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Homoeopathy for infantile spasms: An open label, single arm, clinical trial

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Background: Treatment of infantile spasms (ISs) with allopathic medicines along with homeopathy is poorly understood in context with the seizure profile, psychomotor outcome, and electroencephalogram (EEG) changes. **Objectives:** The objective of the study was to evaluate the role of homeopathic treatment in seizure control, psychomotor development, and EEG changes in patients of IS. **Materials and Methods:** An open label, single-arm, clinical trial was conducted. Patients found eligible were enrolled (n = 30) and given individualized homeopathic intervention along with conventional medicine for 3 months. Follow-up assessment was done weekly based on 7 points: Sense of well-being, changes in cognitive behavior, changes in activity level, changes in seizure ictal period, changes in hypsarrhythmia, changes in speech, and gross and fine motor development. **Results:** About 76.66% (n = 23) of patients had improved clinically (sense of well-being, activity level, and seizure ictal period). Cognitive behavior improved in 50% (n = 9), while hypsarrhythmia improved in 16.66% (n = 5) of patients. Speech improved in 13.33% (n = 4), while gross and fine motor skills improved in 21% (n = 4) and 16% (n = 4), respectively. Calcarea carbonica (n = 4, 13.33%), Arsenic album (n = 4, 13.33%), Causticum (n = 4, 13.33%), Lycopodium (n = 3, 10%), and Nux vomica (n = 2, 6.66%) were frequently used medicines. **Conclusion:** Homeopathy plays a positive role in seizures in IS patients. More multicentric, randomized trials are required to make conclusions.

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Homoeopathy for infantile spasms: An open-label, single-arm, clinical trial

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Abstract

Background: Treatment of infantile spasms (ISs) with allopathic medicines along with homoeopathy is poorly understood in context with the seizure profile, psychomotor outcome, and electroencephalogram (EEG) changes. **Objectives:** The objective of the study was to evaluate the role of homoeopathic treatment in seizure control, psychomotor development, and EEG changes in patients of IS. **Materials and Methods:** An open-label, single-arm, clinical trial was conducted. Patients found eligible were enrolled ($n = 30$) and given individualized homoeopathic intervention along with conventional medicine for 3 months. Follow-up assessment was done weekly based on 7 points: Sense of well-being, changes in cognitive behavior, changes in activity level, changes in seizure ictal period, changes in hypsarrhythmia, changes in speech, and gross and fine motor development. **Results:** About 76.66% ($n = 23$) of patients had improved clinically (sense of well-being, activity level, and seizure ictal period). Cognitive behavior improved in 50% ($n = 9$), while hypsarrhythmia improved in 16.66% ($n = 5$) of patients. Speech improved in 13.33% ($n = 4$), while gross and fine motor skills improved in 21% ($n = 4$) and 16% ($n = 4$), respectively. *Calcarea carbonica* ($n = 4$, 13.33%), *Arsenic album* ($n = 4$, 13.33%), *Causticum* ($n = 4$, 13.33%), *Lycopodium* ($n = 3$, 10%), and *Nux vomica* ($n = 2$, 6.66%) were frequently used medicines. **Conclusion:** Homoeopathy plays a positive role in seizures in IS patients. More multicentric, randomized trials are required to make conclusions.

Keywords: Cognitive outcome, Infantile myoclonic encephalopathy, Infantile spasm, Psychomotor development, Seizure improvement, West syndrome

INTRODUCTION

Infantile spasms (ISs) are a rare disorder with an incidence of 2.5–6.0 cases/10,000 live births. IS constitutes 2% of childhood epilepsies but 25% of epilepsy with onset in the 1st year of life.^[1] Its prevalence rate is 1.5–2.0 cases/10,000 children aged 10 years or younger. The morbidity rate reported is 50%. Familial recurrence and male-to-female ratio suggests a sex-linked trait.^[2] It is commonly known as West syndrome (WS).^[3] IS is characterized by the triad of generalized seizure, myoclonic spasm, and hypsarrhythmia on the electroencephalogram (EEG). Commonly seen with trisomy 21.^[4] Different types of seizures are flexor (salaam attack), extension, and mixed type.^[5] Salaam attack^[6] is seen as clusters ranging from <1 min to 10–15 min or longer. Extension seizure is associated with crying/laughing, flushing, and/or other autonomic features. Mixed type (43%) seizures may occur during sleep or immediately on awakening.

