differentiate between pure solvent and a potency prepared in it. Dielectric Measurements are reported to show measurable changes with potencies[4] and hence can be conducted to compliment results from other techniques. These studies can be supplemented with computer simulation experiments to get at the exact nature of the excitations stored. The final aim is to evolve a technique to differentiate between different starting solutes and different potencies of the same solute.

Time, temperature and potency dependence of the stored effect (Phase transition characteristics of different solvent states) can be studied using techniques described in sections 4.1 and 4.2 above. Feasibility of simulating a potentized medicine without introducing any substance can also be tested.

Identification of site of action of a medicine

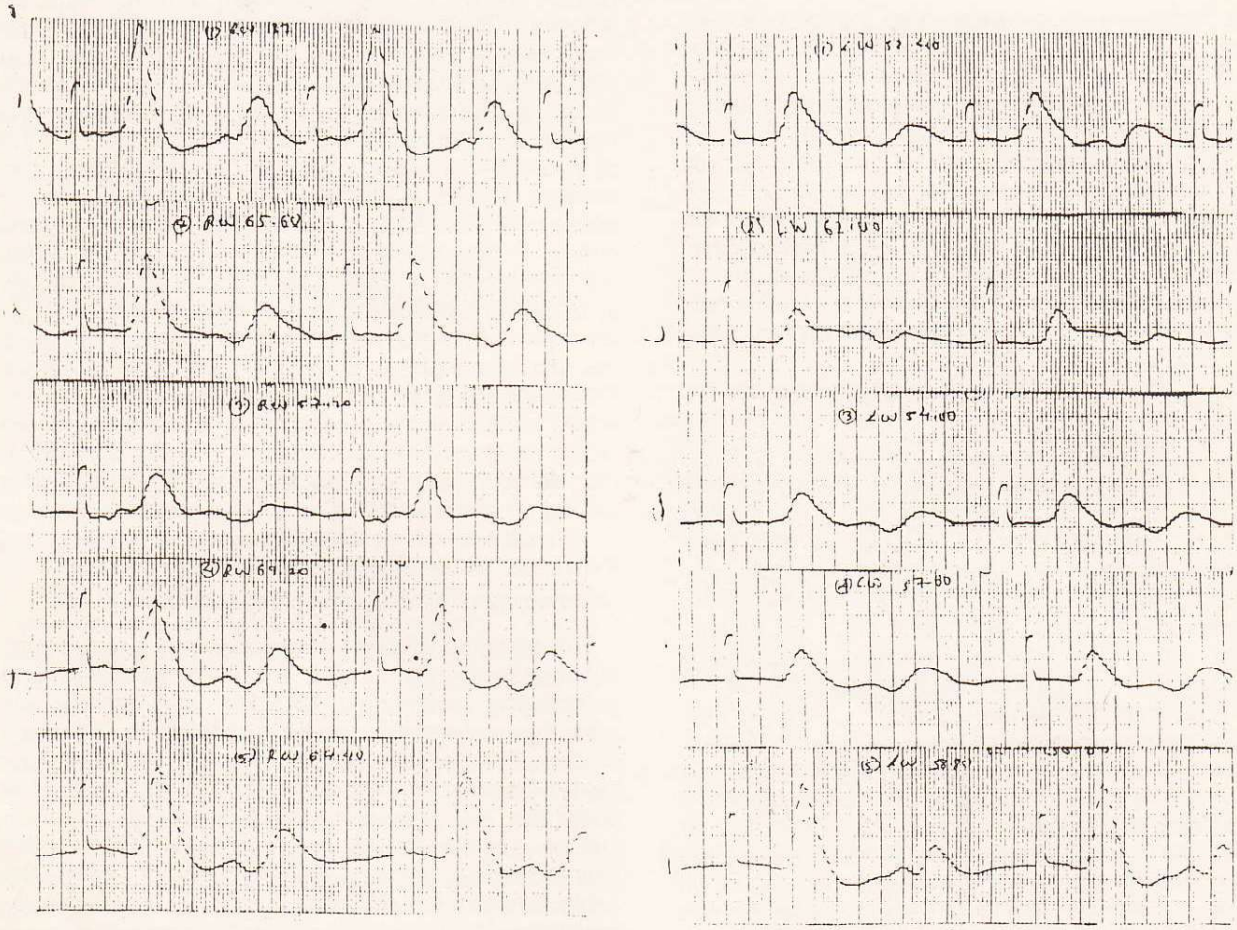
Conventionally, a medicine acts on a biological system due to some special binding properties of its molecules or chemical reactions that it induces. Since in a potentized medium no medicinal molecule can be present for $n>12$, the mechanism of action must be different. Thus, location and path of action of these medicines in the biological systems will be the next step in these studies. Potentized medicines are thought to store the information imparted to them by the medicinal molecules at low concentrations in the form of hydrogen bonded molecular networks. When this medium comes in contact with a living system, it relaxes with the fluids in the system exchanging some energy in the process. If these exchanged energies are of the order of magnitude of the energies involved in triggering biological activities, then the medium has an active interaction with the biological system. Thus, the aim in this phase of research will be to try to link the signals stored in the medium with their corresponding active centres in the biological systems, as also the biological activity initiated by them, starting with simple models such as microbial, botanical or animals. This will further be extended to human systems with provings of a medicine on normal human subjects indicating the matrix of centres accessible to the medicine.

