

Dengue Fever Management: Evaluating the Efficacy of Homoeopathic Treatment

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Abstract: *Dengue fever, a mosquito-borne viral infection, poses significant public health challenges worldwide. Despite advances in conventional medical treatments, the search for effective and safe alternative therapies continues. Homeopathy, a complementary medicine system, has been proposed as a potential adjunctive treatment for dengue fever. This review aims to critically evaluate the efficacy of homoeopathic remedies in the management of dengue fever. We explore the principles of homoeopathy, its historical application in treating viral infections, and specifically dengue fever. We examine the hypothesized mechanisms by which homoeopathic remedies may exert immunomodulatory, anti-inflammatory, and antiviral effects. Furthermore, the review addresses the safety profile, patient compliance, and acceptance of homoeopathic treatments. It also highlights the challenges and limitations inherent in current research, including methodological issues and regulatory considerations. Our findings suggest that while some studies report positive outcomes, the overall evidence remains inconclusive due to the variability in study designs and quality. This underscores the need for rigorous, well-designed clinical trials to definitively ascertain the role of homoeopathy in dengue fever management. The review concludes with recommendations for future research and the potential for integrative approaches that combine conventional and homoeopathic treatments to enhance patient outcomes.*

Keywords: Homoeopathy, Dengue fever, DENV, CYD-TDV (Dengvaxia), Homoeopathy remedies, Homoeopathy Principles.

1. Introduction

Overview of Dengue Fever: Dengue [break-bone-fever] is a viral infection that spreads from mosquitoes to people. Dengue is more prevalent in regions with tropical and subtropical weather. The majority of individuals infected with dengue do not experience any symptoms. However, for those who do, the most frequent signs include a high fever, headache, body pain, nausea, and a rash. Recovery typically occurs within 1-2 weeks for most cases. However, some may develop severe dengue and require hospital treatment.^[1]

Definition and causes:

Dengue fever is a mosquito-borne illness that occurs in tropical and subtropical areas of the world. A moderate case of dengue fever results in an elevated body temperature and symptoms similar to the flu. The severe form of dengue fever, also called dengue haemorrhagic fever, can cause serious bleeding, a sudden drop in blood pressure [shock] and death.^[2]

Transmission and epidemiology

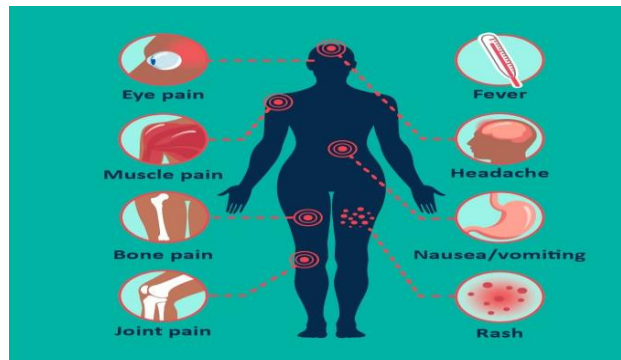
The DENV is spread to people by infected mosquitoes, commonly in tropical and sub-tropical regions all over the world, particularly in urban and semi-urban locations. The primary vectors that transmit the disease are *Aedes aegypti* and, to a lesser extent, *Aedes albopictus* mosquitoes, although in some regions such as Europe and North America, this latter vector is more widespread. There are four types of DENV, namely DENV-1, DENV-2, DENV-3, and DENV-4. Infection with one serotype provides long-term immunity to the same serotype and only transient immunity to the other serotypes,

after which secondary infections with different serotypes increase the risk for severe dengue. Dengue In most instances, there are no noticeable symptoms or only mild flu-like symptoms associated with dengue. However, in some cases, the illness can progress to a severe form which can include shock, excessive bleeding, or significant damage to organs. This stage usually occurs after the fever has subsided and is preceded by indicators such as severe abdominal pain, persistent vomiting, bleeding gums, fluid buildup, fatigue or agitation, and enlargement of the liver. While there is no specific treatment for dengue, prompt detection of cases and recognition of warning signs for severe dengue are crucial in preventing its advancement and fatalities. Appropriate clinical care also plays a vital role in managing the illness effectively.^[3]

