

INFORMATION BOOKLET ON ACUTE ENCEPHALITIS SYNDROME INCLUDING JAPANESE ENCEPHALITIS FOR HOMOEOPATHIC PRACTITIONERS



CENTRAL COUNCIL FOR RESEARCH IN HOMOEOPATHY
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PREFACE

Acute Encephalitis Syndrome (AES) including JE continues to be a National health and socio economic burden due to its high epidemic episodes, mortality and neuropsychiatric sequelae among survivors. Further, its eco-epidemiological complexity, poor sanitation, lack of health education; delayed accessibility to existing health interventions poses a challenge in prevention and control of the disease. Therefore, coordinated and sustained efforts of various stakeholders are required.

The acclaimed multidimensional utility of Homoeopathy in both preventive and curative areas can complement the existing health care for the benefit of the public.

These guidelines have been prepared for homoeopathic practitioners in the lines of the operational guidelines for diagnosis and management for AES/JE developed by WHO and National Vector Borne Disease Control Programme (NVBDCP). It also incorporates homoeopathic excerpts on AES/JE extracted from standard literatures, research publications, experiences of the senior homoeopathic practitioners and research done by the Council.

The homoeopathic clinicians are expected to be aware of the benefits and risks of the treatment. These guidelines shall enable them to plan an appropriate treatment for each individual patient suffering from AES/JE.

We invite the physicians to share their experiences of treating above condition, which would be useful for devising a better homoeopathic treatment plan for AES/JE.

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CONTENTS

INTRODUCTION.....	2
SALIENT POINTS	3
WHY THE TERM AES.....	3
ETIOLOGY OF AES.....	4
CLINICAL CASE DEFINITION/CASE PRESENTATION.....	5
CASE CLASSIFICATION	5
Laboratory criteria for confirmation	6
MANAGEMENT OF AES INCLUDING JE	7
ROLE OF HOMOEOPATHY/ HOMOEOPATHIC APPROACH IN CASES OF AES INCLUDING JE	11
Commonly indicated remedies for the treatment of AES including JE.....	11
HOMOEOPATHIC MEDICINES WITH THEIR SUGGESTIVE INDICATIONS””	12
RESEARCH STUDIES ON AES INCLUDING JE IN HOMOEOPATHY	19
BIBLIOGRAPHY AND FURTHER READING.....	20

INTRODUCTION

Acute Encephalitis Syndrome (AES) is a group of clinical neurologic manifestations caused by wide range of viruses, bacteria, fungi, parasites, spirochetes, chemicals and toxins. The outbreak of Japanese encephalitis (JE) usually coincides with the monsoon and post monsoon period when the density of mosquito's increases while encephalitis due to other viruses especially enteroviruses occurs throughout the year as it is a water borne disease. The case fatality and morbidity amongst various viral encephalitis especially JE or enterovirus encephalitis is very high in various parts of India. Clinical profiling studies of AES show least positive results for JE serology. It is difficult to trace the cause of AES and the etiology of AES still remains unknown in 68-75% cases. In the most robust, prospective studies conducted in Western industrialized countries, a minimum incidence of 10.5 per 100,000 AES cases was reported for children and 2.2 per 100,000 for adults. The minimum incidence for all ages was 6.34 per 100,000 from a tropical setting.¹

In India, the data/documentation of Directorate of National Vector Borne Disease Control Programme reflects 38,979 cases of AES /4,695 cases of JE and 5,908 deaths due to AES/810 deaths due to JE in 20 States/Union territories of India between 2008-April 2014. Highest number of cases and deaths have been reported from UP, Assam, Bihar, West Bengal and Tamil Nadu.²

¹Jmor F, Emsley H, Fischer M, Solomon T, Lewthwaite P. The incidence of acute encephalitis syndrome in Western industrialised and tropical countries. *Virology Journal* 2008, 5:134 Available from <http://www.virologyj.com/content/5/1/134>

²National Vector Borne Disease Control Programme. AES/JE Cases and Deaths in the Country. Directorate General of Health Services. Ministry of Health and Family Welfare, Government of India. 2012. Available from <http://www.nvbdc.gov.in/Doc/je-aes-cd-tillMay 2014.pdf>