Development of objective diagnostic methods

The next step will be to establish a unique relationship between a sample and a set of physiological and pathological parameters. As a first step towards this goal, haemodynamics can be monitored as a function of time. For this, the concept of pulse diagnosis can be borrowed from Ayurveda. Though this method is subjective, the inferences drawn from pulse analysis just by palpation of the radial artery by three fingers, has proved its efficacy over hundreds of years. The subjectiveness in the method can be eliminated by monitoring the blood flow in wrists using non-invasive methods. It is therefore proposed to monitor blood flow in wrists and ankles in normal human subjects while they are under provings of the homoeopathic medicines. These assessments are likely to give plethysmographic patterns specific of the type of the medicinal substance. If so, any patient with such a plethysmographic pattern can be treated with a medicine indicated by the pattern. This will provide an objective method of diagnosis in the field of homoeopathy.

Clinical Research

The objectives described so far go for establishing homoeopathy as a science. However, for it to be accepted widely, the clinical research should follow. Clinical trials of these medicines can be undertaken by monitoring neurological, haemodynamic or hormone levels depending upon the type of pathology present in the patient. Recent non-invasive methods like electro-myography, impedence plethysmography or



A B

Fig. 1 Impedence plethysmographic records of a normal subject in the (a) right upper extremity (RUE) (b) left upper extremity (LUE). Asymmetric blood flow is evidenced by reduced amplitude of systolic wave in the LUE, which remains asymmetric after placebo[2], reduces in RUE after Sulphur 15[3] and normalizes after Sulphur 10M[5].