Epidemiology

Virtual cooperation spaces [VCS] have been created for collaborative surveillance between PAHO [Pan American Health Organization] and its Member States that allow the automated generation of different epidemiological analyses, situation rooms, and epidemiological bulletins, strengthening the epidemiological surveillance of dengue and other arboviruses the year 2023, PAHO/WHO released five revisions on the state of dengue in the Americas and issued a warning about the rise in dengue incidents in Central America and the Caribbean. The African regional office of WHO has created a tool to classify dengue risks by country, which is currently being adjusted for implementation in other parts of the world. WHO is working globally to enhance surveillance for dengue cases, severe dengue and dengue deaths, better to understand the global burden in a more timely manner.^[3]

Symptoms and complications



The most common symptom of dengue is fever with any of the following:

- 1) Aches and pains [eye pain, typically behind the eyes, muscle, joint, or bone pain]
- 2) Nausea, vomiting
- 3) Rash
- 4) Any warning sign
- 5) Mild symptoms of dengue can be confused with other illnesses that cause fever
- 6) Symptoms of dengue typically last 2-7 days
- 7) Most people will recover after about a week.

Severe dengue is a critical medical situation. Approximately 5% of those who contract dengue will experience severe symptoms, which can include shock, internal bleeding, and even death. If you or a loved one experiences any of the following symptoms, it is crucial to seek immediate medical attention at a nearby clinic or emergency room: abdominal pain or sensitivity, vomiting three or more times within 24 hours, bleeding from the nose or gums, and extreme fatigue or restlessness. It is important to be aware of warning signs for severe dengue, as they may appear within 24-48 hours after the fever has subsided. ^[4]

Introduction to Homoeopathy

The principles **and practice of homoeopathy** the basic tenets that govern the entire structure of Homoeopathy, which is a unique approach to medical treatment. Its principles serve as the foundation for its therapeutic practices.

- 1) **Law of Similia:** Homoeopathy is a system of medicine founded on a definite law "Similia Similibus Curantur" which means 'like cures like'. The word Homoeopathy is a Greek derivation where 'Homoeo' means 'similar' and 'pathos' means 'suffering'. So Homoeopathy may be defined as the therapeutic method of symptoms-similarity. The recognition of this law was already there before Hahnemann. The law has been referenced by Paracelsus, Hippocrates, and ancient Ayurvedic texts. But it was Hahnemann who recognized the universality of this law and lifted it from oblivion to make it the basis of a complete system of medicine that must have the capability of producing most similar symptoms of the disease to be cured in healthy persons. In Aphorism 26 of 'Organon of Medicine', Hahnemann states this law: "A weaker dynamic affection is permanently extinguished in the living organism by a stronger one if the latter is very similar to former in its manifestations."
- 2) **Law of simplex:** Hahnemann in aphorism 272-274 of 'Organon of Medicine' states that only one single, simple

medicinal substance is to be administered in a given case of time. This is a result of the subsequent factors. The homoeopathic remedies were proved singly, and the Materia medica was built up to the observed effects of drugs given singly, either in planned provings or in accidental provings. At any given time, there can only be one solution that closely resembles the condition of a specific patient. Moreover, if more than one remedy is used the doctor will never know which element was curative and our source of future guidance is obscured. When multiple drugs are prescribed together, they may work together to enhance each other's effects. However, it cannot be guaranteed that the combined effect will simply be the total of each drug's individual effects. The inclusion of certain medications can potentially cause interactions that could have harmful consequences for the body. The mixture of more than one remedy in a single dose would constitute a new remedy which would require to be proved as such for a proper estimate of its probable effects.

- 3) **Law of Minimum:** the suitability of a medicine for any given case depends on its accurate Homoeopathic selection alone, but likewise on the proper size of dose too. By this rule, we administer medication to individuals in extremely small amounts. The minute dose means that the quantity of medicine which is smallest in quantity produces the least possible excitation of the vital force and yet is sufficient to effect the necessary change in it. The quantity is minimum, yet appropriate for a gentle remedial effect. This concept of minimum dose leads to the discovery of a practical process called potentisation. Giving the minimum amount of medication has several benefits:

- Preventing any negative reactions or worsening of symptoms.
- Minimizing the specific biological response that causes unusual and distinctive effects.

Distinguished symptoms of the drug, are produced by the minimum quantity of drugs.

The smallness of the dose does not allow the drugs to do any organic damage nor there is any risk of drug addiction and drug effects.

