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Viral encephalitis

Standard Operating Procedure (SOP)



Union of Myanmar Special region - 1
Pediatric (SOP)

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Union of Myanmar Special region - 1
Pediatric (SOP)

Viral encephalitis

Diagnosis

- *Acute encephalitis is characterised by the rapid (or occasionally gradual) onset of a deteriorating conscious level, with confusion, altered behaviour and seizures.*
- *Focal neurological signs may be present or develop later: involvement of the cerebral hemispheres may cause hemiplegia or aphasia; cerebellar involvement may cause ataxia; basal ganglia involvement may cause rigidity or abnormal movements; and there may be focal involvement of the cranial nerves.*
- *EEG shows generalised or focal slowing and can be more specific in herpes simplex virus (HSV) infection.*
- *CSF typically shows a pleocytosis, high protein and normal glucose, but maybe normal.*
- *Neuroimaging may be normal or show focal or diffuse changes.*

Clinical presentation of HSV encephalitis

- *Can be due to primary infection or reactivation of latent infection, especially in neonates*
- *Causes necrotic lesions, typically in the mesial temporal lobes, but can be widespread and even involve the brainstem*
- *Clinical presentation is with a prodrome of fever and malaise, but may have disturbances of memory or behaviour. Then an encephalopathic state evolves with reduced consciousness and seizures, which are often focal and repeated*
- *There is raised ICP, and papilloedema in 15% of cases.*
- *There may be hemiplegia or aphasia, or due to involvement of temperobasal structures*
- *There may be anosmia, olfactory hallucinations or disordered behaviour*
- *CSF is normal in 20-25% of cases, but more typically is haemorrhagic, together with a raised lymphocyte/monocyte count, It may be xanthochromic later in the course of the illness*
- *Typically the EEG is very asymmetrical and may show a clear focus of spike on a diffusely slow background, There may be lower amplitude discharges over the temporal lobes, or transient periodic complexes which are seen most often between days 2 to 15, These are most characteristic of HSC, but can also occur in Mycoplasma or EBV encephalitis*
- *CT scan may be normal initially or may show areas of low density, most often in one or both temporal lobes, or within the parietal or occipital lobes There is often some enhancement, peripherally or in the temporal lobes. Later in the course, there may be calcification*

- *MRI scan may show abnormalities earlier than CT, but can be entirely normal initially, There may be increased signal in T2 weighted image typically focally in the temporal lobes, but they can be very variable*

Investigations

CSF

- *CSF examination should be done for all patients if there is no contraindication, CSF should be sent for routine examination and biochemistry as well as for specific pathogen.*
- *CSF antibodies for viruses (JE, Dengue, tickborne encephalitis virus, West Nile virus, measles, mycoplasma pneumoniae) and CSF PCR (HSV adenovirus, CMV, EBV, HHV6, VZV, influenza, mumps, enteroviruses, Mycoplasma pneumonia) should be done if available.*

Neuroimaging

- *MRI is most sensitive neuroimaging test to evaluate patients with encephalitis.*
- *CT should be used if MRI is unavailable.*

EEG

- *EEG findings are nonspecific in encephalitis.*
- *But it can help in suggesting etiologic diagnosis.*
- *More than 80% of HSE has temporal focus demonstrating periodic discharges every 2-3 sec typically seen on day 2-14.*
- *EEG should also be done in patients suspected for nonconvulsive seizure.*

Treatment of HSV Encephalitis

Because it is clinically difficult to diagnose HSV encephalitis, and at presentation lumbar puncture may not be safe, and the EEG and MRI may be unavailable or unhelpful, it is often necessary to treat for suspected HSV encephalitis. The only treatment of proven efficacy is with aciclovir.

Indications for use of Aciclovir

Aciclovir is indicated in any child presenting with

- *Acute encephalopathy*
- *Focal seizures in an acutely unwell child*

Prescribing

- *A full course of treatment with aciclovir for HSV encephalitis should last for 3 weeks, administered intravenously, in a dose of 500 mg/m² three times a day for older children and 20 mg/kg three times a day for neonates*
- *Oral Aciclovir is not effective*

Administration

- *Once the decision has been made to start treatment with aciclovir, a plan should be made of when to stop the treatment*
- *Aciclovir must be given intravenously and as it is very toxic to the veins, many children will need a central catheter placed*
- *If there is proof of infection with HSV, or if there is sufficient reason to suspect HSV encephalitis, then treatment should be continued intravenously for the full 3 weeks*
- *The recommendations for the child with a focal encephalopathy, who has signs of infection but for whom no other diagnosis is found, are:*
 - *If there are focal changes on the MRI or EEG, give 3 weeks*
 - *If the CSF is abnormal, in keeping with HSV encephalitis, give 3 weeks*
 - *If the initial MRI and EEG do not indicate a focal area of abnormality, consider repeating them after 7 days of treatment. If there are still no focal areas of abnormality, and the CSF is normal and HSV PCR is negative, then stop treatment with acyclovir*
 - *If the HSV PCR is positive the child should receive a full 3 week course of treatment, The PCR for HSV can be supportive of the diagnosis, but a negative result should not be taken to mean the child does not have HSV encephalitis*
 - *If in doubt and there is no alternative diagnosis-treat*