Based on etiology, there are two types of IS: Cryptogenic and symptomatic. In cryptogenic or idiopathic (10–15%), there is

complete recovery seen in 68% of cases. In symptomatic (85–90%) type, there is evidence of brain damage, psychomotor retardation, and neurological deficit found in 70–95% of patients. Known etiology includes prenatal causes (75%) such as cerebral dysgenesis, hypoxic-ischemic encephalopathy with periventricular leukomalacia or white matter injury, intrauterine infection with cytomegalovirus, and inborn error of metabolism or postnatal (25%) causes such as cerebral hypoxia, head trauma, and infection with herpes simplex virus.

Approximately 75–90% of IS patients will have moderate-to-severe developmental delays. About 10–50% will develop

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Lennox-Gastaut syndrome^[7] (slow spike-wave EEG pattern, mixed seizure, and developmental delay). Computed tomography scan can detect the brain damage in 90% of infants.^[8] Other investigations include single-photon emission computed tomography,^[9] magnetic resonance imaging (MRI),^[10] ictal EEG, and interictal EEG. Ophthalmic examination may reveal chorioretinitis from congenital infection with Aicardi syndrome.^[11] With Wood lamp, tuberous sclerosis^[12] (skin test), the single most common recognizable cause of WS, can be detected.^[13] Allopathic treatment includes adrenocorticotrophic hormone,^[14] sodium valproate, and lamotrigine, which is only palliative. Focal cortical resection^[15] is the treatment of choice in some cases to get freedom from seizures. Dieticians assist to commence and maintain the ketogenic diet.^[16] Intravenous immunoglobulin (Ig) therapy has been studied with an objective to see the efficacy of dose-dependent Ig in early treatment of cryptogenic WS.^[17] They found complete remission amongst all six patients studied with cryptogenic WS.

MATERIALS AND METHODS

Study design, setting, and duration

An open-label, single-arm, clinical trial was conducted at the District Joint AYUSH Hospital, Sahibganj, Jharkhand state, India. Door-to-door visit was made in the nearby vicinity (August 2003–February 2004). Diagnosed cases of IS with hypsarrhythmia were enrolled and followed up weekly for 3 months.

The study protocol and procedure adhered to the ethical guidelines of the Declaration of Helsinki,^[18] however, ethical approval was not sought due to limited knowledge of the investigator on this subject. This is regretted. Trial registry under Clinical Trials Registry of India was made mandatory in 2009. However, this study was conducted way before this in 2003–2004.

Eligibility criteria

Screening

During the enrolment period of the study, patients reporting at the outpatient department (OPD) of the hospital were screened based on inclusion and exclusion criteria. Diagnosed IS patients fulfilling the inclusion criteria were explained verbally about the study, and written consent from the parents was obtained in the OPD register for voluntarily participating in the study. However, they were free to withdraw from the study at any point of time.

Inclusion criteria

Children of both sexes, of age group 12 months–6 years with radiographic evidence of hypsarrhythmia or its variants on EEG; those with epileptic spasms due to focal brain damage, scattered or generalized shrinkage of brain, and symptomatic, asymptomatic diagnosed cases of IS were included in the study.

Exclusion criteria

Those with severe spasms which needed hospitalization; or with chronic systemic illness such as cardiovascular, endocrinal diseases, or systemic infections (other than Down's syndrome, autism and cerebral palsy); or with active tuberculosis, severe

acute malnutrition, and temporal lobe epilepsy were excluded from the study.

Intervention and follow-up

A structured format was formed for initial case taking. To elicit totality of symptoms, special emphasis was given to find symptoms related to constitution, diathesis and miasm involved, general aggravations and ameliorations, general state of being, location, character and concomitant associated during convulsive phase, prenatal history of mother, and history of suppressions, if any. Attendants were interrogated in local language for better understanding of symptoms.

