



Homeopathy and cancer

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ABSTRACT

Homeopathy developed about 200 years ago by the German physician Samuel Hahnemann has overtime become one of the most common complementary and alternative medicine procedures performed to treat cancer in the United States and Europe. In this procedure, based on the principle of “like cures like”, substances that have been diluted many times are used to treat patients, who show symptoms that the substances would cause when used in healthy people. Homeopathy is thought to stimulate the body's self-healing ability in this way. The studies carried out up to date have provided no strong evidence supporting the use of homeopathy in any clinical condition. The studies that have given positive results were methodologically incomplete. The procedure is claimed to be harmless, based on the fact that the active ingredients contained in homeopathic products are highly diluted. Sufficiently diluted homeopathic products are harmless as claimed, except for rare and non-serious side effects such as allergic reactions. However, studies reveal that also inadequately diluted products containing high levels of active ingredients are available in the market. Taking into account this danger, it is hard to say that the method is totally harmless.

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1. Introduction

Homeopathy is a complementary and alternative medicine procedure that involves the use of products, derived from highly diluted vegetable, animal or mineral ingredients, for the elimination of certain disorders in the body.¹ This procedure developed about 200 years ago by the German physician Samuel Hahnemann (1755–1843) quickly gained popularity in the United States and Europe.² Homeopathy is currently one of the 10 alternative medical procedures most commonly used by cancer patients.³ According to the 2012 National Health Interview Survey (NHIS) performed in the U.S. 5 million adults and 1 million children used homeopathic products per year. When this result is compared to the results of the 2002 and 2007 surveys, it is observed that the figure increased with each passing year.^{4,5} In another national survey published in 2016 reported that 2.1% of adults in the U.S. used homeopathic products in the previous year.⁶ Today, the diseases most commonly treated by homeopaths are asthma, depression, otitis media, allergic rhinitis, migraine, neurotic disorders, non-specific allergies,

dermatitis, arthritis and hypertension.⁷

Homeopathy is from the Greek roots *omoios* for 'similar' and *pathos* for 'suffering' This terminology reflects the principle of “like cures like”, which is the basis of homeopathy. According to this principle, homeopathic remedies tested on healthy volunteers to check their effects, are used for the treatment of diseases that show symptoms similar to the symptoms caused by the remedies.⁸ Homeopathy is believed to stimulate the organism's self-healing ability in this way.⁹

Until now, there have been many published studies on the use of homeopathy for various health problems. However, there is no up-to-date and adequate compilation studies on its use especially in cancer patients. For this reason, this study was intended for providing an extensive evaluation of clinical trials carried out on the effects of homeopathy practices on cancer patients (and symptomatic disorders in general), as well as the evidentiary values of such studies.

2. History and application

According to some resources, it is a technique used by Hippocrates about 400 BCE. Allegedly, Hippocrates treated mania by administering small doses of the mandrake root, which in large doses is known to trigger mania.¹⁰ However, today's homeopathy

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procedure was developed about 200 years ago by the German physician Samuel Hahnemann (1755–1843). When Dr. Hahnemann tested quinine (used in healing malaria) on himself in 1789, he observed the emergence of malaria-like symptoms. Hahnemann continued to perform similar tests on people in his immediate environment, and then put forward his new doctrine of “Like cures like” that constitutes the basis of homeopathy.² Hahnemann cited the use of smallpox vaccination to prevent smallpox as an example.⁷ However, subsequent studies showed that the mechanism of quinine in the treatment of malaria is not related to Hahnemann’s allegation because quinine treats malaria by killing the parasite called *plasmodium falciparum*.¹¹ In consequence of his experiments and observations, Dr. Hahnemann put forward the four fundamental principles of homeopathy.

- A diluted remedy provides healing when given to a patient showing symptoms that appear when the same remedy is given to a healthy person. (Like cures like)
- Homeopathic remedies are tested on healthy people, before coming into use.
- One-drug approach is suitable for homeopathic products.
- The remedy is potentized for ensuring the minimal concentration of the active ingredient. (it is diluted and shaken again) When potentized, the remedy becomes more effective.^{8,12} Hahnemann believed that the potentization process reveals the spiritual power of the substance and eliminates its harmful effects.¹³ He also alleged that all the diseases are originated from psoriasis, gonorrhoea, and syphilis.⁸ Hahnemann explained the principles of his technique in his book “The Organon of the Medical Art” published in 1810.¹⁴