The concept of minimum dose can be verified by Arndt-Schultz Law that small doses stimulate, medium doses paralyse and large doses kill. In other terms, the effect of both small and large amounts of a substance on living organisms is contrary.

The law of least action, formulated by Maupertius, the French mathematician states: 'the quantity of action necessary to affect any change in nature is the least possible, the decisive amount is always a minimum, an infinitesimal.

Health is a matter of perfect balance, trifling circumstances may sway it, and so may it be balanced by the least possible in medication.

4) **Doctrine of Drug Proving:** In homoeopathy, we prescribe only those medicines whose medicinal properties are known through 'drug proving'. Drug proving is a systematic investigation of the pathogenic [disease-producing] power of medicines on healthy human beings of different ages, both sexes and various constitutions. These recordings of drugs prove to give the only reliable knowledge of medicines which is very essential to the disease homoeopathically. Different medicines must be proven thoroughly to obtain full details of their curative properties. The drug must be proved on human beings because: Extensive testing is necessary to fully understand the healing effects of various medicines. Human trials are essential because animals do not experience subjective or mental symptoms. Additionally, the effects of a drug can differ between animals and humans, and important details may be missed in animal testing. It is crucial to test the drug on healthy individuals since the symptoms of the drug and underlying illness can become intertwined. Furthermore, the response to a drug may vary between a sick person and a healthy individual.

5) **Theory of Chronic Disease:** it is Homoeopathy which stresses the existence and operation of the vital force in a living organism. The human organism is a triune entity consisting of body, mind, and spirit. The Vital Force, as labelled by Dr Hahnemann, is the essence behind various forms of life. Hahnemann speaks of the vital force in Aphorism 10 of his Organon Of Medicine: "The material organism without the vital force is capable of no sensation, no function, no self-preservation; it derives all sensations, and performs all functions of life solely using the immaterial being [the vital force] which animates the material organism in health and disease." In Healthy conditions, it is the vital force which maintains normal functions and sensations of the organism. But when the vital force is primarily dynamically deranged by morbid influence, it causes abnormal sensations and functions which manifest outwardly through the material body as abnormal signs and symptoms, the totality of which constitutes the disease. Again if a cure is to be established it is the vital force that arouses itself or is abided to arise for recovery. If the vital force is too debilitated and exhausted then no medical aid is of help. Theory of Vital Force: In the Organon of Medicine, Dr Hahnemann introduced the concept of vital force (in aphorisms 9-17), which he later replaced with the vital principle in the sixth edition (aphorism 10). These two terms have distinct meanings; force refers to energy, while principle refers to a foundational truth or belief that guides behaviour and reasoning. According to Hahnemann, the material body cannot function or survive without the immaterial vital principle which animates it in health and disease. He believed that functions, self-preservation,

sensation, and animation are all indications of the presence of vital force, and without them, an organism is considered dead. These concepts align with the five fundamental principles of biology and demonstrate how energy flowing through this network creates life from non-living matter. Therefore, this vital principle is essential for an organism's survival and is relative. Without it, an organism is considered deceased.^[13]

6) **Doctrine of Drug-Dynamisation:** Homoeopathic dynamization is a process by which the medical properties which are latent in natural substances while in their crude state, become awakened and developed into activity to an incredible degree. Dr Stuart Close states that "Homoeopathic potentisation is a mathematico-mechanical process for the reduction, according to scale, of crude, inert or poisonous medicinal substances to the state of physical solubility, physiological assimilability and therapeutic activity and harmless, for use as homoeopathic healing remedies. Potentisation drugs are done by two methods: Trituration-For insoluble substances Succussion-in case of soluble substances. The objectives of potentisation in homoeopathy are: To minimize the drug that prevents unwanted irritations and adverse reactions caused by medicine. Homoeopathy believes that vital force is dynamic and that is affected by disease, and can only be cured by the dynamic power of serviceable medicine, not by its material quantity. By the process, the most virulent and deadly poisons are not rendered active and effective for healing the sick. This process amplifies the healing properties of different medications that may be partially effective in their original form, expanding their range of effects.^[5]

Historical context and modern applications of Dengue Fever.