Intervention was given as per the indicated individualized homeopathic medicine obtained after repertorization from Kent's repertory or Boger Boenninghausen's Characteristics and Repertory (BBCR) depending on the predominance of general or particular symptoms suited to the case, respectively.^[19,20]

Initially, 30 C potency of selected medicine was given in each case which was sequentially raised in series if improvement stopped after giving the medicine. In 30 potency, each dose consisted of four cane sugar globules medicated with two drops of the indicated homeopathic dilution. Patients were given each dose orally on tongue at the time of visit by the investigator. Medicines were obtained from good manufacturing practice certified firms of India.

The duration of therapy was 3 months. The progress was recorded based on symptomatic amelioration supported by EEG examination.

Based on presenting symptom totality of each case, a single indicated medicine was prescribed and dispensed during door-to-door visit by the investigator. Repertorization was done manually (in due course of time) with due consultation from Materia Medica. Follow-up was taken subsequently every week on follow-up sheets based on 7-point criteria.^[21] Follow-up prescriptions were done as per Kent's observations and Hering's law of cure. Intercurrent remedies were given based on totality of symptoms when required in indolent cases or to remove miasmatic influences. Patients were assessed by two homeopaths during the field visit. Medicine was selected on each occasion by both the homeopaths based on their individual observations and attendant's feedback.

General management

All patients were advised to continue their ongoing conventional medicines regularly along with homeopathic treatment and be present for weekly follow-ups. Any emergency condition needed to be immediately addressed to avoid further damage to brain by reporting at the tertiary care centers from where the patients' conventional treatment was going on.

Outcomes

Outcome measures

Keeping in mind both homeopathic and pathological points of view of IS, follow-up assessment was done based on the following 7 points:

- i. Sense of well-being
- ii. Changes in cognitive behavior (social smile, response to direction of sound in 12 months old, and obeying directed voluntary tasks in younger children)
- iii. Changes in activity level
- iv. Changes in seizure ictal period (intensity and frequency of jerks)
- v. Changes in hypsarrhythmia (number and amplitude of spikes on EEG)
- vi. Changes in speech
- vii. Changes in gross and fine motor skills.

Comparisons were made at baseline and after 3 months of treatment as per the investigator's observations and attendant's feedback. Improvement levels up to 60% were classified as "general improvement" and up to 40–50% as "partial improvement." Cases which showed below 40% changes were "status quo" cases.

Sample size

Convenient sampling was done. Thirty diagnosed cases of IS were enrolled in the study.

Statistical analysis

The data were coded, entered, and statistically analyzed. Descriptive statistics were used to describe the social and demographic profiles.

RESULTS

Study flow

Figure 1 gives a flowchart representing the steps taken during the course of the study.

Baseline features

Twenty-five baseline variables were studied in 30 children suffering from IS [Table 1a]. Both male ($n = 22$, 73.33%) and female ($n = 8$, 26.67%) children were included in the study. The mean age of children at the time of presentation was 38 ± 20.36 months. There was a history of emotional stress in patients' mothers ($n = 14$, 46.66%) during pregnancy and hypoxia of children ($n = 30$, 100%) due to several reasons including difficult labor ($n = 14$, 46.66%), fluid aspiration during normal labor ($n = 1$, 3.33%), nuchal cord ($n = 1$, 3.33%), and forceps-induced head injury ($n = 2$, 6.66%). Maximum children ($n = 12$, 40%) were born with normal birth weight and were full term ($n = 24$, 80%). All children were hypoxic

