

Experimentation in Homoeopathy: History and Prospects

Homoeopathy is estimated to be used by approximately 500 million users worldwide. It is bicentennial medical system based on enormous of data collected from time to time through human experimentation in the form of *Materia Medica*. After a series of experiments, on family members, friends, disciples and students, Hahnemann collected all the data and very elaborately wrote the treatises called ‘*Materia Medica*’, ‘*Chronic Diseases*’ and ‘*Organon*’.^[1] Historically, the principle of similarity has also been experimented in the past by Schulz^[2] where it was reported that various kinds of poisons when given in low doses have a slightly stimulatory effect.^[3]

Homoeopathy rapidly gained popularity in the 19th century due to its superiority as it was gentle, with holistic approach and gave favourable response in treating various epidemics. Irrespective of being popular; there was one aspect of Homoeopathy which led to open conflict between orthodox medicine and Homoeopathy i.e., use of high dilution, potentisation and clinical methodology (Law of *Similia*). Strong opposition came in the form of Avagadro’s law, then Flexner report which led to closing of most of the homoeopathic medical colleges in the USA, thus reducing the number of homoeopaths significantly.^[1] Contrary to this, Homoeopathy flourished in India.

There has been a remarkable revival of Homoeopathy since the 1960s and 1970s in many countries. In the USA, in 2002, it was estimated that the number of patients using homoeopathic remedies had risen by 500% in the previous 7 years.^[4] Homoeopathy has sustained despite all the criticism due to its clinical benefits and popularity amongst patients. Further, over the past few decades, Homoeopathy has initiated the methods of current medical science and a substantial number of experimental studies – at molecular, cellular and clinical levels – are available.^[5] The plausibility of the homoeopathic medicines has been demonstrated in several physical–chemical and biological models such as *in vitro* (one such experiment published in this issue), plants and animals.

HOMOEOPATHY AND IMMUNOLOGICAL EXPERIMENTS

The association between immunology and Homoeopathy dates back to 1906. There were theories proposing analogies between Homoeopathy and immunology, as homoeopathic theory is substantially based on the principle of regulating endogenous systems of healing, which is known as the immune system and its neuroendocrine integrations. A pioneer of immunology, Emil Von Behring, had an open mind towards Homoeopathy^[1] wrote ‘And what technical term appropriately defines this influence exercised by a similar micro-organism if not the word of Hahnemann: Homeopathy?’ Although western immunology went on to develop as part of modern biomedicine, while Homoeopathy was always regarded as an

‘alternative’ medicine, in the past few decades, there has been a rapprochement between the two disciplines.^[6]

Various experimental models have been used in Homoeopathy, and immunological models seem to be very useful in demonstrating the activity of homoeopathic high dilution effects of hormones or mediators. The organism is able to respond to homoeopathic remedies as well as to antigens; although the immunological response is not mechanistically comparable to the action of a homoeopathic remedy, the immune system is naturally stimulated by extremely low doses of antigens as low as 0.1 ng (10^{-10} g). There are experiments to show the effect of highly diluted antigen on the humoral immune response in mice, the action of very low doses or high dilutions of molecules which participate in the education of T or B lymphocytes such as thymic hormones (T-lymphocytes) or bursin hormone (B-lymphocytes), the immunomodulating effect of very low doses of cytokines, and the immunopharmacological activity of high dilution of silica.^[6]

Bellavite *et al.* in lecture series on Homoeopathy and immunology have published the results of some experimental laboratory studies aimed at verifying the efficacy of high dilutions of substances and of homoeopathic medicines in models of inflammation and immunity.^[7]

In this issue, literature review of pre-clinical studies concluded that homoeopathic drugs, in various potencies, can influence mice bone marrow cells, macrophages, lymphocytes and PMN cells. Homoeopathy experiments^[8-10] on basophils and mast cells showed that homoeopathic medicines in ultradiluted form can influence degranulation of mast cells and basophils.

Experiments have also been conducted in several epidemic conditions such as Japanese Encephalitis (JE), which is the main cause of viral encephalitis in India and many countries of Asia. The case fatality rate can be as high as 30% amongst those with disease symptoms, and around 20%–30% of those who survive suffer from permanent neuropsychiatric sequelae. There is no specific antiviral treatment for JE. Supportive clinical care is important as it relieves symptoms and stabilises the patient. As recommended by the WHO, there are four main types of JE vaccines currently in use: inactivated mouse brain-based vaccines, inactivated cell-based vaccines, live-attenuated vaccines and live recombinant vaccines. However, monitoring vaccine impact in settings where JE vaccine has been introduced is a research priority.^[11] Several studies conducted suggesting the role of Homoeopathy in preventing this. The antiviral role of *Belladonna* 200C against JE virus (JEV) has already been done.^[12] The preventive aspect of *Belladonna* has been showed as beneficial due to the immune immaturity. It was suggested that the developed

adaptive and innate immunity prevent the adult mice being infected with JEV.