SALIENT POINTS

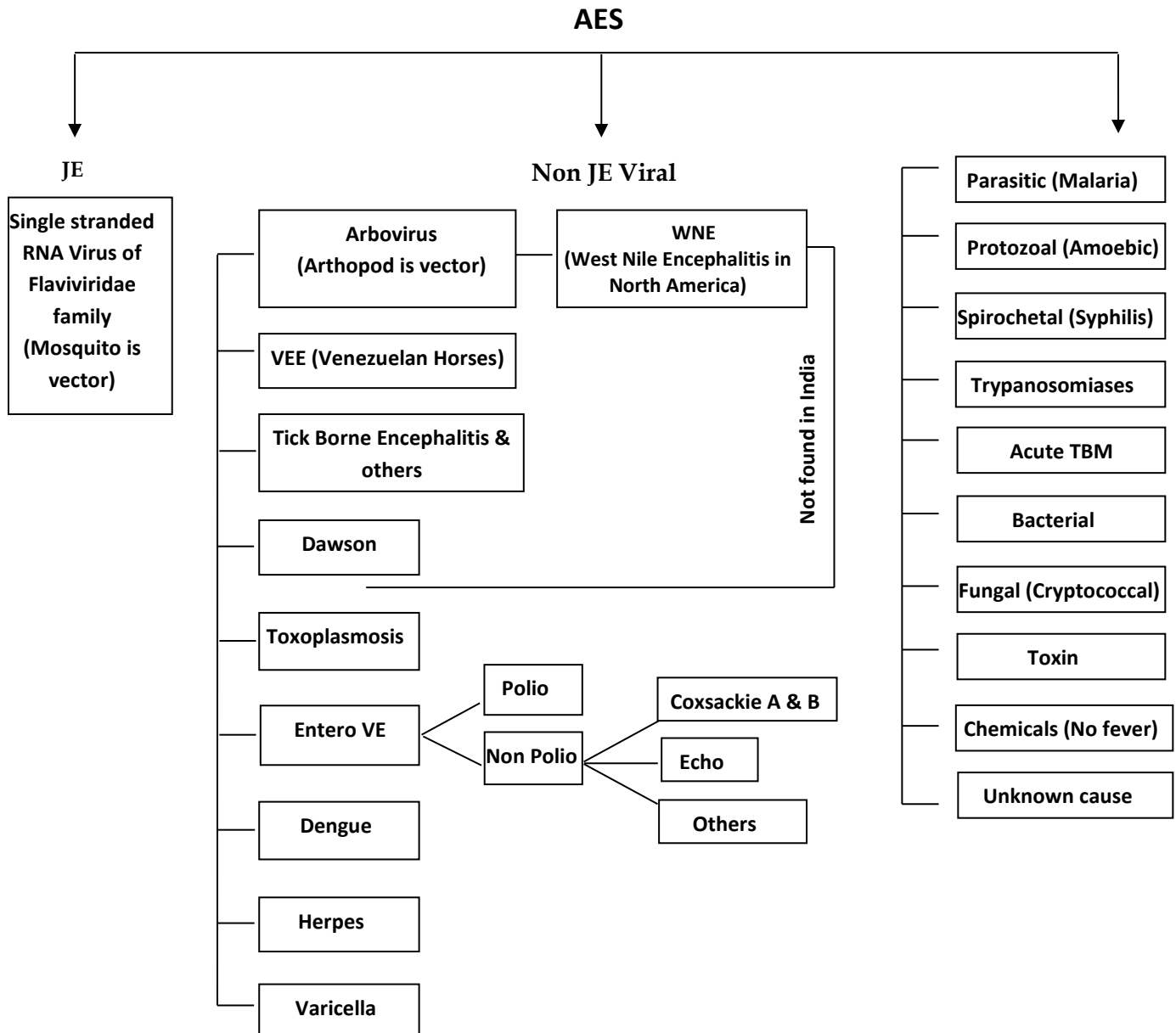
- Acute Encephalitis Syndrome (AES) is a group of clinical neurologic manifestations.
- The most vulnerable age group is between 1-5 years followed by 5-10 years and 10-15 years in the order.
- Least JE infections occur in infants (0-1 year).
- All the endemic States in India except Assam start reporting JE cases from July onwards attaining a peak in September- October.
- In Assam the cases start appearing from February and attain a peak in the month of July.
- Due to circulation of entero-viruses particularly in eastern Uttar Pradesh AES cases are reported round the year.
- AES due to JE has high fatality rate.
- Homoeopathic treatment along with Institutional management protocol can reduce mortality and morbidity in AES cases.

WHY THE TERM AES

A high case fatality rate (20%–30%) and frequent residual neuropsychiatric damage in survivors (50%–70%) makes JE a major health problem.³Infection with JE virus may be asymptomatic, or may cause febrile illness, meningitis, myelitis or encephalitis. Encephalitis is the most commonly recognized presentation, and is clinically indistinguishable from other causes of an acute encephalitis syndrome (AES). World Health Organizations guidelines for JE surveillance recommends syndromic surveillance and thus aims to identify all patients with AES, amongst which JEV infection is confirmed using standardized laboratory techniques.

³WHO–recommended standards for surveillance of selected vaccine-preventable diseases. Vaccines and Biologicals; World Health Organization 2003. Available from http://whqlibdoc.who.int/hq/2003/who_v&b_03.01.pdf

ETIOLOGY OF AES⁴



⁴National Vector Borne Disease Control Programme. Revised Treatment Guidelines for AES including JE [Internet] Delhi: Publication of Govt. of India. August 2009. Available from www.nvbdc.gov.in/Doc/Revised%20guidelines%20on%20AES_JE.pdf

CLINICAL CASE DEFINITION/CASE PRESENTATION

According to WHO⁵, clinically, a case of acute encephalitis syndrome is defined as

- a person of any age, at any time of year with the acute onset of fever (*not more than 5-7 days as per NVBDCP*)⁶ and
- a change in mental status (including symptoms such as confusion, disorientation, coma, or inability to talk) AND/OR new onset of seizures (excluding simple febrile seizures)⁶.

Other early clinical findings may include an increase in irritability, somnolence or abnormal behavior greater than that seen with usual febrile illness.