($n = 30$, 100%) and had delayed birth cry ($n = 28$, 93.33%) and majority ($n = 22$, 73.33%) were cyanosed at the time of birth [Table 1b]. It was observed that only few children were firstborn ($n = 8$, 26.67%). Cerebral palsy ($n = 2$, 6.67%) and Down's syndrome ($n = 1$, 3%) were seen associated with IS. Onset of symptoms occurred between 1 and 3 years of age in most of cases ($n = 18$, 60%). Social smile ($n = 18$, 60%) and response to direction of sound ($n = 18$, 60%) were absent in many cases. Spasticity ($n = 21$, 70%) was found in majority of cases. Spasms were seen more in upper extremity ($n = 22$, 73.33%). Gross motor ($n = 19$, 63.33%) and fine motor ($n = 25$, 83.3%) abnormalities were seen in cases though vision ($n = 24$, 80%) and hearing ($n = 26$, 86.67%) were normal. Delayed teething ($n = 8$, 26.6%) and walking ($n = 8$, 26.6%) were seen in few cases. Hypsarrhythmia on EEG was present in all the patients ($n = 30$, 100%), while abnormal MRI ($n = 10$, 33.33%) was found in few cases only.

Improvement after 3 months

General improvement (up to 60%) was achieved in 15 patients and partial improvement (40%–60%) in 8, while 7 patients (below 40%) did not show any changes.

Homoeopathic medicines used

Out of 12 patients in which prescription was based on BBCR repertory, *Causticum* (*caust*) was given in 3 (25%) patients; *Lycopodium* and *Nux vomica* in 2 (16.66%) patients and *sep*, *am-c*, *lach*, *ign*, and *bell* in 1 (8.33%) patient. General improvement was seen in 6 patients (50%), partial improvement in 3 (25%) patients, while 3 (25%) patients remained status quo.

Similarly, out of 18 cases in which prescription was based on Kent's repertory, *Calcarea carbonica* and *Arsenic album* were given in 4 (22.22%) patients and *nat-m*, *chin*, *acon*, *bell*, *ign*, *lach*, *sep*, *plb*, *lyc*, and *caust* were given in 1 (5.55%) patient each. General improvement was seen in 9 (50%) patients, 5 (27.22%) partial improvement, while 4 (22.22%) patients remained status quo.

Based on the fact that IS is a psoric-syphilitic^[23] miasmatic disease complex,^[24] *Sulphur*, *Syphilinum*, and *Tuberculinum* were used as intercurrent remedies in indolent cases, cases showing inadequate short-lasting response in acute exacerbations and cases who had strong miasmatic influences. Indicated rubrics to prescribe the intercurrent remedies are given in Table 2. When repertorizing the cases, many other rubrics with broader spectrum of indicated medicines were found matching the symptom syndrome of IS patients. All these works (based on the American 6th edition of Kent's repertory)^[19] were compiled together to be used as reference work for future studies as "clinical repertory of spasms" [Supplementary Table 1].

Adverse events

Patients were instructed to report any harms, unintended effects, serious adverse events, and undue aggravations either directly in OPDs of tertiary care centers or over phone, but not a single case were reported.

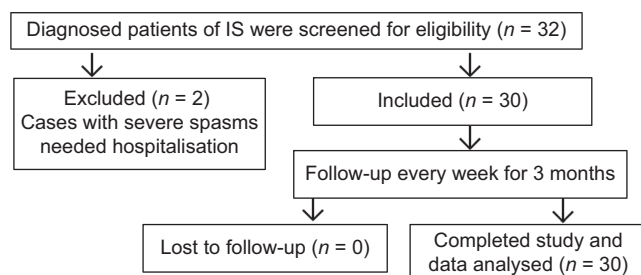


Figure 1: Flow chart diagram

Table 1a: Sociodemographic data of the study population (n=30)

