

Research Highlights

EVIDENCE OF AN OBVIOUS RETENTION OF A SPECIFIC MAGNETIC RESONANCE SIGNAL WHEN A SUBSTANCE (LACTOSE, COPPER AND GELSEMIUM) IS DILUTED/POTENTISED IN PURE WATER

Article Title: Verification of nuclear magnetic resonance characterization of traditional homeopathically manufactured metal (*Cuprum metallicum*) and plant (*Gelsemium sempervirens*) medicines and controls

Authors: Michel Van Wassenhoven, Martine Goyens, Marc Henry, Jean Cumps, Philippe Devos

Journal: Homeopathy. 2021 Feb;110(1):42-51. doi: 10.1055/s-0040-1710022. Epub 2020 Jul 2.

Summary: Nuclear magnetic resonance (NMR) proton (^1H) relaxation is sensitive to the dynamics of the water molecule, H_2O , through the interaction of the spin of the ^1H with external magnetic and electromagnetic fields. NMR relaxation times describe how quickly the spin of ^1H , forced in a direction by an external electromagnetic field, returns to a normal resting position. As a result, such measurements allow us potentially to describe higher structuring of water in homeopathic medicines. To monitor dilution and potentiation processes, the measurements of ^1H spin-lattice T1 and spin-spin T2 relaxation times were used. T1 and T2 relaxation times were measured at 25°C with a spin analyser working at a frequency of 20 MHz. To account for its possible role as a confounding factor, free oxygen (O_2) was also measured in all samples, using a MicroOptode meter. When the values of the three production lines were pooled, a statistically significant discrimination of NMR relaxation times between the medicines and their controls was confirmed. We found, for copper cH and *Gelsemium sempervirens* cH, a highly significant influence of the starting material ($P = 0.008$), a highly significant influence of level of dilution ($P < 0.001$), and a significant influence of the O_2 concentration ($P = 0.04$).

Comments: The evidence of an obvious retention of a specific magnetic resonance signal when a substance (lactose, copper and *Gelsemium*) is diluted/potentised in pure water was seen. This means that homeopathic solutions cannot be considered to be pure water. O_2 is a covariant and not an explanatory variable: This factor itself is too weak to explain the NMR signal specificities in potentised samples. Homeopathic dilutions may thus have a specific material configuration governed not only by the potentised substance but also by the chemical nature of the containers, by the chemical nature of dissolved gases and even by the electromagnetic environment. This sensitivity of homeopathically prepared medicines to electromagnetic fields may be amplified by the processes routinely applied during their preparation; because it occurs

only when a dynamisation has been performed, we may call this phenomenon ‘dynamic pharmacy’.

ANTIMONIUM CRUDUM IS USEFUL IN REDUCING ANTIBIOTIC EXPOSURE IN PAEDIATRIC SKIN CONDITIONS

Article Title: *Antimonium crudum* in pediatric skin conditions: A classical homeopathic case series

Authors: Seema Mahesh, Tamara Kozymenko, Nataliia Kolomiiets, George Vithoullkas

Journal: Clin Case Rep. 2020 Dec 16;9(2):818-824. doi: 10.1002/ccr3.3674.eCollection 2021 Feb.

Summary: In the case series, the first three were infections, and the last one was an autoimmune condition. The indications for homeopathic medicine, however, do not stop at diagnosis. The same remedy may be indicated in infections or autoimmune conditions because of the other associated symptoms, especially those that do not seem to be a direct consequence of the pathology. For example, patients requiring *Antimonium crudum* usually have a very thick milky white coating on their tongue. They also have an unexplainable craving for cucumbers and pickles. The common line running in the above cases was aggravation at night and aggravation from cold bathing. Such peculiarities may seem insignificant; however, to homeopaths, they are of paramount importance. The idea is that, in a diseased state, it is not just the local organ or system that is affected but rather a general affection occurs, altering many faculties of the being. Considering this entire profile alone indicates the right medicine. This idea is no longer far-fetched, as studies show the systemic nature of inflammation, immune response and sickness behaviour. While these are being studied in a generalised manner by conventional medicine to understand the common changes in the whole spectrum of disease, Homeopathy considers these changes at the individual level and has treated so for the past two centuries. In these cases, such an approach was proven to be beneficial. Homeopathic *Antimonium crudum* may be useful in many paediatric skin conditions if prescribed on symptom similarity. It may especially be helpful in reducing the use of antibiotics and steroids in this age group if proven to be effective through larger scientific studies.

Comments: The homeopathic medicine *Antimonium crudum* was beneficial in the four cases of paediatric skin conditions presented here. *Antimonium crudum* may help in reducing the antibiotic exposure in children with dermatological conditions, a welcome development in this era of antibiotic resistance. The relevance of this drug in homeopathic potencies to dermatological conditions needs to be investigated further with scientific studies.