CASE CLASSIFICATION⁷

- **Suspected case:** A case that meets the clinical case definition for AES. Suspected cases should be classified in one of the following four ways (see Figure 1).
- **Laboratory-confirmed JE:** A suspected case that has been laboratory-confirmed as JE.
- **Probable JE:** A suspected case that occurs in close geographic and temporal relationship to a laboratory-confirmed case of JE, in the context of an outbreak.
- **“Acute encephalitis syndrome” – other agent:** A suspected case in which diagnostic testing is performed and an etiological agent other than JE virus is identified.
- **“Acute encephalitis syndrome” – unknown:** A suspected case in which no diagnostic testing is performed or in which testing was performed but no etiological agent was identified or in which the test results were indeterminate.

⁵WHO–recommended standards for surveillance of selected vaccine-preventable diseases. Vaccines and Biologicals; World Health Organization 2003. Available from http://whqlibdoc.who.int/hq/2003/who_v&b_03.01.pdf

⁶ A simple febrile seizure is defined as a seizure that occurs in a child aged 6 months to less than 6 years old, whose only finding is fever and a single generalized convulsion lasting less than 15 minutes, and who recovers consciousness within 60 minutes of the seizure.

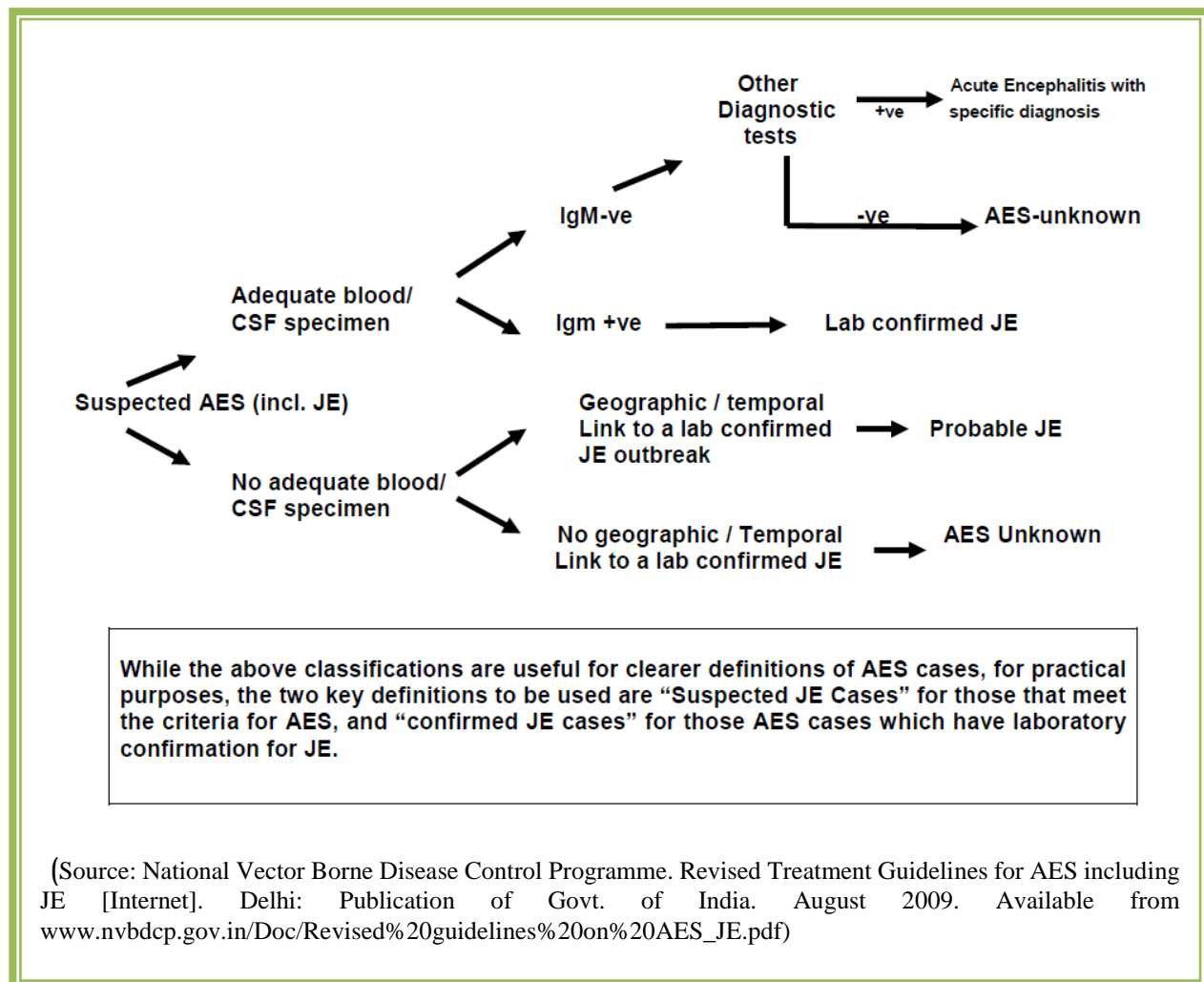
⁷National Vector Borne Disease Control Programme. Revised Treatment Guidelines for AES including JE [Internet]. Delhi: Publication of Govt. of India. August 2009. Available from: www.nvbdc.gov.in/Doc/Revised%20guidelines%20on%20AES_JE.pdf

Laboratory criteria for confirmation

A suspected case with any one of the following markers:

- Presence of IgM antibody in serum and/ or CSF to a specific virus including JE/Enterovirus or others
- Four fold difference in IgG antibody titre in paired sera
- Virus isolation from brain tissue
- Antigen detection by immunofluorescence
- Nucleic acid detection by PCR.

