INTRODUCTION TO PAEDIATRIC ELECTROENCEPHALOGRAPHY

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LEARNING OBJECTIVES

- Definition of EEG
- Types of EEG
- Uses of EEG
- Specific examples

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DEFINITION

- Electroencephalography (EEG) is a technique of recording the electrical activity of the cerebral neurones.
- It provides precise characterization of seizure types, which allows specific medical or surgical management.
- It facilitates more accurate differentiation of epileptic seizures from mimics of epilepsy.

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TYPES OF EEG

- Routine EEG
- Long-term video (24 hours) EEG
- EEG telemetry

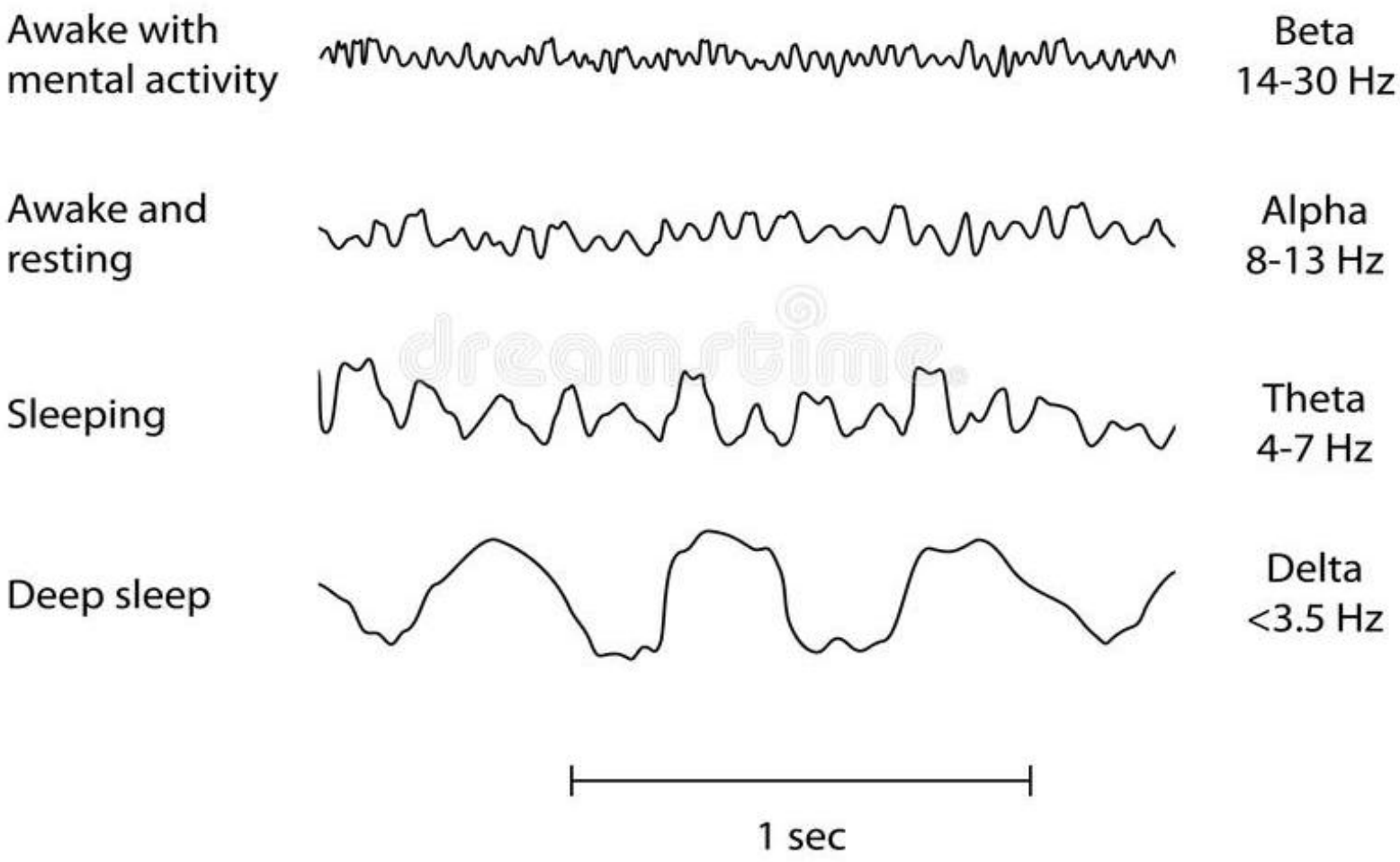
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TYPES OF WAVES