USE OF COMPLEMENTARY AND ALTERNATIVE MEDICINE AMONG PATIENTS WITH CANCER IN TERTIARY CARE HOSPITAL

Article Title: Use of complementary and alternative medicine among patients with cancer in a sub-Himalayan state in India: An exploratory study

Authors: Laxman Pandey, Rajesh Pasricha, Deepa Joseph, Rachit Ahuja, Yanpothung Yanthan, Pankaj Kumar Garg, Manoj Gupta

Journal: J Ayurveda Integr Med. 2021 Feb 23; S0975-9476(21)00002-4. doi:10.1016/j.jaim.2021.01.001.

Summary: The use of complementary and alternative medicine (CAM) is widespread among cancer patients in India. The study elucidated usage patterns of CAM and the factors responsible for its adoption among the patients with cancer and the therapeutic impact of CAM. This was a questionnaire-based study, conducted among patients with cancer in a tertiary care hospital in a sub-Himalayan city. Data were analysed using statistical methods. A total of 2614 patients with cancer were included. Almost half of the patients ($n = 1208$, 46.2%) reported to have been treated with CAM. Breast cancer ($n = 274$, 23.0%) was most prevalent with majority at advanced stages. Ayurveda ($n = 428$, 35.9%), Yoga/Naturopathy ($n = 381$, 32.0%), Homoeopathy ($n = 143$, 12.0%) and Unani ($n = 71$, 5.9%) were used commonly. Among CAM users, 85.0% ($n = 1012$) of the patients used CAM as the sole method of treatment, while 58.9% ($n = 702$) of the patients reported initial symptomatic benefit.

Comments: Using CAM benefitted a significant number of patients with cancer. However, there is an urgent need to integrate CAM with modern system of medicine.

IMPROVEMENTS WERE GREATER BY THE HOMOEOPATHIC MEDICINE THAN BY PLACEBO IN CHRONIC RHINOSINUSITIS

Article title: Individualized homeopathic medicines in chronic rhinosinusitis: Randomized, double-blind, placebo-controlled trial

Authors: Pankhuri Misra, Chintamani Nayak, Abhijit Chattopadhyay, Tarun Kumar Palit, Bharti Gupta, Satarupa Sadhukhan, Koushik Bhar, Shruti Rai, Maneet Parewa, Sk Swaif Ali, Anamika Basu, Arunava Nath, Munmun Koley, Subhranil Saha

Journal: Homeopathy. 2021 Feb; 110(1):13-26. doi: 10.1055/s-0040-1715842. Epub 2020 Aug 31.

Summary: Chronic rhinosinusitis (CRS) is a common disorder, with up to an estimated 134 million Indian sufferers, and having a significant impact on quality of life (QOL) and health costs. Despite the evidence favouring Homoeopathy in CRS being inadequate, it is highly popular. This trial attempts to study

the efficacy of individualised Homoeopathy (IH) medicines in comparison with placebo in patients with CRS. A double-blind, randomised (1:1), placebo-controlled, preliminary trial ($n = 62$) was conducted at the National Institute of Homoeopathy, West Bengal, India. Primary outcome measure was the sinonasal outcome test-20 questionnaire; secondary outcomes were the EQ-5D-5L questionnaire and EQ-5D-5L visual analogue scale scores and five numeric rating scale (0–10) assessing intensity of sneezing, rhinorrhoea, post-nasal drip, facial pain/pressure and disturbance in sense of smell, all measured at baseline and after the 2nd and 4th months of intervention. Group differences and effect sizes (Cohen's d) were calculated on the intention-to-treat sample. Groups were comparable at baseline. The attrition rate was 6.5% (IH: 1, placebo: 3). Although improvements in both primary and secondary outcome measures were higher in the IH group than placebo, with small-to-medium effect sizes, the group differences were statistically non-significant (all $P > 0.05$, unpaired t -tests). *Calcarea carbonica*, *Lycopodium clavatum*, *Sulphur*, *Natrum muriaticum* and *Pulsatilla nigricans* were the most frequently prescribed medicines. No harmful or unintended effects, homoeopathic aggravations or any serious adverse events were reported from either group.

Comments: There was a small but non-significant direction of effect favouring Homoeopathy, which ultimately renders the trial as inconclusive. Rigorous trials and independent replications are recommended to arrive at a confirmatory conclusion. It seems that improvements were greater in the Homoeopathy group than in the placebo group; with small-to-medium effect sizes, the group differences were statistically non-significant, thus rendering the trial inconclusive.