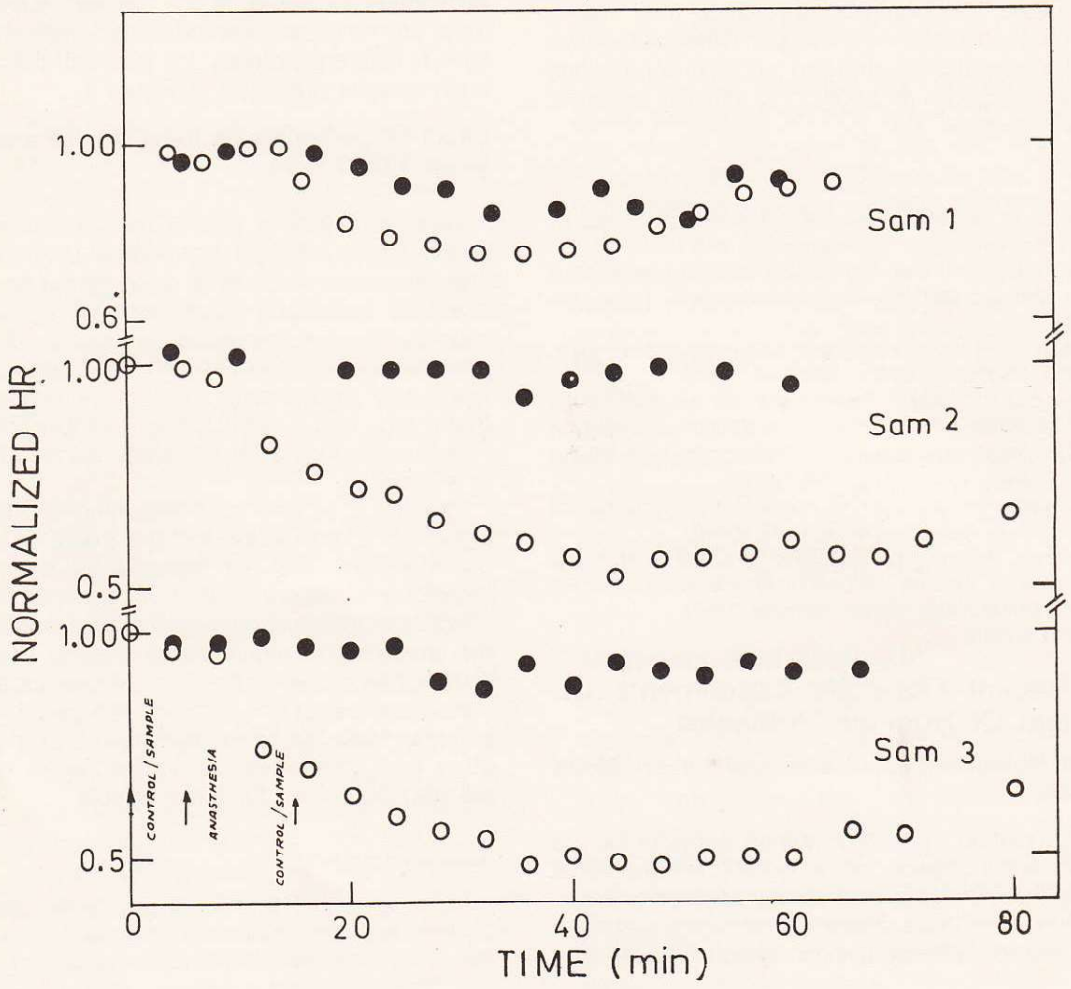


Fig. 2 Normalized Heart rate of anaesthetized swiss albino mice (Sam) as a function of times Anaesthesia—Sodium Pentobarbitone (with Na Pento 15, (Nap) Treated with control. Each set represents measurements on one SAM taken at an interval of a week.

radio-immuno assay etc. can be employed for monitoring these activities.

Scope of the field

The present proposal is aimed at unravelling the physical nature and biological assets of mediums used in preparation of homoeo potencies. These studies will reveal materials other than those used in homoeopathy and potentials of this class of materials in fields other than homoeopathy. Once their virtues are scientifically established, it will open hitherto unknown avenues for scientific research and technical applications in multiple disciplines in addition to offering effective, inexpensive medical aid.

References

1. E. Davenas et. al. Human basophil degranulation triggered by very dilute antiserum against IgE. Nature 333, 816 (1988).
2. G.B. Stearn and E.D. Evia. The physical basis of homoeopathy and a new synthesis. Publisher—World Homoeopathic Links, New Delhi (1982).
3. P. Sankaran. Some recent research and advances in homoeopathy, Homoeopathic Medical Publishers, Santacruz (1978).
4. R.D. Dua and R.L. Jussal. Project report on the study of the mechanism of action and influence of the amount of solvent on physical properties of molecules used in formulations having medicinal properties. IIT, Delhi, (1985). [HCS/DTS/677/78].
5. C.S. Subbanna et. al. Effect of homoeopathic medicines on blood circulation. J. Appl. Homoeopathy (to appear).
6. A.S. Paranjpe. Action of homoeopathic medicines: a physicists view. Presented at the first symposium of The Association For Research in Homoeopathy, Mulund, Bombay (1987).
J. Appl. Homoeopathy.

Some Recent Objective Experiments On the Action Of Homoeo Potencies

Effect Of Potentized Medicines On Human Blood Circulation.

Bood circulation in normal human subjects before and after administration of a potentized medicinal substance is monitored by plethysmography. Five medicinal substances in three different potencies are chosen for these studies. Haemodynamic changes caused by each of them will be assessed and analysed to show that these potentized substances do produce changes in the blood circulation.

In the first phase, fifteen normal subjects were administered three different potencies of the same medicine, namely Sulphur 15, 1000 and 10000, in ascending order of potency at time interval of one hour. Haemodynamic evaluation was carried out with the administration of placebo and each potency. Redistribution occurred in all the five subjects having initial asymmetrical haemodynamic distribution, though with a different potency for different individuals. One such case is illustrated in Figure 1.

Effect Of potencies on heart rate of anaesthetized swiss albino mice.

Heart rate (HR) is one of the parameters which is known to be affected significantly under anaesthesia and hence can act as a good probe to detect the effect of potentized medicines. HR of swiss albino mice (sam) is monitored as a function of time using various potentized samples with n>12 (opium, adrenaline, acetic acid, phosphorus, the same administered anaesthesia etc.) and a control. Each sample/control experiment is conducted on the same animal at an interval of a week.

The result of one such experiment is illustrated in Figure 2. Experiments are underway to standardize the technique and get reproducible data. Once the technique is standardized, it is proposed to study the effect of temperature on the potentized medium, whether the stored signal remains after freezing and reheating, distilling the medium etc. This will give gross transition characteristics of the phases induced by the initial impurity. Materials having hydrogen bonding properties other than those used in homoeopathic preparations will also be tested for these effects.

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"If the supposed seeker after truth is not willing to seek truth where it is to be found, namely in experience, then he may leave it undiscovered; he cannot find it in the multiplication tables."

S. Hahnemann
(Information for the Truth Seeker. Anz.f.d.D., No. 194, 1825)