- Delta (1-3/sec)
- Theta (4-7/sec)
- Alpha (8-12/sec)
- Beta (13-20/sec)

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EEG Waves



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SPECIAL PROVOCATIVE PROCEDURES

- Sleep
- Hyperventilation
- Flashes of light (Photic Stimulation)
- Pattern stimulation

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FACTORS AFEECTING EEG

- Age
- Physiologic conditions
- Metabolic conditions

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EEG Abnormalities

- Epilepsy
- Intracranial tumours
- Cerebral infarcts
- Cerebral abscess
- Intracranial haemorrhage

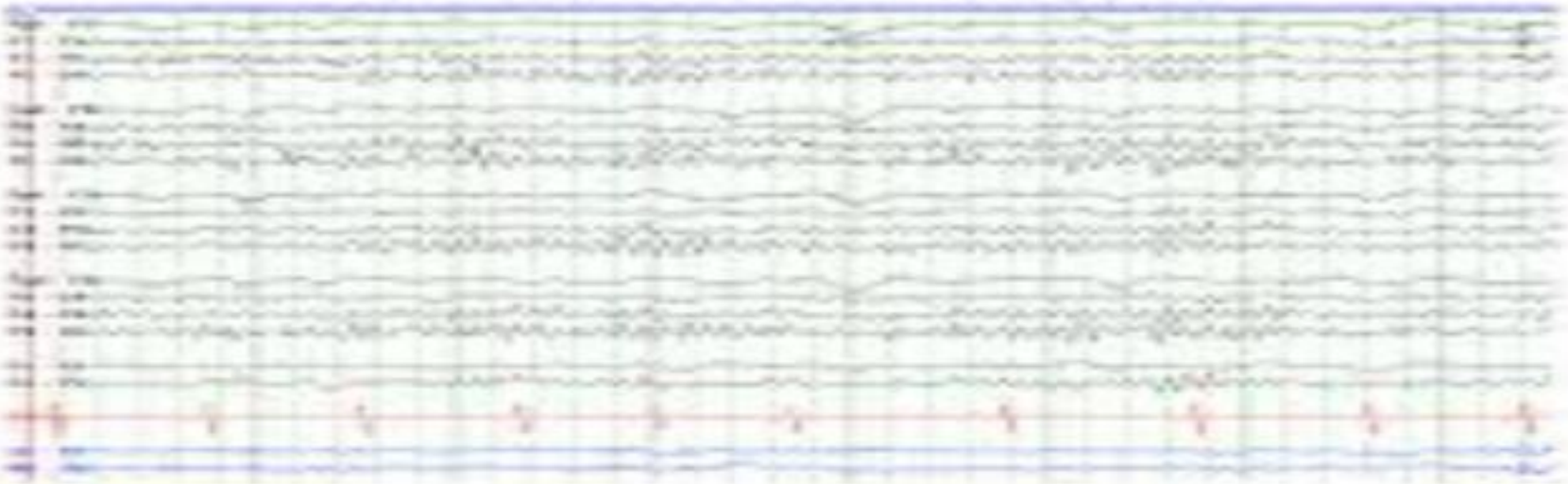
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CHARACTERISTIC EEG