Characteristics	Number of cases, n (%)
Age (months), mean±SD (at presentation)	38±20.68
Gender	
Male	22 (73.33)
Female	8 (26.67)
Religion	
Hindu	21 (70.00)
Muslim	7 (23.33)
Christian	2 (6.67)
Mother's health history during pregnancy	
If suffered from any acute infection	12 (0.00)
Any medications taken during pregnancy	2 (6.67)
History of physical strain and/or emotional trauma	14 (46.66)
Developmental delay	
Teething onset delayed	6 (20.0)
Walking onset delayed	26 (86.66)
Spastic	
Present	21 (70.00)
Absent	9 (30.00)
Abnormal MRI brain	10 (33.33)
Birth weight	
Underweight	8 (26.67)
Normal weight	12 (40.00)
Overweight	10 (33.33)
Birth cry	
Normal	2 (6.67)
Delayed	28 (93.33)
Cyanosis	
Normal	8 (26.67)
Blueness present	22 (73.33)
Hypoxia	30 (100)
Time of delivery	
Full term	24 (80.00)
Pre-mature	4 (13.33)
Post-mature	2 (6.67)
Firstborn	8 (26.67)
Age at presentation (years)	
1-3	18 (60.00)
4-6	11 (36.67)
7-10	1 (3.33)
Extremity involved	
Upper limbs predominantly	22 (73.33)
Lower limbs predominantly	8 (26.6)
Hypsarrhythmia (EEG)	30 (100)
Vision	
Normal	24 (80)
Abnormal	6 (20)
Hearing	
Normal	26 (86.67)
Abnormal	4 (13.33)
Gross motor development	
Normal	11 (36.66)
Abnormal	19 (63.33)
Fine motor development	
Normal	5 (16.6)
Abnormal	25 (83.3)

(Contd...)

Table 1a: (Continued)

Characteristics	Number of cases, n (%)
Eating habit	
Vegetarian	18 (60)
Non-vegetarian	12 (40)
Associated complaints	
Cerebral palsy	2 (6.67)
Down's syndrome	1 (3.00)
Socioeconomic class	
Upper (I)	1 (3.33)
Upper middle (II)	0
Lower middle (III)	4 (13.33)
Upper lower (IV)	13 (43.33)
Lower (V)	12 (40.00)
Vaccination history	
Complete	24 (80)
Incomplete	6 (20)
Social smile	
Present	12 (40)
Absent	18 (60)
Direction of sound in 12 months old/obeying directed voluntary tasks in younger children	
Responding	12 (40)
Non-responding	18 (60)

Data presented as mean±SD, categorical data presented as absolute values (%), SD, socioeconomic class is classified as per Kuppuswamy's scale 2003-2004^[22] (lower; score<5, lower/upper lower; score 5-10, middle/lower middle; score 11-15, upper middle; score 16-25, upper; score 26-29). SD: Standard deviation, EEG: Electroencephalogram, MRI: Magnetic resonance imaging

Table 1b: Aetiology in the patients of infantile spasms

	n (%)
Prenatal cause	
Any deformity shown at the time of third Trimester in ultrasound	6 (20)
Viral infection to the mother	2 (6.66)
Drug taken by mother	14 (46.66)
Physical strain and emotional trauma (premature)	4 (13.33)
Maturity (postmature)	2 (6.66)
Perinatal cause	
Birth cry delayed	28 (93.33)
Hypoxia	30 (100)
Blueness (cyanosis)	22 (73.33)
Difficult labour	14 (46.66)
Under/over birth weight (kg)	None
Respiratory infection (pneumonia-like symptoms)	4 (13.33)
Injury due to forceps delivery	2 (6.66)
Fluid aspiration during normal labour	1 (3.33)
Nuchal cord	1 (3.33)
Postnatal cause	
Viral infection to child	6 (20)

Symptom profile

Cases presenting predominantly with mental and physical generals were repertorized using Kent's repertory ($n = 18$), and more of particular symptoms were repertorized using BBCR ($n = 12$). The list of prescribed medicines along with indications is given in Table 3.

When comparing improvement levels between both repertories, it was found that general improvement was seen in 50% of the cases using either of the two repertories. However, partial improvement using Kent's repertory (27.77%) was found slightly more than BBCR (25%). Status quo cases seen with Kent (22.22%) though were lesser than BBCR (25%). Inference could be drawn that both repertories were found more or less equally efficient in selecting the homoeopathic similimum for treating IS cases [Figure 2].