Homeopathy gained popularity especially in the 19th century because during epidemics experienced in that period, the death rates in homeopathic hospitals were lower. It remained in the background in the 20th century, as a result of the developments in modern medicine; however, began to regain popularity in the late 20th and early 21st centuries.¹⁵

In homeopathy, patient assessment consists of 4 components: taking anamnesis, performing patient analysis to determine the theme, associating the patient’s symptoms with the themes, and selecting the appropriate remedy based on the theme. In homeopathy, the patient is evaluated holistically, by considering his/her physical, emotional, environmental and health conditions.¹⁶ Unlike traditional medicine, it is mostly performed with symptoms rather than pathology and lesions.⁷

3. Efficacy

In the literature, there are many studies on the effects of homeopathy in cancer and many non-cancerous diseases (Supplementary Table 1). Although many of these results gave unfavorable results, there are also studies that gave favorable results. However, such studies are methodologically quite incomplete. The US Food and Drug Administration (FDA) regulated homeopathic remedies; however, could not evaluate their efficacy and safety.¹⁷ In February 2010, the UK Science and Technology Committee produced a report in line with the analyses of the existing clinical records and expert opinions, which stated that there was no evidence that it has a significant effect beyond the placebo effect.¹⁸ As a result of the increased use of homeopathy in developing countries, especially for the treatment of malaria, HIV, tuberculosis, diarrhea, and influenza, the World Health Organization (WHO) has warned that homeopathic medications have no place in the treatment of these five health problems.¹⁹

The Australian Government’s National Health and Medical

Research Council (NHMRC) has comprehensively evaluated the evidence on homeopathy’s efficacy, and released a report. According to the report, there is no reliable evidence that homeopathy is effective for the treatment of any health conditions; and should not be used for the treatment of any health problem that may be chronic, severe or serious. Those who will employ this method despite this have been warned not to leave or delay the existing treatment approaches that have proven reliability and efficacy.²⁰

In the meta-analysis of 89 studies, published in The Lancet in 1997, it was concluded that no sufficient data was available that proves the efficacy of homeopathy in any health condition.²¹ The meta-analysis of 105 placebo-controlled studies, published in The Lancet in 2005, supported the hypothesis that homeopathy’s effects are based on placebo.²² In another meta-analysis published in 2000, it was stated that no sufficient evidence was available that proves the superiority of homeopathic treatments to placebo.²³ In another meta-analysis covering the meta-analysis of 89 studies, it was stated that the efficacy of homeopathy was superior to that of placebo but the studies were found to be methodologically inadequate for making a clear conclusion.²⁴ In the meta-analysis involving the evaluation of the designs of 89 placebo-controlled studies conducted on homeopathy, it was stated that the studies giving positive result are methodology more incomplete, and therefore, the positive results achieved from those studies are substantially likely to be caused by the inadequacies in the designs of the studies.²⁵

In the compilation studies, the use of homeopathy for any health condition is generally not recommended.^{26–28} The efficacy of homeopathy could not be found to be superior to placebo in many compilation studies as well.^{29–31} In a systematic compilation published in 2006, six clinical studies involving the testing of homeopathy on cancer patients were evaluated; and it was concluded that there is no adequate data supporting the use of homeopathy alone or as a supportive treatment in cancer patients.²⁶ A compilation study on the use of homeopathy in children and adolescents gave similar results.²⁷ In another compilation study intended for evaluation of physical experiments performed with homeopathic medications, it was reported that there were insufficient controls or other serious faults in most of the experiments performed with homeopathic preparations.³²

In a randomized controlled study published in 2003, whether or not the homeopathic medication Belladonna in ultramolecular dose (30C) really causes specific symptoms in healthy individuals was tested. 253 healthy individuals were divided into 2 groups; and then Belladonna in ultramolecular doses was administered to one group, and placebo was administered to the other group. As a result, no significant difference was observed between the groups.³³ In a randomized controlled study published in 2012, which enrolled 431 patients with early stage breast cancer, a homeopathic medication called Cocculine, administered in addition to the standard antiemetic drugs, was found to be ineffective to reduce chemotherapy-induced nausea and vomiting.³⁴

There are also studies showing the positive effects of homeopathy in the literature. However, most of them methodologically have deficiencies. In a compilation published in 2015, an opinion was expressed that homeopathy could have beneficial effects for cancer patients, and could be integrated with the standard treatment as an additional procedure that could be performed in cancer patients, when considering also its low cost and minimal risk.³⁵ Similar results were obtained also in another compilation published in 2010.³⁶