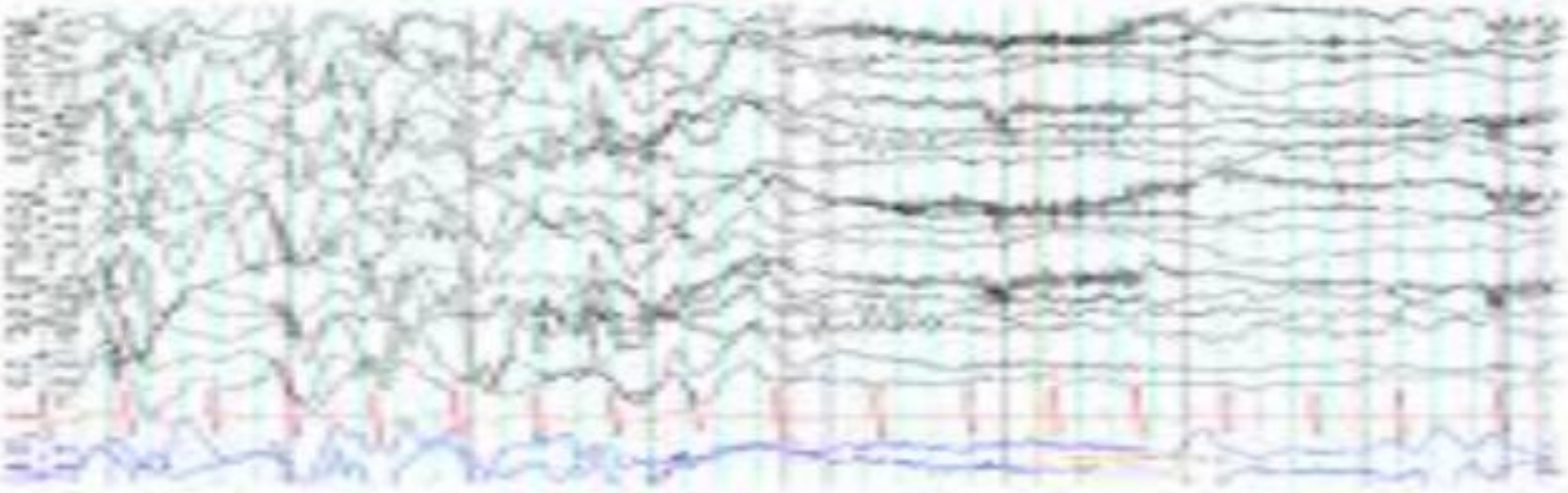
- Generalized tonic-clonic seizures: Generalized spikes, polyspikes and wave discharges.
- Infantile spasms: Hypsarrhythmia- Chaotic mixture of generalized asynchronous high amplitude spikes, polyspikes and sharp waves, with total disorganization of the background rhythm.
- Simple absence seizures: Paroxysmal episodes of generalized bilaterally symmetrical and synchronous 3 per second spike-wave complexes.