The Chinese Encyclopedia of Symptoms during the Chin Dynasty (CE 265-420) contains the earliest known documentation of a similar illness, referred to as "the water poison" and linked to flying insects found near bodies of water. During the late 1700s, dengue fever was first documented in Asia, North America, and Africa. In a publication from 1789, American physician Benjamin Rush described a likely dengue fever epidemic that had occurred in Philadelphia during 1780. He used the term "breakbone fever" to describe the severe symptoms experienced by one of his patients. In the early 1820s, a similar epidemic was named "ki denga pepo" in Swahili, meaning "a sudden possession by a spirit," in East Africa. The term "Dandy fever" was later used to refer to a Caribbean outbreak in 1827-28, and eventually evolved into the Spanish term "dengue." Following the end of World War II, there was an increase in the worldwide spread of dengue fever and its vectors due to socioeconomic disruptions. Before this, outbreaks occurred sporadically every few decades. However, with the first recorded epidemic of dengue hemorrhagic fever in Manila in 1953, there was a shift towards more frequent outbreaks and a pattern emerged where epidemics occurred every few years. This trend continued until dengue fever became a yearly occurrence, with major outbreaks happening approximately every 3 years. As the virus spread to new regions, it also began affecting suburban and rural areas in Asia and Latin America in addition to urban areas. Currently, dengue is found in over 100 countries worldwide, including some that had not

previously reported cases for several decades. The only continents without transmission are Europe and Antarctica. Dengue spread from Southeast Asia to surrounding subtropical and tropical Asian countries, southern China, southern Taiwan, the Indian subcontinent, Sri Lanka, and various island nations including Malaysia, the Philippines, New Guinea, northeastern Australia, Tahiti, Palau, Tonga, and the Cook Islands. Countries such as Vietnam, Thailand, Indonesia, Pakistan, India, Malaysia, and the Philippines reported high levels of transmission. Dengue has continued to expand its reach. After World War II in the Americas, dengue outbreaks were uncommon due to successful efforts to eradicate *Aedes* mosquitoes through coordinated vector-control measures. However, systematic spraying was stopped in the early 1970s due to environmental concerns. By the 1990s, *aegypti* mosquitoes had repopulated most of the previously eradicated regions.

In 2014, there was an increase in dengue cases reported to the WHO from countries such as China (People's Republic), Cook Island, Fiji, Malaysia and Vanuatu. This was after a 10-year absence of dengue serotype 3 (DENV-3) outbreaks in Vanuatu. The following year saw large outbreaks in countries like the Philippines (> 169,000 cases), Malaysia (> 111,000 suspected cases) and Brazil (>1.5 million cases). Delhi also experienced its worst outbreak since 2006.

Serotype 1 (DENV-1) was first identified in French Polynesia and Japan in 1943 before spreading to Hawaii. In Cuba in 1977 it affected a largely susceptible population with over 44% infected but only mild disease reported. The first dengue hemorrhagic fever epidemic occurred in Cuba in 1981 with serotype 2 (DENV-2) resulting in hundreds of thousands of dengue cases across all ages with over 24 000 cases of dengue hemorrhagic fever, 10 000 cases of dengue shock syndrome and 158 reported deaths.

In 1997, the Asian genotype of DENV-2 was reintroduced and only affected adults who had previously been infected with DENV-1 in 1977. The disease and case-fatality rates were higher in those infected with DENV-2 after a 20-year interval compared to those infected after a gap of only 4 years.^[6]

Objective of evaluating homoeopathic treatment for dengue fever

Dengue, a global health threat, is affecting people from all over the world, with increasing outbreaks in India. It is a disease transmitted by infected mosquitoes and is commonly referred to as break-bone fever due to its flu-like symptoms. There are four types of the virus responsible for dengue, known as DEN-1, DEN-2, DEN-3, and DEN-4. It occurs when a healthy person is bitten by an *Aedes* mosquito carrying the virus. According to the World Health Organization (WHO), approximately 500,000 people require hospitalization for dengue each year. Factors such as rapid urbanization, population growth, and global warming are thought to contribute to these outbreaks. The mortality rate for untreated dengue fever is between 1% and 5%, but with proper treatment and management, it is less than 1%. However, in cases of Dengue Hemorrhagic Fever, the mortality rate can be as high as 26%. Currently, there is no vaccine or effective treatment for dengue. Traditional and symptomatic treatments recommended by the WHO have

been unable to control the spread of dengue in many parts of India. In response to this crisis, many homoeopathic physicians and organizations are working towards finding a solution for dengue through homoeopathy. Some clinical trials and studies have shown that homoeopathic remedies like *Eupatorium*, *Arsenicum album* and *Ferrum phosphoricum* can be effective in treating dengue fever. They are considered an excellent alternative to traditional treatments for dengue.^[7]

Significance and potential impact on public health

Public Health Education:

- Education campaigns raise awareness about dengue prevention, symptoms, and the importance of seeking medical care.
- Schools, communities, and media play vital roles in disseminating information.