Figure 1: Classification scheme for AES cases



MANAGEMENT OF AES INCLUDING JE

AES is a medical and neurological emergency, requiring immediate consideration of key issues including immediate life support, identification of cause, and when available, and institution of specific therapy.

As in any emergency, initial steps should be directed towards ensuring adequacy of airway, breathing and circulatory function. The level of consciousness of the child must be recorded by Paediatric Glasgow coma scale as given at Table 1 below. Children with Glasgow Coma Score⁸ less than 8 should preferably be intubated; mechanical ventilation should be provided in case the breathing efforts are not adequate.⁹

Table 1: Assessment of child with AES using Glasgow Coma scale

		>5y ^a	<5y
Eye opening			
4		Spontaneous	
3		To voice	
2		To pain	
1		None	
Verbal/non verbal			
5	Orientated	Alert, babbles, coos, words or sentences-normal for age	
4	Confused	Less than usual ability, irritable cry	
3	Inappropriate words	Cries to pain	
2	Incomprehensible sounds	Moans to pain	
1		No response to pain	
Motor			
6	Obeys commands	Normal spontaneous movements	
5	Localizes to supraorbital pain (>9mo)	Withdraws to touch	
4		Withdraws from nailbed pain	
3		Flexion to supraorbital pain	
2		Extension to supraorbital pain	
1		No response to supraorbital pain	
^a For children >5y the responses are similar to the adult Glasgow coma scale. Pain should be made by pressing hard on the supraorbital notch (beneath medial end of eyebrow) with your thumb, except for Motor score 4, which is tested by pressing hard on the flat finger nail surface with the barrel of a pencil. Toe-nail pressure is likely to elicit spinal withdrawal, especially after 1 or more days coma. If there is doubt about the response to the supraorbital stimulus, then a very localized stimulus can be applied to the sternum. Score the best response if unclear or asymmetrical. If in doubt repeat after 5 minutes and ask for a second opinion. Score as usual in the presence of possibly sedating drugs. Plot scores over time on a suitable chart.			

⁸ Kirkham FJ, Newton CRJC. Pediatric coma scales review. *Developmental Medicine & Child Neurology* 2008; 50(4): 267-74

⁹ Sharma S, Mishra D, Aneja S, Kumar R, Jain A, Vashishtha VM. Consensus guidelines on evaluation and management of suspected acute viral encephalitis in children in India. *Indian Pediatrics*. 2012 Nov; 49(11):897-910

In any acute encephalitis outbreak, physicians should be aware of the common causes of encephalitis in their area, what information and samples they should collect, and the contact details of the District Surveillance Unit. Pending specific diagnosis and therapy (which may or may not be possible), prompt empirical therapy and meticulous supportive care are important to prevent ongoing brain damage, and improve outcome. At Community health care level (CHC) the physician should always be careful in treating these cases and take note of danger signs. The physicians of different streams should work in coordination to manage the cases. The evaluation and management of a child with AES with conventional intervention and the treatment plan at CHC is reflected at figure 2 and figure 3 respectively.

As there is no specific anti-viral medicine/disease specific treatment available against JE virus and so the purpose of arresting or minimizing the damage, preventing complications and death is achieved by symptomatic treatment alone.

Besides lack of a cost effective specific treatment, some other problems encountered in the management of AES are: paucity of data about regional epidemiology and etiology of viral encephalitis, lack of easily available/low cost microbiological testing, lack of facilities for intensive care; lack of facilities for neuro imaging; inappropriate response during epidemics- what samples to take, how to store etc.; patient delay in seeking health care and compliance.¹⁰

A high endemic disease burden, frequent epidemic explosions, lack of specific treatment and the ever increasing disability/ mortality rate have led to the idea of mass vaccination strategy in endemic regions of India for JE with a live attenuated vaccine, but the feasibility of the vaccine in India seems questionable till date.