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Normal EEG Awake

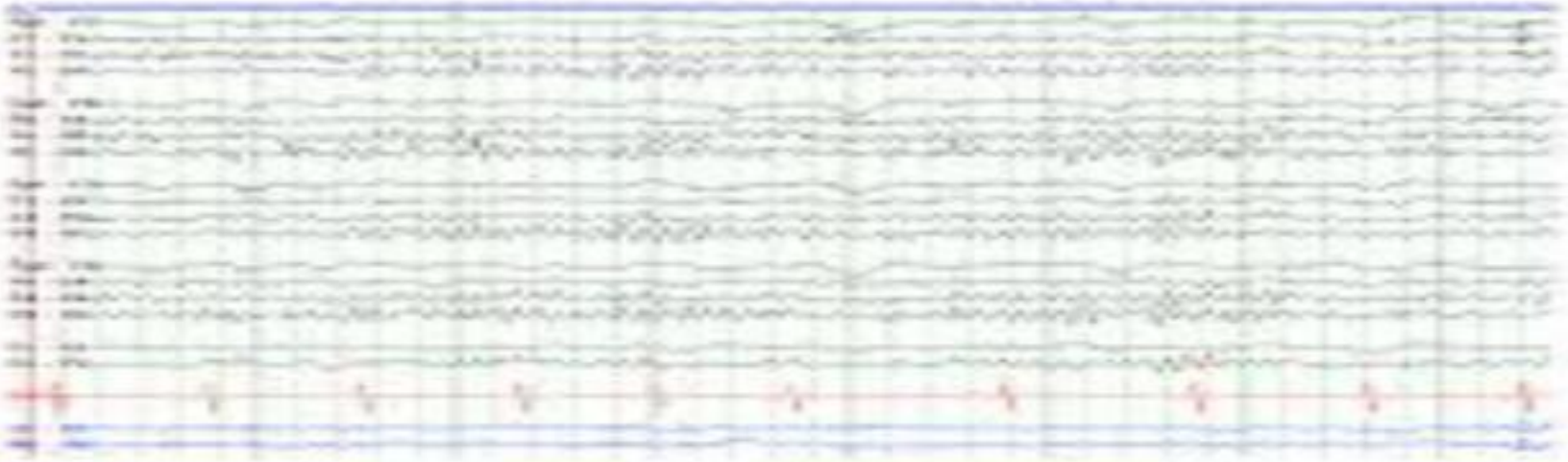


Infantile Spasms

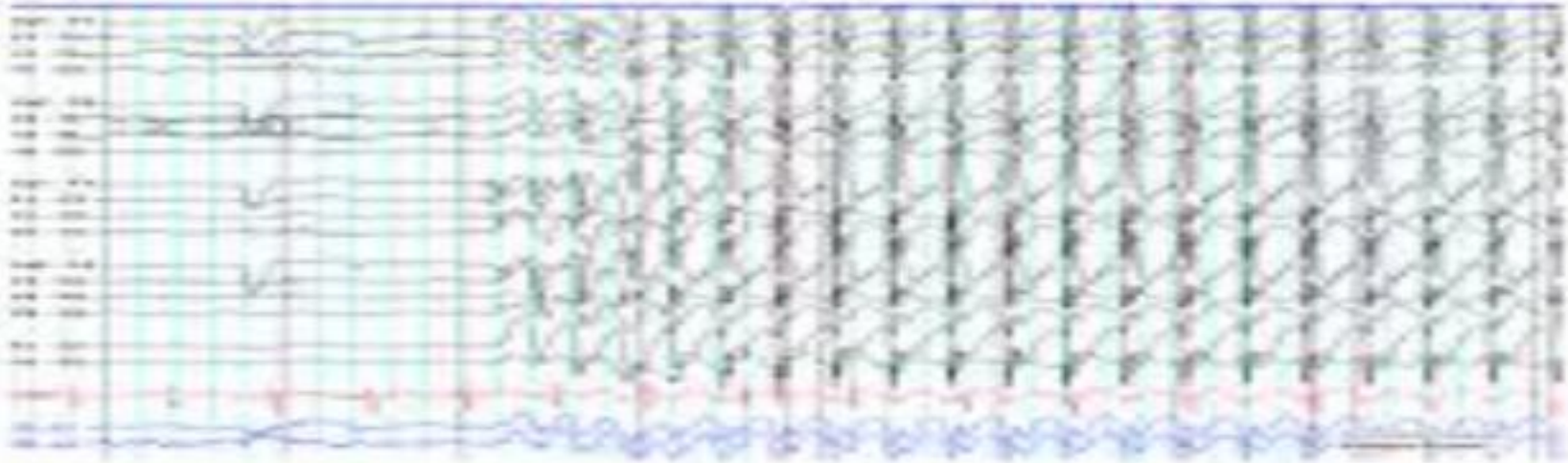


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Normal EEG Awake



Absence Seizure



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- Subacute Sclerosing Panencephalitis (SSPE): Burst – suppression’ pattern- Generalized bursts of high amplitude sharp waves and spike discharges recurring regularly, against a background of lower amplitude slow activity.
- Lennox- Gastaut Syndrome: Diffuse slow spike-wave complexes.

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CONCLUSION

- EEG is an important evaluation tool in CNS abnormalities.
- It requires an expert to report.
- It is important to train people in its technique and interpretation.

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