In other experiment to see the effect of *Belladonna* 200C in virus replication inside different tissue utilising chick embryo model, the results suggested that, although *Belladonna* 200C did not completely inhibit JE viral replication in the brain, it reduced the severity of JE by diminishing the viral loads in this tissue.^[13] The experiments suggest that *Belladonna* derived from the plant *Atropa belladonna* contains many active components which have effects on central and peripheral nervous systems and have been found effective against JE.^[13]

In an experiment published previously to see the inhibition to growth of *Candida albicans* on comparing the 'Zone of Inhibition' in culture plates treated with homeopathic medicines, *Mezereum* 200 showed maximum inhibition to growth of *C. albicans*.^[14] In current issue, author tried to assess through experimentation, the role of different forbidden edible food products in action of homeopathic medicine. The results showed that there is no significant effect of these forbidden items on the inhibition in growth of human pathogenic fungus *C. albicans* by homeopathic medicine *Mezereum* 200 in *in vitro* conditions.^[15] In addition, this paper elaborates the available literature of antifungal activity of onion, cardamom, clove, caraway, black pepper, asafoetida, turmeric, lemon and camphor and many more edible items in *in vitro* conditions.

EXPERIMENTATION PROSPECTS

The experimentation conducted in the field of homeopathic research will be more acceptable if they are easily reproducible by others and in different laboratories. Proper framework of conducting experiments in b research if developed will yield less paradoxical results and can bring validity to the system. Notwithstanding these experimental advancements, the data in favour of the high-dilution effect in immunological models are not so consistent and reproducible as it should be for a general acceptance by the scientific community.^[7] Recent meta-analysis stated that physicochemical research into homeopathic preparations is increasing both in terms of quantity and quality of the publications.^[16] With some positive preliminary evidence and growing interest in homeopathic experimentation by scientist of other disciplines (physicist/biologists/pharmacologists), Homeopathy can further yield reliable and reproducible models.

Recent developments in molecular biological research are positive for Homeopathy. With Nobel prize winner French Virologist, supporting homeopathic medicine through his experimental research stating that high dilutions of something are not nothing, they are water structures which mimic the original molecules and that electromagnetic signals of the original medicine remains in the water and has dramatic biological effects. Besides, experiments have also confirmed the existence of nanoparticles at two different homeopathic high potencies.^[17-19] Other acclaimed scientist has also done

research suggesting Nanoassociates as a possible basic element of scientific foundation of Homeopathy.^[20]

Besides these experimentations, Homeopathic clinical research has increasingly adopted the methods of conventional medicine, namely, clinical trials, observational studies, statistical evaluations, computerised storage programmes and instrumental or laboratory testing. There are dozens of clinical trials which show positive clinical effects of homeopathic medicines in various illnesses. The result of a randomised comparative study to evaluate the efficacy of Homeopathy with standard allopathy treatment of acute adenolymphangitis (ADL) in lymphatic filariasis included in this issue also supports the fact that individualised homeopathy treatment provides improvement in ADL scores and improves QOL.^[21] The results in homeopathic arm and allopathic arm are almost equal in the management of ADL.

The two case reports: polycystic ovarian syndrome^[22] and Benign prostatic hyperplasia.^[23] in this issue are very common diseases for which patients seek Homeopathy these days; polycystic ovarian syndrome^[22] and Benign prostatic hyperplasia.^[23] There was improvement reported in these cases with individualised homeopathic medicine with supporting evidence.

STRENGTHENING RESEARCH INFRASTRUCTURE

This aspect of experimental aptitude is lacking in our education system. Our focus should be to strengthen the experimental/research aptitude amongst students. There is a need to establish state of the art laboratories with interdisciplinary team in medical colleges. The 21st-century homeopathic students should be adequately taught basics of quantum physics, nanomedicine, modern pharmacology, pharmacogenomics and pharmacokinetics in their BHMS, PG and as well as PhD courses. enabling them to undertake modern researches to improve and validate homeopathic knowledge.

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