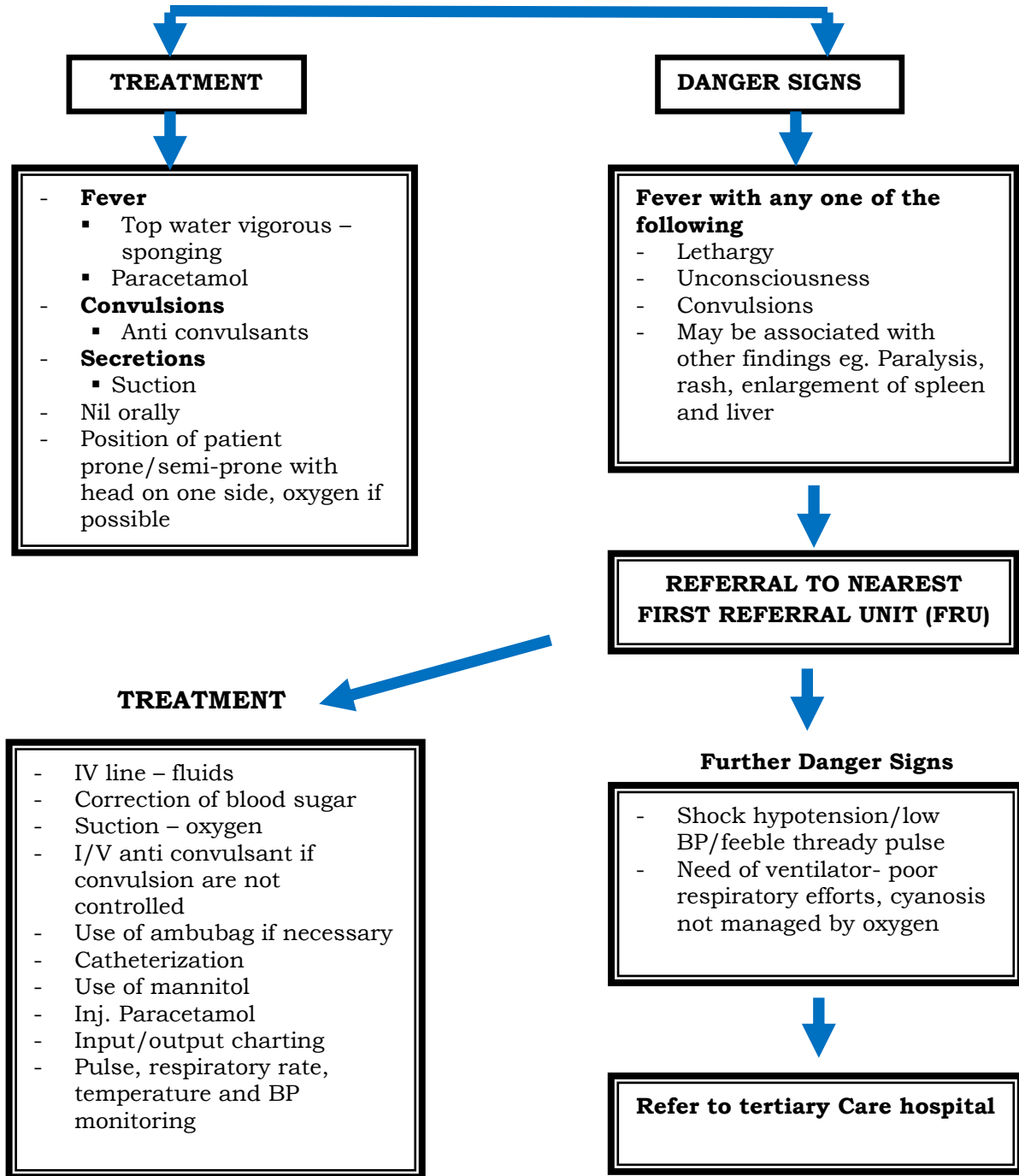
¹⁰Sharma S, Mishra D, Aneja S, Kumar R, Jain A, Vashishtha VM. Consensus guidelines on evaluation and management of suspected acute viral encephalitis in children in India. Indian Pediatrics. 2012 Nov; 49(11):897-910

Figure 2: Evaluation and management of a child with AES¹¹

<p>Step I: Rapid assessment and stabilization</p> <ul style="list-style-type: none"> • Establish and maintain airway: Intubate if GCS<8, impaired airway reflexes, abnormal respiratory pattern, signs of raised ICP, oxygen saturation <92% despite high flow oxygen, and fluid refractory shock • Ventilation, Oxygenation • Circulation: Establish IV access, take samples (CBC, Blood sugar, KFT, LFT, electrolytes, blood gas, lactate, PS and RDT for malarial parasite, serology for viruses), Fluid bolus if in circulatory failure (20 mL/kg NS), inotropes if required • Identify signs of cerebral herniation or raised ICP • Temperature: treat fever and hypothermia • Treat ongoing seizures- Benzodiazepine, followed by phenytoin loading
<p>Step II: Clinical evaluation: History and Examination</p>
<p>Step III: Investigation/Samples to be collected</p> <ul style="list-style-type: none"> • CSF • Blood/serum, Urine • MRI (CT, if MRI not available/possible), avoid sedation • Throat swab, nasopharyngeal swab
<p>Step IV: Empirical Treatment (must be started if CSF cannot be done/report will take time and patient sick)</p> <ul style="list-style-type: none"> • Ceftriaxone • Acyclovir (use in all suspected sporadic viral encephalitis) • Artesunate (stop if peripheral smear and RDT are negative)
<p>Step V: Supportive care and treatment</p> <ul style="list-style-type: none"> • Maintain euglycemia, Control fever, Maintain hydration • Treat raised intracranial pressure, mild head-end elevation-15-30° • Treat seizures; Give anticonvulsant if history of seizures or if GCS <8, or child has features of raised ICT • Steroids: Pulse steroids (methylprednisolone or dexamethasone) must be given in children with suspected ADEM.
<p>Step VI: Prevention/treatment of complications and rehabilitation</p> <ul style="list-style-type: none"> • Physiotherapy, posture change, Prevent bed sores and exposure keratitis • Complications: aspiration pneumonia, nosocomial infections, coagulation disturbances • Nutrition: early feeding • Psychological support to patient and family

¹¹Sharma S, Mishra D, Aneja S, Kumar R, Jain A, Vashishtha VM. Consensus guidelines on evaluation and management of suspected acute viral encephalitis in children in India. Indian Pediatrics. 2012 Nov; 49(11):897-910

Figure 3: Treatment Plan of AES at Community Level (CHC)¹²



¹²National Vector Borne Disease Control Programme. Revised Treatment Guidelines for AES including JE [Internet]. Delhi: Publication of Govt. of India. August 2009. Available from www.nvbdc.gov.in/Doc/Revised%20guidelines%20on%20AES_JE.pdf

ROLE OF HOMOEOPATHY/ HOMOEOPATHIC APPROACH IN CASES OF AES INCLUDING JE

A well informed homoeopathic practitioner can aid in prevention of the disease or evade complications through:

- Health awareness and health education of the masses
- Early diagnosis and treatment of the suspected cases
- Reducing morbidity and mortality by providing indicated treatment and halting the progression of disease-neurological sequelae
- Identification of warning signals and referral for intensive care/management
- Homeoprophylaxis by finding the genus epidemicus after developing a collective symptomatic picture of the prevailing disease aiding prevention in endemic areas of the disease.