In a prospective observational study published in 2010, decreased symptoms of weakness were observed in patients, who received homeopathic treatment in addition to traditional cancer treatment.³⁷ In another observational study published in 2003,

homeopathic treatment reduced symptoms in breast cancer patients with estrogen withdrawal symptoms.³⁸ In a study that enrolled 25 breast cancer patients, who received radiation therapy and then complained of radiation-induced itching at treatment sites, homeopathic treatment provided improvement in this symptom in 21 of the patients.³⁹

In a randomized controlled study conducted on 66 breast cancer patients, who received postoperative radiotherapy, homeopathy became helpful in the treatment of radiotherapy-induced dermatitis.⁴⁰ In another randomized controlled study, the homeopathic medication Traumeel S was observed to significantly reduce the severity and duration of chemotherapy-induced stomatitis in children treated with stem cell transplantation.⁴¹ In another study, a mixture of 3 homeopathic medicines was tested on the menopausal symptoms of 83 women with breast cancer stories, whose treatment have been completed with the achievement of a cure. As a result, although it did not make a significant difference in hot flashes, it provided a little positive effect on overall health status.⁴² In a similar study conducted on 53 patients with similar characteristics; no significant difference was observed.⁴³ In a randomized controlled study published in the Journal of Clinical Oncology in 2004, 254 breast cancer patients who received postoperative radiotherapy were divided into 2 groups. One group was given troamine while the other was given homeopathic calendula. In conclusion, calendula was found to be more effective in the prevention of acute dermatitis. (41% v 63%).⁴⁴ In a randomized controlled study published in 2015, which involved the evaluation of 373 cancer patients, homeopathy administered in addition to traditional treatment was observed to improve the quality of life.⁴⁵

Some positive effects were observed in laboratory studies conducted with homeopathic medications. In a study, a medication called antidiabetic “Gymnema sylvestre”, commonly used in homeopathy, exhibited an anticancer effect by reducing expression level of anti-apoptotic gene Bcl2, and increasing apoptotic signal related genes cytochrome C and caspase 3 in human melanoma cells.⁴⁶ In another study, a medication called “Phytolacca decandra” exhibited anticancer properties by activating caspase-mediated signaling and production of reactive oxygen products in human melanoma cells again.⁴⁷ In another laboratory study on human breast cancer cell lines, ultra-diluted homeopathic medications showed a cytotoxic effect on cancerous cells, by stopping the cell cycle and inducing apoptosis.⁴⁸

4. Safety

Homeopathic medications are produced mostly by mixing herbs, minerals, or animal products with an alcohol/water solution and then diluting them with repeated dilutions.⁴⁹ Ingredients of homeopathic medicines are generally diluted up to concentrations that do not pose a risk; however, toxic components have been found in some homeopathic products. After using an arsenic-containing homeopathic medication, 2 subjects developed melanosis, and 1 subject developed acute gastrointestinal disease followed by quadripareisis.⁵⁰ In a study, toxic metal and metalloid concentrations of homeopathic products sold in Croatia were measured; and as a result, toxic substance at a hazardous level was found in some products, although the levels were generally below the threshold value.⁵¹ In another case presented in the literature, excessive use of a homeopathic medication called “Lycopodium similialex” led to acute hepatitis.⁵²

In the report prepared by the World Health Organization with the participation of 400 experts from more 105 countries, it was stated that Homeopathic products are generally safe as long as they are prepared properly; however, high concentrations of active ingredients in insufficiently diluted products may cause side effects.⁵³

In a systematic compilation published in 2012, allergic reactions and intoxications caused by homeopathic medications were reported.⁵⁴ Besides their direct effects, homeopathic medications can also be indirectly harmful by causing the main treatments to be received inadequately.⁵⁵

5. Conclusion

The studies carried out up to date have provided no strong evidence supporting the use of homeopathy in any clinical condition. Although some positive effects were observed in some studies, the effect was not beyond the placebo effect in most studies. There were methodological mistakes in most of the studies, in which such effects were found to be superior to the placebo effect. Since properly prepared homeopathic medications are ultra-diluted, they do not cause significant side effects. However, some products under the name homeopathic medication are not diluted enough and contain significant amounts of active ingredient. Such products may cause side effects. Another important danger that homeopathic treatments may create is that they may cause the patient to quit the current primary treatment. For now, it would be useful to stay away from this treatment, by acting in the light of available evidence.

Appendix A. Supplementary data

Supplementary data related to this article can be found at <http://dx.doi.org/10.1016/j.jons.2017.05.006>.

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