The main approach to preventing dengue is by avoiding mosquito bites. *Aedes* mosquitoes are active during the day and can bite both indoors and outdoors. It is important to use personal protection measures throughout the day, especially during peak mosquito activity (mid-morning until twilight). These measures include using insecticide-treated bed nets, staying in screened or air-conditioned rooms, wearing clothing that covers the skin, and following instructions when using mosquito repellent.

For travellers, particularly children, pregnant women, and those with immune disorders or chronic illnesses, it is recommended to consult a doctor or travel clinic for personalized advice on using repellent and protection before visiting areas where dengue is prevalent. If symptoms of dengue appear after returning from these areas, medical care should be sought.

Even if there are no symptoms present, travellers should continue to protect themselves from mosquito bites for three weeks after returning from dengue-endemic areas where *Aedes albopictus* and/or *Aedes aegypti* mosquitoes are active during their peak season (May-November).

The European Medicines Agency has authorized two vaccines for use in the EU: Dengvaxia by Sanofi Pasteur and Qdenga by Takeda GmbH. Dengvaxia was approved on December 12th, 2018 for individuals aged 6-45 with a previous dengue infection. It is a live attenuated vaccine that contains proteins from all four virus serotypes. The recommended schedule is three doses given six months apart only to those who have tested positive for previous dengue infection.

Qdenga was granted approval on December 5th, 2022 for individuals over four years old. It is also a live attenuated vaccine containing all four virus serotypes.

A vaccine with weakened live viruses is used to prevent dengue fever and includes all four types of the dengue virus. It is made up of a weakened form of DENV-2 (DEN2-PDK-53), with the addition of three other viruses (DENV-1, DENV-3, and DENV-4) that have their pre-membrane M and envelope proteins inserted into the DENV2-backbone. The main difference from CYD-TDV (Dengvaxia) is that this

vaccine contains non-structural proteins due to the use of the DENV2-backbone. It is recommended to be given in two doses, three months apart. Both vaccines should be used according to recommendations from international or national public health authorities.

Conventional Treatments for Dengue Fever

Current medical approaches and their limitations

1) Monitoring and Surveillance:

- Early Detection Systems: Advanced tools for tracking disease spread and global networks for monitoring dengue outbreaks can predict potential epidemics.
- Challenges: Despite progress, there are still difficulties in obtaining accurate data, delays in reporting, and limited resources, particularly in regions with low income.

2) Control of Vector:

- Chemical Methods: The use of insecticides, such as pyrethroids, is widespread in reducing the population of *Aedes* mosquitoes.
- Biological Methods: The introduction of genetically modified mosquitoes and those infected with *Wolbachia* have been effective in reducing transmission.
- Environmental Measures: Eliminating standing water and improving sanitation can decrease breeding sites.
- Limitations: Challenges include mosquito resistance to insecticides, logistical obstacles, environmental concerns, and the need for cooperation from the community.

3) Diagnosis:

- Laboratory Examinations: Molecular techniques like PCR and serological tests (ELISA) are used to detect the virus and identify the specific strain.
- Point-of-Care Tests: Rapid diagnostic tests (RDTs) are used for early detection in areas with limited resources.
- Limitations: High costs, limited availability in remote regions, potential for cross-reactivity with other flaviviruses and variation in accuracy.

4) Treatment:

The main focus of treatment is to address symptoms such as dehydration, and pain, and monitoring for complications like dengue hemorrhagic fever (DHF) and dengue shock syndrome (DSS). In severe cases, hospitalization may be necessary for intravenous fluids, blood transfusions, and close monitoring. However, there are limitations to treatment options, including the lack of specific antiviral therapy, reliance on managing symptoms, and strain on healthcare systems during outbreaks.