Homoeopathy with its individualized symptomatic holistic approach towards the diseased person can especially cater to such disease conditions which show a syndromic presentation with variable symptoms/group of symptoms. The vast homoeopathic literature has numerous medicines which have the potential to relieve symptoms of nervous system and have proven their efficacy in even rapidly progressing/ acute disease conditions when prescribed timely on the basis of symptom similarity along with required management.

Treatment of patients of AES including JE is a challenging task and requires expertise of the attending physician in observing primarily the 'objective symptoms' of the patient as the guide to the choice of the indicated remedy due to the factors like age, disease presentation (altered mental sensorium/ unconsciousness). Given below is the group of homoeopathic medicines mentioned in Homoeopathic repertories and used in research study undertaken by the council.

Commonly indicated remedies for the treatment of AES including JE

In Homoeopathic repertory several medicines are given under the rubric **Head, inflammation brain (encephalitis)**. *The indications of the medicine BELLADONNA given in Grade 1 is described first followed by grade 2 medicines in alphabetical order: Aconitum napellus, Antimonium tartaricum, Bryonia alba, Camphora, Carbo vegetalis, Conium maculatum, Cuprum metallicum, Helleborus niger, Hyocyamus, Opium, Phosphorus, Kali bromatum., Mercurius, Silicea terra, Stramonium, Tuberculinum.* Apart from these, few medicines which were prescribed in our research study at BRD medical college, Gorakhpur such as **Arnica, Arsenicum album, Causticum, Gelsemium sempervirens** are also mentioned in alphabetical order. The

indications of the medicines prescribed in our research study are given in italics.¹³

HOMOEOPATHIC MEDICINES WITH THEIR SUGGESTIVE INDICATIONS^{14,15,16,17,18}

1. **Belladonna**

- *High fever: burning heat. Head hot and cold limbs, with thirstlessness, hot, red skin, flushed face, dilated pupils, throbbing carotids, and restlessness.*
- *Sudden onset of complaints; violence of attacks.* Epileptic attacks followed by nausea and vomiting. Boring of head into the pillow. *Unconsciousness after convulsions with dilated pupils.*
- Violent delirium; disposes to bite, spit, strike and tear things.
- *Aggravation: looking at bright shining object, noise, motion, jarring, drafts of air.*

2. **Aconitum napellus**

- Fever: acute, sudden; skin dry and hot; face red, or pale and red alternately; burning thirst for large quantities of cold water; intense restlessness, tossing about in agony; becomes intolerable towards evening and on going to sleep.
- Profuse sweat with desire to uncover; sweat continues after fever.
- First stage of inflammation of the brain.
- General aggravation in evening and at night; cold exposure. Better open air and rest.

3. **Arsenicum album**

- High fever. *Fever aggravates mid-day and midnight; with delirium; chilliness; thirst for small quantities at short intervals.*
- *Great restlessness with exhaustion, anguish. Mentally restless, but physically too weak to move.*

¹³Schroyens F. Synthesis Repertorium Homoeopathicum Syntheticum Edition 8.1. New Delhi: B Jain Publishers Pvt Ltd; 2002

¹⁴Murphy R. Lotus Materia Medica 2nd Revised edition. New Delhi :B Jain publishers Pvt Ltd; 2009

¹⁵Morrison R. Desktop Guide to Keynotes and Confirmatory Symptoms. USA: Hahnemann Clinic Publishing;1993

¹⁶Boericke W. Boericke's New Manual of Homoeopathic Materia Medica with Repertory: Third Revised & Augmented Edition based on Ninth Edition. New Delhi: B. Jain Publishers; 2010

¹⁷Allen HC. Keynotes and Characteristics with Comparisons. 8th Reprint edition. New Delhi :B Jain publishers Pvt Ltd; 2004

¹⁸Lippe A, Keynotes & Redline Symptoms of Materia Medica. 1 edition New Delhi :B Jain publishers Pvt Ltd; 2002

4. **Antimonium tartaricum**

- Intense heat.
- Coldness, trembling and chilliness.
- Cold, clammy sweat over the whole body.
- Muttering delirium and stupor.
- The child wants to be carried and does not wish to be touched.
- Great sleepiness or irresistible inclination to sleep with nearly all complaints.
- Fan like motion of alae nasi.

5. **Arnica montana**

- *Heat and redness of head with coldness of the whole body.*
- Worse least touch; better lying down or lying with head low.

6. **Bryonia alba**

- Dry burning heat, easy, profuse perspiration. Pulse full, hard, tense, and quick; *stupid, drowsy condition or mild delirium with fever; wants to go home.*
- Exceedingly irritable
- *Thirst increased for large quantities of water.*
- Aggravation from any motion, warmth.
- Amelioration from absolute rest: mental or physical; by pressure, lying on painful side.