SILICEA AND ZINCUM PRESENTED DIFFERENT PATTERNS OF POTENCY-DEPENDENT EFFECT ON MACROPHAGE ACTIVITY

Article title: *Silicea terra* and *Zincum metallicum* modulate the activity of macrophages challenged with BCG *in vitro*

Authors: Sandra Augusta G. Pinto, Mirian Yaeko O. Nagai, Anuska Alvares-Saraiva, Giovanni B. Peres, Silvia Waisse, Elizabeth C. Perez, Leoni Villano Bonamin

Journal: Homeopathy. 2021 Feb; 110(1):52-61. doi: 10.1055/s-0040-1716367. Epub 2020 Dec 21.

Summary: The homoeopathic medicines *Silicea terra* (*Sil*) and *Zincum metallicum* (*Zinc*) modulate macrophage activity and were assessed in an experimental study *in vitro* for their effects on macrophage bacillus Calmette–Guérin (BCG) interaction. RAW 264.7 macrophages were infected with BCG, treated with different potencies of *Sil* and *Zinc* (6cH, 30cH and 200cH) or vehicle and assessed 24 and 48 h later for bacilli internalisation, hydrogen peroxide (H_2O_2) and cytokine production and lysosomal activity. Treatment with vehicle was associated with

non-specific inhibition of H_2O_2 production to the levels exhibited by uninfected macrophages. *Sil* 200cH induced significant reduction of H_2O_2 production ($P < 0.001$) compared with the vehicle and all other treatments, as well as higher lysosomal activity ($P \leq 0.001$) and increased IL-10 production ($P \leq 0.05$). Such effects were considered specific for this remedy and potency. The number of internalised bacilli was inversely proportional to *Zinc* potencies, with statistically significant interaction between dilution and treatment ($P = 0.003$). Such linear-like behaviour was not observed for *Sil* dilutions: peak internalisation occurred with the 30cH dilution, accompanied by cellular degeneration, and IL-6 and IL-10 increased ($P \leq 0.05$) only in the cells treated with *Sil* 6cH.

Comments: *Sil* and *Zinc* presented different patterns of potency-dependent effect on macrophage activity. Bacterial digestion and a balanced IL-6/IL-10 production were related to *Sil* 6cH, though reduced oxidative stress with increased lysosomal activity was related to *Sil* 200cH. Degenerative effects were exclusively related to *Sil* 30cH, and potency-dependent phagocytosis was related only to *Zinc*.

NUX VOMICA SHOWED ANTICONVULSANT AND ANTI-EPILEPTOGENIC BY THE STATUS OF OXIDATIVE STRESS IN ACUTE AND CHRONIC MODELS OF EPILEPSY

Article title: Cognition and memory impairment attenuation via reduction of oxidative stress in acute and chronic mice models of epilepsy using antiepileptogenic *Nux vomica*

Authors: Priya Mishra, Amit Kumar Mittal, Satyendra Kumar Rajput, Jitendra Kumar Sinha

Journal: J Ethnopharmacol. 2021 Mar 1;267:113509. doi: 10.1016/j.jep.2020.113509. Epub 2020 Oct 23.

Summary: Ethnopharmacological relevance processed *Nux vomica* seed extracts and homoeopathic medicinal preparations (HMPs) are widely used in traditional Indian and Chinese medicine for respiratory, digestive, neurological and behavioural disorders. Antioxidant property of *Nux vomica* is well known and recent investigation has highlighted the anticonvulsant potential of its homoeopathic formulation. Acute seizures were induced in the animals through 70 mg/kg (i.p.) administration of pentylentetrazole (PTZ) followed by the evaluation of latency and duration of generalised tonic-clonic seizures (GTCS). Sub-convulsive PTZ doses (35 mg/kg, i.p.) induced kindling in 29 days, which was followed

by assessment of cognition, memory and motor impairment through validated behavioural techniques. The status of oxidative stress was estimated through measurements of malondialdehyde (MDA), glutathione (GSH) and superoxide dismutase (SOD). HMPs delayed the latency and reduced the duration of GTCS in acute model signifying possible regulation of GABAergic neurotransmission. Kindling was significantly hindered by the HMPs that justified the ameliorated cognition, memory and motor activity impairment. The HMPs attenuated lipid peroxidation by reducing MDA level and strengthened the antioxidant mechanism by enhancing the GSH and SOD levels in the kindled animals.

Comments: *Nux vomica* HMPs showed anticonvulsant and anti-epileptogenic potency in acute and chronic models of epilepsy. The test drugs attenuated behavioural impairment and reduced the oxidative stress against PTZ-induced kindling owing to which they can be further explored for their cellular and molecular mechanisms.

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Conflicts of interest

None declared.

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