5) Vaccination:

Dengvaxia is the first approved vaccine for dengue and is recommended for use in areas with high rates of the disease in individuals who have had previous infections. Ongoing research is being conducted to develop second-generation vaccines that are safer and more effective against all serotypes and populations. However, Dengvaxia is only recommended for those who have previously been infected due to the risk of severe disease in individuals without prior exposure. Concerns about vaccine coverage, cost, and long-term effectiveness also remain.

6) Public Health Education

Raising awareness about preventive measures, recognizing symptoms, and seeking early medical intervention through community education campaigns is crucial in controlling dengue outbreaks. Integrating dengue education into school curricula can also be beneficial. However, there are challenges such as varying levels of public awareness, cultural barriers, and the need for sustained efforts to educate the public about dengue prevention.

7) Investigation and innovation:

- Origin Investigations: Continuing studies on how dengue virus infects and triggers the immune system.
- New Treatment Methods: Examining potential medications, immunotherapies, and other inventive forms of treatment.
- Challenges: Delays in applying research discoveries to effective treatments, bureaucratic obstacles, and financial limitations.

2. Limitations and Challenges

a) Challenges in Diagnosis:

- Identifying dengue among other febrile illnesses can be challenging, especially in areas where there are multiple flaviviruses circulating.
- Accurate diagnosis is critical for proper management of cases and the public health response.

b) Concerns about Vaccines:

- Existing vaccines have limitations in terms of their effectiveness and safety, especially for individuals who have not been previously exposed to dengue.
- It is a complex task to balance the distribution of vaccines with thorough screening to avoid adverse effects in people who have not developed immunity.

c) Sustainability of Vector Control:

- Continuous efforts are necessary to maintain effective measures for controlling the vector.
- Ongoing challenges include mosquito resistance to insecticides and logistical difficulties in implementing biological controls.

d) Burden on Healthcare Systems:

- Dengue outbreaks can put significant strain on healthcare systems, especially in areas with limited resources.
- Adequate training, infrastructure, and resources are essential for managing severe cases and preventing deaths.

e) Disparities on a Global Scale:

- Differences in resources, infrastructure, and access to healthcare across regions affect the success of dengue control measures.
- International cooperation and support are vital in addressing these disparities.
- Despite these limitations, the combination of advanced diagnostics, supportive care, vector control, vaccination, public health education, and ongoing research provides a comprehensive approach to managing dengue fever. Continuous improvements and innovations in these areas are essential to reduce the burden of the disease globally.

Homoeopathic Approaches to Viral Infections

According to the principles of homoeopathy, a drug with the ability to prevent disease called a "genus epidemicus," can be identified for both sporadic and epidemic situations. The

process of selecting this drug is specialised and involves several steps:

- 1) A thorough study of 20-30 cases is conducted, preferably from different regions, to understand the various signs and symptoms related to the current epidemic.
- 2) Based on this study, a group of medicines is identified using appropriate repertorization techniques.
- 3) These medicines are then given to individual patients based on their specific symptoms.
- 4) The most frequently indicated medicine, with the potential to provide quick and positive results, is chosen as the genus epidemics.^[9]

Effectiveness of Eupatorium Perfoliatum 30 C in the prevention of dengue fever and acute Febrile illness during 2017 dengue outbreak in urban Slums of Delhi: A prospective, Open-label, community-based, parallel Cohort Study.

The purpose of this research was to evaluate the effectiveness of Eupatorium perfoliatum (EP) 30C in reducing the occurrence of dengue fever and acute febrile illness (AFI) during the 2017 dengue outbreak. A prospective, open-label, community-based parallel cohort study was carried out, involving individuals residing in six urban slums (JJ colony) in Delhi who were considered to be in good health. These participants were divided into two groups - the medicine cohort (MC) and the control cohort (CC). The MC received weekly doses of EP 30C for ten weeks, along with education and information about dengue. The CC only received education and information. The main focus of the study was to observe the incidence of dengue fever according to the case definitions set by the Government of India during a ten-week follow-up period. Secondary measures included the occurrence of AFI and hospitalizations due to confirmed cases of dengue. The results showed that out of 40,769 participants from six slum clusters in Delhi, 28,321 were in MC and 12,448 were in CC. The incidence of laboratory-confirmed dengue was 2.57 per 10,000 person-weeks in MC compared to 7.55 per 10,000 person-weeks in CC. Similarly, AFI occurred at a rate of 19.66 per 10,000 person-weeks in MC compared to 40.96 per 10,000 person-weeks in CC. Overall, EP showed a protective effect against laboratory-confirmed dengue at a rate of 65.77% and against AFI at a rate of 52.58%. No hospitalizations or fatalities related to dengue were reported from either group. No adverse effects were reported by participants who received EP treatment. This study shows that EP 30C was effective in preventing dengue and further research through randomized controlled trials is needed to confirm these findings.^[14]