7. **Camphor**

- Sudden inflammatory fever followed by rapid prostration.
- Surface of body cold to touch, yet cannot bear to be covered; throws off all coverings.
- Convulsions with mental anguish. Spasms, which draw the head to one side.
- Entire body painfully sensitive to slightest touch and cold exposure.

8. **Causticum**

- Heat from 6-8pm. Sweat about 4 a.m., profuse, on slight exertion, open air. Coldness not better by warmth.
- Generalized convulsions; worse during sleep, right sided
- Weakness, progressive, loss of muscular strength, often ending in paralysis. Paralysis of single parts; *Paralysis of vocal cords, tongue,*

eyelids, face, bladder and extremities. (Indications for sequelae of AES).

9. **Conium maculatum**

- Mental dullness or confusion.
- Progressive weakness.
- Vertigo especially when lying down or turning in bed, moving the head slightly, or even the eyes; must keep the head perfectly still; on turning the head to the left.
- Useful in paresis and paralysis that extend from below upward.

10. **Cuprum metallicum**

- Icy coldness of skin; sweat cold, clammy at night, sour smelling after convulsions.
- *Convulsions* with blue face and clenched thumbs; violent with piercing cries; *tonic or clonic; beginning in fingers and toes and spreading over entire body*; worse at night.
- In epilepsy, aura begins in the knees, ascends to hypogastrium; followed by unconsciousness, foaming and falling. Chorea brought on by fright.
- Bad effects of re-percussed eruptions, resulting in brain affections, spasms, convulsions.
- Complaints begin on left side.

11. **Gelsemium sempervirens**

- Fever with drowsiness, dizziness, faintness, thirstlessness and prostration; chills *up and down the back*, with aching; preceded by visual disturbance. Wants to be held during fever. Heat and sweat stages long and exhausting.
- Headache preceded by blindness; better by profuse urination.
- Delirium in sleep; half-waking, with incoherent talk.
- Convulsions: twitching of single muscles of the whole body with drowsiness.
- Lack of muscle coordination; confused; *Muscular weakness and incoordination. Difficulty in standing and walking.* (Indications for sequelae of AES).
- *Paralysis of the bladder* (Indication for sequelae of AES).

12. **Helleborusniger**

- Fever with chill, cold sweat and aversion to uncover.
- *Low state of vitality with temporary dullness of mind; answers slowly when questioned and with great effort, stares but doesn't recognize those around.*
- Convulsions and twitching of muscles, automatic motion of one arm and leg; with consciousness, followed by deep sleep; with extreme coldness of body, except head or occiput, which may be hot.
- Chewing motion of the mouth; corners of the mouth sore, cracked.
- Constant picking of lips, clothes, or boring into nose with the finger.
- Eyes wide open, insensible to light; pupils dilated, or alternately contracted and dilated.
- General aggravation from 4-8 pm.

13. **Hyoscyamus niger**

- Septic fevers; slides down in bed, with hot, pale skin.
- Delirium with restlessness; with muscular twitching and spasmodic affections.
- Occasional mutterings; uncovers his whole body.
- Mania or convulsions alternate with or end in deep stupor; rolls or shakes the head to and fro, when bending forward in stupor.
- Spasms: without consciousness, very restless; every muscle in the body twitches, from the eyes to the toes; convulsions from fright. Epileptic attacks ending in sleep and snoring. Picking at bed clothes. Child sobs and cries without waking.

14. **Kalium bromatum**

- Epilepsy from cerebral congestion; epileptic attacks followed by headaches.
- The child screams, moans, cries in sleep.
- Incoordination of muscles; twitching of fingers; fidgety hands.
- Useful to prevent recurrence of epileptic attacks.

15. **Mercurius**

- Heat and shuddering alternately. Creeping chilliness, worse in the evening and night.
- Sweat: profuse, oily, foul, sour or with strong sweetish penetrating odor, staining linen; without relief.
- Constant rotatory motion of head, even when lying. Boring, digging, and throbbing pain in head.

- Great thirst, with moist mouth; offensive breath.
- Tongue is large, flabby, shows imprint of teeth.

16. **Nux vomica**

- Fever with great heat, whole body burning hot, face red and hot, yet patient cannot move or uncover without being chilly.
- Must be covered in every stage of fever - chill, heat or sweat; Chill with thirst and heat without thirst.
- Convulsions, with consciousness; worse touch, moving; head is turned backwards during convulsions.
- Oversensitive to external impressions; irritable, angry and impatient.

17. **Opium**

- Fever characterized by stupor, snoring respiration, twitching of limbs, intense thirst and sleepiness, hot perspiration; sweats without relief.
- Delirium furious, loquacious, unclear speech and desire to run away.
- Full, slow pulse; *stertorous breathing; with complete loss of consciousness.*
- Continual stupor, even insensibility, with *dark redness of face; coldness and paleness of the rest of the body. Pupils insensible, unresponsive, constricted.*
- Painlessness with all most all complaints.
- Want of susceptibility to remedies, lack of vital reaction when the well-chosen remedy makes no impression.

18. **Phosphorus**

- Hectic fever with small, quick pulse and night sweats.
- Burning heat in the back. Chilliness in the evening, craves ice water during the chill.
- Formication and numbness in the limbs; *trembling and complete paralysis. Paralysis from tips of fingers to toes.* (Indications for sequelae of AES).
- *Loss of vision.* (Indication for sequelae of AES).