DISCUSSION

In the present study, it was observed that the onset of symptoms of IS was within the 1st year of life and predominantly in male children of upper-lower- and lower-income group. Causative factors found during case taking could broadly be classified as prenatal, perinatal, and postnatal [Table 1b]. Perinatal factors were found as the leading cause for hypoxic injury of brain. The clinical profile (i.e., sense of well-being, activity level) of 76.66% ($n = 23$) of patients improved over 3 months as compared to baseline. Out of 14 different homoeopathic medicines used in the study, *C. carbonica* ($n = 4$, 13.33%), *A. album* ($n = 4$, 13.33%), *caust* ($n = 4$, 13.33%), *lyc* ($n = 3$, 10%), and *N. vomica* ($n = 2$, 6.66%) were among the most frequently indicated group. Improvement in the cognitive behavior (50%, $n = 9$), speech (13.33%, $n = 4$), gross (21%, $n = 4$), fine (16%, $n = 4$) motor skill development, and hypersarrhythmia (16.66%, $n = 5$) was observed in patients of IS. Two factors which could predict bad seizure outcome

AQ2

Table 2: Intercurrent remedies

Indicated intercurrent remedy	Indications from Kent's repertory	Indications from BCCR ²⁰ repertory	Number of cases, n (%)
<i>Sulphilinum</i>	-	Mind: Indifference, apathy; page: 207 Eyes: Eyelids, agglutinated, infants in; page: 336 Abdomen: Cramps, etc., touch; page: 564 Stool: Diarrhoea, anus and rectum, biting in; page: 596 Upper extremities: Jerks and twitches; page: 821 Upper extremities: Jerks and twitches, fingers; page: 821 Upper extremities: Powerlessness; page: 824 Sensation and complaints in general: Constitution, psoric, scrofulo-lymphatic, etc.; page: 888 Skin and exterior body: Itching, in general, warmth of bed page: 980 Sleep: Positions during sleep, lying on back; page: 991	21 (70)
<i>Sulphur</i>	Eyes: Agglutinated, night; page: 235 Ears: Discharges, purulent; page: 287 Teeth: Discoloured, black; page: 431 Nose: Ulcers inside; page: 353 Extremities: Pain, night; page: 1044 Extremities: Pain, rheumatic; page: 1045 Generalities: Night, 6 pm to 6 am; page: 1343 Generalities: Abscesses, burning; page: 1343	-	5 (16.66)
<i>Tuberculinum</i>	Mind: Travel, desire to; page: 89 Head: Hair falling; page: 120 Head: Hair lustreless; page: 120 Nose: Catarrh; page: 324 Abdomen: Swelling, glands of; page: 603 Rectum: Diarrhoea, morning, bed, driving out of; page: 609 Generalities: Cold, tendency to take; page: 1349 Generalities: Cold, place, entering a, agg; page: 1349 Generalities: Emaciation; page: 1358 Generalities: Exertion, physical agg; page: 1358 Generalities: Weakness, perspiration from; page: 1418	-	4 (13.33)

BCCR: Boger Boenninghausen's Characteristics and Repertory

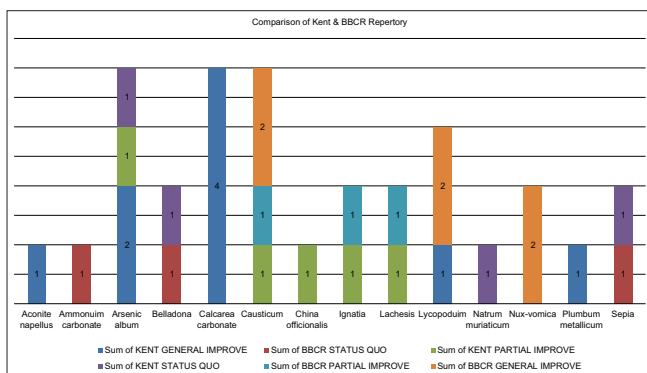


Figure 2: Bar chart: Comparison of homoeopathic medicines taken from BCCR and Kent repertory. BCCR: Boger Boenninghausen's Characteristics and Repertory

were hypoxia at time of birth and delayed birth cry. The earlier homoeopathic treatment was given along with already going on conventional treatment; better improvement was seen in patients of IS. No substantial medicinal adverse effects were noted.