Review on Dengue with Homoeopathic Management:

Dengue, a global health concern that affects people worldwide, is increasingly becoming a deadly threat in India. This vector-borne disease is transmitted through the bite of an infected mosquito and is commonly known as break-bone fever due to its flu-like symptoms. There are four types of the virus responsible for dengue infection, and it can be fatal if left untreated. Factors such as urbanization, population growth, and global warming are believed to contribute to the frequent outbreaks of dengue. According to the World Health Organization (WHO), approximately 500,000 people require hospitalization for dengue every year. The mortality rate for

dengue fever is 1% to 5% without proper treatment and management, while it can be as high as 26% in Dengue Hemorrhagic Fever. Unfortunately, there is currently no vaccine or effective treatment available for dengue. Many conventional and symptomatic treatments are recommended by the WHO, but it remains a significant health crisis globally. In response to this crisis, homoeopathic physicians, institutes, and scientific organizations have been working on finding a solution for dengue using homoeopathic treatment. Some clinical trials and studies have shown the efficacy of homoeopathy in treating dengue fever with remedies like Eupatorium, Arsenicum Album, and Ferrum Phosphoricum being particularly effective. Homoeopathy offers an excellent alternative for treating dengue fever and has been proven to have beneficial effects. As dengue continues to spread in new areas of India, it remains a pressing health challenge that requires attention from both traditional and alternative medicine approaches.^[15]

Dengue Shock Syndrome: its Similarity with Anaphylaxis and with the Homoeopathic Medicine Apis Mellifica [European Honeybee]

Dengue, a disease caused by four different types of viruses, is known to cause outbreaks in tropical and sub-tropical areas. Unfortunately, there are currently no effective allopathic antiviral treatments or a widely-used vaccine available. However, the homoeopathic medicine Apis mellifica, typically recommended for treating allergic reactions to bee stings, is being proposed as a potential solution for the life-threatening dengue shock syndrome. This syndrome is a result of dengue hemorrhagic fever and shares characteristics with anaphylaxis. Both dengue and anaphylaxis involve the activation of immunoglobulin E and the release of vasoactive mediators (such as histamine, tryptase, and platelet-activating factor) that cause increased vascular permeability leading to shock. In dengue specifically, there is an additional mechanism called antibody-dependent enhancement which occurs when a person has a secondary infection with a different type of dengue virus. This also results in the release of vasoactive mediators. The indications for using Apis mellifica in homoeopathic medicine align well with the symptoms experienced by dengue patients such as plasma leakage, shock, and serous effusion. As such, it is being recommended as a possible preventive and therapeutic option for dengue shock syndrome.^[16]

Homoeopathy Remedies for Dengue

- 1) Belladonna: A significant level of fever is present. Belladonna is typically linked to a warm, reddened complexion, pulsating neck arteries, unsettled sleep, parched mouth and throat, and an aversion to hydration. Belladonna affects all parts of the nervous system, resulting in heightened blood flow, intense agitation, distorted sensory perception, and discomfort. The head experiences a pulsating ache that can be eased by firm pressure or compression. The symptoms include heat, redness, throbbing, and burning sensations. Along with the high fever comes anxiety or fear. Perspiration is only observed on the head. There is no desire for liquids during the feverish state.^[10]
- 2) Bryonia Alba: The individual is experiencing a high body temperature and discomfort throughout their body. The

pain is described as sharp and tearing, exacerbated by movement but relieved by rest. The mucous membranes are lacking moisture. Irritability is present during the fever, and dizziness can result from worsening headaches. Dry lips and mouth, along with excessive thirst, are also present. A bitter taste may be noticed during the fever. Joints may be swollen and painful. The pulse is strong, firm, tense, and fast. A dry cough with sharp chest pains can also occur. Sweating may occur easily and in large amounts.^[10]