19. **Pulsatilla**

- Intolerable burning heat at night; heat in parts of the body and coldness in the other. One sided sweat. Chilliness with pain in spots, worse evening. Chills around 4 pm.
- Thirstlessness with dryness of tongue in nearly all complaints.
- Mild, timid, emotional and tearful, Weeps easily; desires consolation.
- Always better in open air and worse in warm stuffy rooms.
- Symptoms are ever changing.

20. **Stramonium**

- Violent fever. Heat over whole body with red face and perspiration. Profuse sweat which does not relieve. Retention of urine in any fever.
- *Violent delirium. Tries to bite, spit strike and tear things.*
- Violent mania with cold sweat. Disposed to incessant, incoherent talking and laughing. Convulsions: with consciousness; renewed by sight or bright light, water. Twitching of single muscles or group of muscles especially upper part of the body. Graceful, rhythmic motions.
- No pain with most complaints; painlessness is characteristic.

21. **Silicea terra**

- Chilliness, very sensitive to cold air, suffering parts feel cold.
- Profuse night sweat; much sweating about the head which must be kept warm by external covering.
- Spasms, epilepsy, feeling of coldness before the attack.

22. **Sulphur**

- *Frequent flashes of heat, throughout entire body. Constant heat on top of head.*
- Profuse sweat: esp. at night, without relief; on nape and occiput.
- Aggravation from standing, unable to walk erect, stoop shouldered, unwashed, tall and lean, untidy and offensive inspite of washing.
- Redness of orifices; complaints that relapse. When carefully selected remedies fail to act, especially in acute diseases, it frequently arouses the reactionary powers of the patient.
- History of suppressed eruptions

23. **Tuberculinum bovinum**

- Loquacious during fever with profuse sweat. General chilliness
- Wants to be covered in all stages of fever.
- When symptoms are constantly changing and well-selected remedies fail to improve.
- History of Tuberculosis in the family

24. **Zincum metallicum**

- Frequent febrile shivering down the back; cold limbs; profuse sweat at night; profuse foot sweat.
- Convulsions with pale face and no heat; convulsive twitching or jerking worse at night during sleep.
- Fidgety feet and other automatic motion of mouth, arms and hands.
- Chorea from fright or suppressed eruption; especially of feet and lower extremities.

RESEARCH STUDIES ON AES INCLUDING JE IN HOMOEOPATHY

Pre-clinical

- ❖ Bandopadhyaya et al. in an in-vitro model study found that *Belladonna* was able to prevent pock formation on chorio-allantoic membrane (CAM) due to JE virus establishing/verifying its beneficial role in JE.¹⁹
- ❖ The above researchers demonstrated further beneficial effect of homoeopathy in another experiment, wherein suckling mice of “Belladonna 200” fed mothers were challenged with virulent Nakayama strain of Japanese encephalitis virus. Statistical analysis of the results indicated a significant protective role of this medicine when compared with the controls.²⁰

Clinical

- ❖ Central Council for Research in Homoeopathy had conducted an observational preventive study in 1989 on individuals residing in endemic area of Japanese encephalitis in the State of Uttar Pradesh in India with *Belladonna-200C* as genus epidemicus. The results showed that none of the 3, 92, 50 of 3, 22,812 people living in 96 villages and who were followed during the entire period of epidemic manifested any symptoms typical of Japanese encephalitis.
- ❖ During the year 1999-2003, *Belladonna-Calcareia Carbonica-Tuberculinum bovinum* (BCT) regimen adopted by the Government of Andhra Pradesh as preventive against JE had shown positive response wherein the death rate reduced in the BCT distributed areas.
- ❖ *An exploratory observational comparative study was carried out during 2012-2013 to evaluate the effectiveness of homoeopathic medicines as add on to Institutional Management Protocol (IMP) for Acute encephalitis syndrome (AES) in children at BRD Medical College, Gorakhpur (UP). 151 children diagnosed with AES (aged 6 months to 18 years) were enrolled. (121 in IMP+Homoeopathy and 30 in IMP groups respectively). The analysis of children showed 12 (9.9%) deaths out of 121 children administered with H+IMP while it was 13(43%) deaths out of 30 children administered with IMP alone. Administration of homoeopathic medicines along with IMP reduced the mortality and morbidity in cases of AES. The most commonly prescribed and useful medicines were: Belladonna,*

¹⁹Bandyopadhyay B. et al. Decreased Intensity of Japanese Encephalitis Virus Infection in Chick Chorioallantoic Membrane under Influence of Ultra diluted Belladonna Extract. Am. J. Infect. Dis 2010, 6 (2): 24-28

²⁰Bandyopadhyay B. et al. Suckling Mice of “Belladonna 200” Fed Mothers Evade Virulent Nakayama Strain Japanese Encephalitis Virus Infection. International Journal of Microbiological Research 2 (3): 252-257, 2011

Stramonium, Arsenicum album, Bryonia alba, Sulphur, Cuprum metallicum & Helleborus. ^{21,22}

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²² Manchanda RK, Oberai P, Roja V, Singh S, Singh N, Khan T, et al. Evaluation of homoeopathic medicines as add-on to institutional management protocol in Acute Encephalitis Syndrome: An exploratory observational comparative study. *Indian J Res Homoeopathy* 2015;9:34-41.

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