However, being single-arm, open-label clinical trial, this study design is a methodological limitation of the study. Other limitations were that IS is a rare disorder and taking mental symptoms in retarded patients were challenging. The strengths of the study were the specific (constitution, diathesis, and miasm) pointers for homoeopathic case taking in challenging disease like IS. The investigator's vast personalized experience with IS helped to clearly distinguish individualized symptoms from disease symptoms. Detailed demographic data obtained

Table 3: Rubrics with remedy given and the repertory used

Medicine	Rubrics from Kent's repertory	Rubrics from BCCR repertory
<i>Acon</i>	Mind: Anxiety fear, with; page: 6 Mind: Restlessness anxious, etc.; page: 73 Stomach: Vomiting, convulsions, after; page: 532 Generalities: Convulsions, children; page: 1352 Generalities: Convulsions, fright, from; page: 1354 Generalities: Convulsions, tonic; page: 1355 Generalities: Twitching; page: 1409	-
<i>Calcarea</i>	Mind: Confusion of mind; page: 13 Mind: Darkness, agg; page: 17 Head: Motions of head, convulsive; page: 131 Stomach: Vomiting, coughing on; page: 532 Extremities: Ataxia; page: 953	-
<i>Chin</i>	Mind: Dullness, periodical; page: 38 Stomach: Constriction; page: 483 Stomach: Pain, cramping, loss of animal fluids, after; page: 518 Generalities: Faintness, loss of fluids from; page: 1360 Generalities: Pain, bones; page: 1377	-
<i>Ign</i>	Mind: Emotional, ailments from; page: 40 Mind: Morose; page: 68 Face: Convulsions, spasms, beginning in face; page: 357 Generalities: Convulsions, consciousness, without; page: 1352 Generalities: Convulsions, sleep, during; page: 1355 Generalities: Convulsions, vexation, from; page: 1356	Mind: Absence of, lost in thought, absent minded, etc.; page: 191 Cough: Throat, constriction of; page: 716 Sensation and complaints in general: Convulsive movements, spasms, etc.; page: 890 Sensation and complaints in general: Twitching, jerks, etc., convulsive; page: 933
<i>Bell</i>	Mind: Irritability, morning, waking, on; page: 58 Eyes: Movement, eyeballs, constant; page: 246 Face: Convulsions, spasms; page: 357 Throat: Choking, convulsive; page: 449 Extremities: Convulsion, upper limbs, fingers; page: 969 Generalities: Convulsions mental exertion, after; page: 1354 Generalities: Convulsive movements; page: 1356 Generalities: Convulsions, waking, on; page: 1356 Generalities: Sun, from exposure to; page: 1404	Mind: Irritable; moaning; page: 222 Eye: Movements, convulsive of; page: 314 Face: Convulsions of; page: 393 Mouth: Throat, spasm or cramp; page: 455 Urine: Incontinence of; page: 620
<i>Sep</i>	Mind: Weeping, involuntary; page: 93 Head: Jerking of the head, back and forth; page: 129 Stomach: Nausea food, smell of; page: 507 Urine: Bladder, urine involuntary, night; page: 659 Generalities: Convulsions, weakness, during nervous page: 135	Mind: Sadness, melancholy, etc.; page: 215 Stomach: Nausea and vomiting, food, sight of; page: 508 Sensation and complaints in general: Marasmus; page: 908 Sensation and complaints in general: Weakness, exhaustion, prostration, infirmity; page: 935
<i>Lach</i>	Mind: Restlessness, chill, at beginning of; page: 73 Eye: Inflammation conjunctiva, pustular; page: 243 Chest: Cramp, heart; page: 828 Generalities: Convulsions, chill, during; page: 1352 Generalities: Convulsive movements; page: 1356 Generalities: Cyanosis, infants, in; page: 1356	Mind: Indifference, apathy; page: 207 Mind: Irritability, cross; page: 209 Head: Internal, vertex, heat of, with cold limbs, feet, etc.; page: 264 Eye: Look, unsteady, restless; page: 314 Circulation: Pulse full; page: 1014 Aggravation and amelioration in general: Sleep, after; page: 1141
<i>Nat-mur</i>	Mind: Restlessness, nervousness, midnight at; page: 73 Mind: Weeping, causeless; page: 93 Mouth: Mapped tongue; page: 407 Extremities: Ataxia; page: 953 Generalities: Convulsions, periodic, every 7 day; page: 1355 Generalities: Emaciation, children; page: 1358	-
<i>Arsenic</i>	Mind: Restlessness, children in, relieved by being carried about; page: 73 Stomach: Nausea food, smell of; page: 507 Generalities: Convulsion, chill, during; page: 1352 Generalities: Convulsion, periodic; page: 1355	-

(Contd...)

