JAPANESE ENCEPHALITIS

1 or 2 children from each village surrounding the pig- rearing area are reported to have high fever, vomiting and becoming unconscious. Discuss the problem and its management. [KU 22]

Vector: Culicine mosquitoes notably C. tritaeniorhynchus, C. vishnui

Transmission cycle

Pigs → Culex → Pigs

Ardeid birds → Culex → Ardeid birds.

Animal hosts

- **Pigs**; JE virus multiplies exponentially in pigs without causing any manifestation. Pigs are considered as the **amplifier host** for JE.
- **Cattle and buffaloes** act as mosquito attractants
- **Horses** are probably the only animals to be symptomatic and develop encephalitis following JE virus infection.
- **Humans** are considered as dead end; there is no man → mosquito → man cycle

Bird host: Ardeid birds such as herons, cattle egrets and ducks.

Incubation period: 5-15 days

Clinical features

- **PRODROMAL STAGE**: Acute onset of fever, headache, gastrointestinal disturbances, lethargy and malaise. The duration of this stage is usually 1-6 days.
- **ACUTE ENCEPHALITIC STAGE**: Fever is usually high, 38 to 40.7 deg. C. The prominent features are fever, nuchal rigidity, convulsions, difficulty of speech, dystonia, ocular palsies, hemiplegia, quadriplegia, seizures or coma.
- **LATE STAGE AND SEQUELAE**: Convalescent stage in which the patient may be recovered fully or retain some neurological deficits permanently. Case fatality rate is about 20-40%.

Control of JE

Vaccination

JE vaccine	Strain
Mouse brain derived, purified and inactivated	**Nakayama or Beijing strain**
Cell culture derived inactivated JE	**Beijing strain**
Cell culture derived live attenuated	**SA 14-14-2**

- Mouse brain derived vaccine is given **SC** in dose of **0.5 ml** for children under 3yrs and **1 ml** for children more than 3 yrs of age by 2 primary doses at 4 weeks apart and booster after 1 yr and subsequently at 3-yearly interval until 10-15 yrs.
- Inactivated JE vaccine **0.5 ml/dose IM**, two doses 4 weeks interval, for children >3 yrs and adults aged >/= 18 yrs.
- Live attenuated SA 14-14-2 vaccine **0.5 ml/dose SC,** two doses 1st dose at **9 completed month, 2nd at 16-24 months** as per national immunisation programme in 83 endemic districts in UP, assam, West Bengal and Karnataka.

Vector control (refer dengue notes)

Management of Acute Encephalitis Syndrome (AES)

Case definition of suspected case

- Acute onset of fever, not more than 5-7 days duration.
- Change in mental status with/without
  - New onset of seizures
  - Irritability, somnolence or abnormal behaviour greater than that seen with usual febrile illness.

Case classification

Laboratory-confirmed case

A suspected case with any one of the following markers:

- Presence of IgM antibody in serum and/or CSF to a specific virus
- Fourfold difference in IgG antibody.
- Virus isolation from brain tissue
- Antigen detection by immunofluorescence
- Nucleic acid detection by PCR

Probable cases

- Suspected case in close geographic and temporal relationship to a laboratory-confirmed case of AES/JE in an outbreak.

Acute Encephalitis Syndrome (AES) due to other agent

- A suspected case in which diagnostic testing is performed and an aetiological agent other than AES/JE is identified.

Acute Encephalitis Syndrome (AES) due to unknown agent

- A suspected case in which no diagnostic testing is performed/no aetiological agent is identified/test results are indeterminate.

➢ In an epidemic situation fever with altered sensorium persisting for more than two hours with a focal seizure or paralysis of any part of body, is encephalitis.

➢ Presence of rash on body excludes Japanese Encephalitis.

➢ AES with symmetrical signs and fever is likely to be cerebral Malaria.

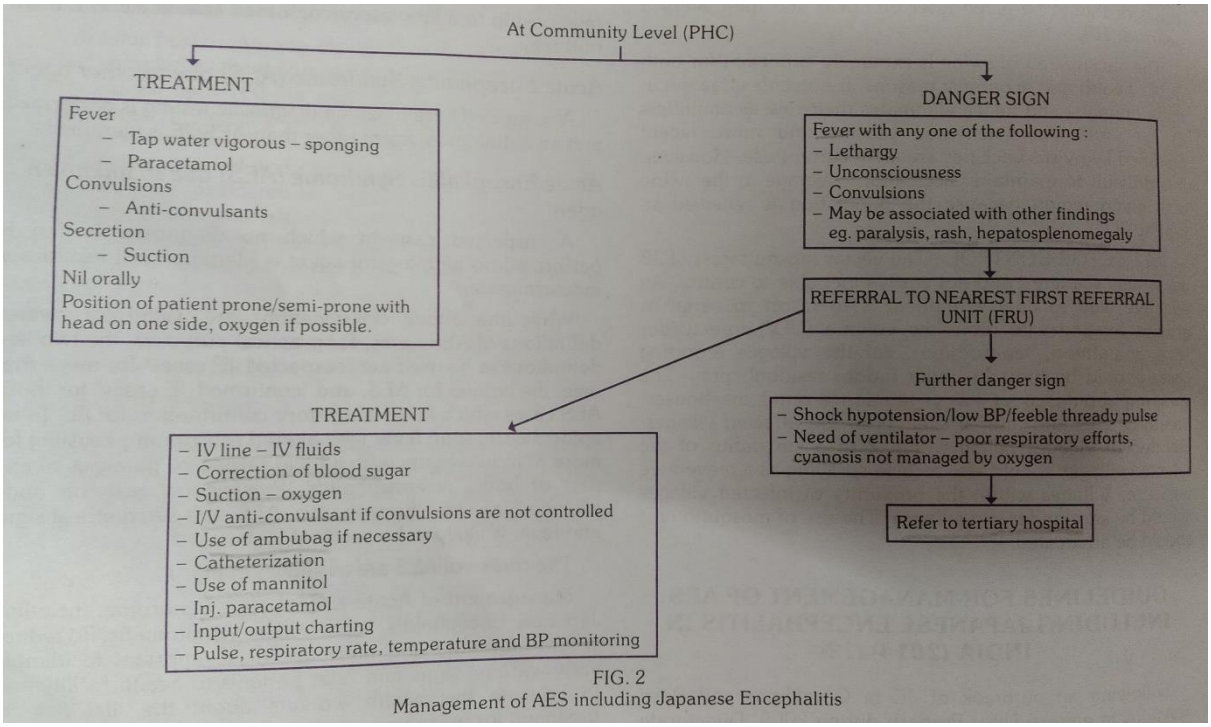

FIG. 2
Management of AES including Japanese Encephalitis