- 3) Eupatorium Perf: Intense discomfort in the bones accompanied by agitation. A dull and nagging ache in the back and bones of the arms and legs, accompanied by tenderness in the muscles. Aching sensation in the arms and wrists. Pulsating headache with discomfort in the eyes. Sweating provides relief for all symptoms except for the headache. Feeling cold between 7 and 9 am, preceded by a feeling of thirst and significant soreness. Nausea, followed by vomiting of bile at the end of the cold or hot stage. Swelling of the left big toe.^[10]
- 4) Ferrum phos: During the initial phase of febrile illnesses, such as inflammatory fever and catarrhal conditions, before any buildup of fluid occurs, this method is most effective for individuals who are nervous and sensitive. There is a lack of red blood cells accompanied by an appearance of fullness and intense localized congestion. There is pronounced weakness during the fever, and the pulse is gentle and steady. A throbbing headache with dizziness can be alleviated by using cold compresses.^[10]
- 5) Gelsemium: The patient is experiencing a high fever and extreme fatigue, preventing them from even taking a few steps. They are also experiencing dizziness, drowsiness, sluggishness, and trembling due to the fever. Their pulse is slow and weak, with low blood pressure and a feeling of exhaustion. They also have muscular weakness and lack of coordination. They feel cold and hot flashes along their back, with prolonged and draining bouts of sweating. Additionally, they are suffering from a severe headache without any desire for fluids during the fever.^[10]
- 6) Rhus.tox: Restless with a fever. The person shifts around and experiences temporary relief when changing positions. The joints, tendons, sheaths, and aponeurosis are significantly affected by rheumatic pains, causing sharp pains and stiffness. The tongue is dry, red, cracked, and coated except for a red triangular area at the tip. They have occasional chills with a dry cough and restlessness. They feel cold and as if cold water has been poured over them, followed by heat and an urge to stretch their limbs.^[10]
- 7) Arsenic Album: One of the top homoeopathic treatments for dengue fever is Arsenic Album, especially for addressing the weakness. This remedy is necessary when the patient experiences exhaustion even while standing or walking. Indications include extreme fatigue, leading to a constant need to lay down. Although the body may feel warm on the outside, the patient may experience chills internally. Before prescribing this medicine, the patient typically reports having a fever at night accompanied by feelings of anxiety and restlessness. The patient consistently feels thirsty but only requires small amounts of water at a time. Aside from relieving these symptoms, Arsenic Album is also beneficial in managing vomiting

and nausea. The patient may have an aversion to food due to its appearance and smell.^[11]

- 8) Ipecac: Ipecac is a suitable initial treatment for alleviating symptoms of nausea and vomiting. It is especially effective in cases where these symptoms persist despite previous attempts at relief. In addition, it may be helpful for those experiencing watery vomiting and abdominal discomfort.^[12]

3. Conclusion

The evaluation of homoeopathic treatment in the management of dengue fever presents a compelling case for its inclusion as a complementary therapeutic option. The reviewed evidence, including clinical studies, case reports, and anecdotal accounts, suggests that homoeopathy can offer significant benefits in terms of symptomatic relief, enhanced patient comfort, and possible immunomodulatory effects. Homoeopathic remedies, characterized by their minimal adverse effects, provide a safe alternative that patients are more likely to accept and comply with. This safety profile is particularly advantageous in the context of dengue fever, where supportive care is crucial, and conventional treatments are limited. The positive outcomes reported in various studies underscore the potential of homoeopathy to complement traditional medical approaches, improving overall patient outcomes. While the current research landscape includes variability in study designs and quality, the consistent reports of beneficial effects cannot be ignored. The historical and contemporary use of homoeopathy in treating viral infections further supports its application in dengue management. The hypothesized mechanisms, including immunomodulation and anti-inflammatory properties, align well with the needs of dengue patients, who require both symptomatic relief and support for the immune system. To fully harness the potential of homoeopathy in dengue management, there is a need for continued research, particularly well-designed, large-scale clinical trials. These studies should aim to confirm the efficacy and mechanisms of homoeopathic remedies, providing robust scientific validation. In conclusion, homoeopathy stands as a promising adjunctive treatment for dengue fever, offering safe and effective symptomatic relief. By integrating homoeopathic approaches with conventional medical care, healthcare providers can enhance patient outcomes and provide a holistic approach to managing this challenging viral infection. The ongoing commitment to research and collaboration between conventional and homoeopathic practitioners will be key to fully realizing the benefits of homoeopathy in dengue fever management.

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