Table 3: (Continued)

Medicine	Rubrics from Kent's repertory	Rubrics from BBCR repertory
<i>Caust</i>	Mind: Dullness, epilepsy before; page: 38 Mouth: Pressing teeth together sending shock through head eyes ears and nose; page: 446 Stomach: Nausea, headache, during; page: 508 Cough: Spasmodic; page: 804	Mind: Absence of, lost in thought absent minded; page: 191 Lips, spasm; page: 408 Teeth: Grinding, gnashing, grating, etc.; page: 422 Cough: Short, urination, involuntary; page: 726 Voice and speech: Lost failing, etc.; affected in gen; page: 740
<i>Plb</i>	Mind: Delirium; page: 18 Abdomen: Pain paroxysmal; page: 559 Extremities: Ataxia; page: 953 Extremities: Emaciation; page: 985 Extremities: Motion, convulsive; page: 1033 Generalities: Convulsions, eating while; page: 1353 Generalities: Sluggishness of the body; page: 1402	-
<i>Lycopodium</i>	Mind: Unconsciousness, conduct, automatic; page: 90 Head: Motions of head, rolling head; page: 131 Eyes: Staring; page: 265 Bladder: Urination, interrupted; page: 658 Extremities: Convulsions, upper limb; page: 968 Generalities: Convulsions, tonic; page: 1355	Mind: Concentration, cannot think; page: 199 Sensation and complaints in general: Motion, absent, immobility, etc.; page: 908 Sensation and complaints in general: Spasms convulsions, etc., clonic, jerks, etc.; page: 921 Aggravation and amelioration in general: Alone, when aggravated; page: 1106 Mind: Concentration difficult; page: 196 Stool: Diarrhoea, cold taking, after; page: 604 Urine: Odour, purulent; page: 622 Sensation and complaints in general: Constitution, cold air taking and its effects; page: 887 Sensation and complaints in general: Constitution, neuropathic; page: 888
<i>Nux vomica</i>	-	Mind: Memory, poor, weak, forgetful, etc.; page: 211 Sensation and complaints in general: Clutching, clawing, grasping, gripping, etc.; page: 887 Sensation and complaints in general: Cold air taking and its effects; page: 887 Aggravation and amelioration in general: Cold in general, agg; page: 1110
<i>Am-c</i>	-	

BBCR: Boger Boenninghausen's Characteristics and Repertory

during case taking helped to clearly understand the causal relationships and presentation of IS cases. No homoeopathic studies on IS could be identified in the past, and therefore, the present study would be a significant contribution to the homoeopathic literature on IS. Only two case reports published so far revealed complete cure with *Medorrhinum* and *Aurum metallicum*, respectively.^[25,26] In another paper, the author reports cases of animals elucidating successful treatment of seizures of idiopathic origin with homoeopathic medicines.^[27] Adequately powered, randomized, multicentric controlled trials of longer duration are warranted to arrive at a definite conclusion regarding the efficacy of homoeopathic medicines in IS.

CONCLUSION

Homoeopathic medicine holds a ray of hope for IS, since not only intensity and frequency of seizures were controlled

but also improvement in cognitive and social behavior was observed. However, randomized double-blind placebo-controlled trials with a larger sample size, with longer follow-ups using standardized outcome measures, are further required to explore the efficacy of homoeopathy in bringing either palliation or complete cure in cases of IS with or without radiographic changes.

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Conflicts of interest

None declared.

Disclaimer

IJRH, in general, discourages reporting dated work, this publication being an exception. Role of Homoeopathy in infantile spasm is under-researched. This work is, therefore,

published in the hope that further research can be taken up in this significant field.

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