



Patient in Coma


Andy Jagoda, MD, FACEP 

Andy S. Jagoda, MD, FACEP
Professor and Vice Chair
Residency Program Director
Department of Emergency Medicine
Mount Sinai School of Medicine
New York, NY

Andy Jagoda, MD, FACEP 


Objectives

- Review the neurologic evaluation of the patient in coma
- Review the differential diagnosis of coma
- Discuss the indications for diagnostic testing in the patient with coma of undetermined etiology

Andy Jagoda, MD, FACEP 


Definitions

- Lethargy – decreases responsiveness but arousable
- Stupor – diminished awareness, arousable only with vigor stimulation and patient does not interact in a meaningful way
- Coma – diminished awareness, patient can not be aroused even with vigorous stimulation. Response to noxious stimulation tends to be stereotyped or reflexive

Andy Jagoda, MD, FACEP 


Case Study: Patient in Coma

- 72 year old male found in am by family laying in bed unresponsive.
- Past history: hypertension, diabetes, restless leg syndrome
 - No history of trauma; no psychiatric history
- Meds: Enalapril, gluatrol, clonazepam
- ROS: Past several days family notes that he has seemed “different,” less alert but nonspecific

Andy Jagoda, MD, FACEP 

Case Study: Coma cont'd

- 150/90, 16, 80, 37 R, pulse ox 98% RA; BS 160
- Head – atraumatic
- Swallowing spontaneously
- Neck – supple
- Cardiopulmonary – normal
- Abdomen – soft
- Skin – no rashes, warm, dry

Andy Jagoda, MD, FACEP 

Case Study: Coma cont'd

- Appeared in no distress; non verbal: GCS score 3
- Eyes closed: no nystagmus, no papilledema
- No posturing; no asymmetry of face
- Pupils equal and reactive at 3 mm
- Good muscle tone, no muscle rigidity
- No response to painful stimuli
- DTRs +2 symmetrical at elbows, wrists, knees, and ankle
- Toes – no extensor planter reflex
- Rectal tone normal

Andy Jagoda, MD, FACEP 

The Physical and Neuro Exam in Coma

- Assess ABC's, pupils, and skin: Toxic syndromes
 - Swallowing
- Assess for responsiveness: GCS, AVPU
- Assess pupils for reactivity, deviation, nystagmus
- Brainstem function
 - Doll's eyes / Cold calorics
- Assess for asymmetry and posturing
 - Decorticate posturing is not prognostic nor diagnostic
 - Decerebrate posturing is increased ICP
- Assess muscle tone and reflexes
- Babinsky and Rectal tone

Andy Jagoda, MD, FACEP 

Pearls in the Evaluation of a Patient in Coma

- Pupils
 - Generally remain reactive coma from metabolic or infectious etiologies
 - Pin point pupils seen in opioid, alpha adrenergic, and cholinergic overdoses; and in pontine infarct
 - Dilated pupil(s) seen in uncal herniation due to compression of parasympathetic fibers on 3rd nerve
- Locked in syndrome results from brainstem infarct
- Doll's eyes and cold calorics test for brainstem function
- Minimal twitching or automatism may be only indication that patient is seizing

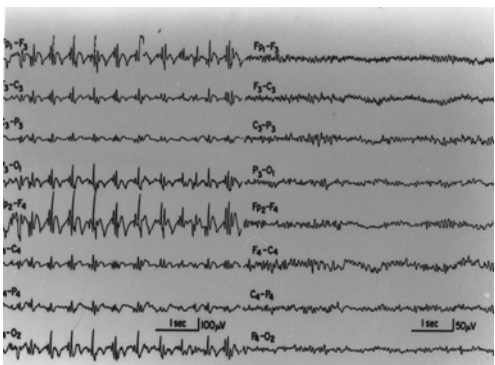
Andy Jagoda, MD, FACEP 

Diagnostic Testing

- Non contrast head CT
 - Acute blood
 - Space occupying lesion
- MRI
 - Posterior fossa
 - Early infarct
- LP
 - Xanthochromia
 - Infection
- EEG

Andy Jagoda, MD, FACEP 

Case Continued



Nonconvulsive Status Epilepticus (NCS)

- Change in behavior or mental status which is associated with diagnostic EEG changes
- Lack of a predominant motor component
- Classification:
 - Absence Status (primary generalized process)
 - Complex Partial Status (focal in origin)

Andy Jagoda, MD, FACEP 

Clinical Characteristics

- Altered behavior varies from subtle changes only recognizable to family members to psychotic or affective states all the way to coma.
- Symptom fluctuations can occur with varying degree of impairment which contributes to obscuring the diagnosis

Andy Jagoda, MD, FACEP 

Epidemiology

- Towne et al: Prospective study of 236 patients with coma and no clinical evidence of seizures 8% met criteria for NCS on EEG
- DeLorenzo et al.: NCS present in 14% of pts after control of NCSE
- Privitera et al: Prospective study of 198 pts with altered consciousness but no clinical convulsions who were referred for emergency EEG, 37% showed EEG evidence of NCS

Towne AR. Neurology 2000
DeLorenzo RJ. Neurology 1996
Towne AR. Epilepsia 1998

Andy Jagoda, MD, FACEP 

Precipitating Factors

- Metabolic Abnormalities
- Infection
- Drug toxicity
- Alcohol intoxication/withdrawal
- Pregnancy
- CNS disturbance
- ECT treatment

Andy Jagoda, MD, FACEP 

EEG

- A properly performed EEG is helpful in establishing etiology and directing therapy
- A “normal” EEG does not exclude an epileptic focus
- EEG indicated in patients with altered mental status suspected of NCSE

Andy Jagoda, MD, FACEP 

Conclusions

- Approach to the patient in coma requires a systematic exam that will then direct diagnostic testing
- The GCS score is helpful in providing a baseline for comparison but is not prognostic in nontraumatic brain injury
- NCS should be considered in patients with a change in mental status of undetermined etiology

Andy Jagoda, MD, FACEP 

Questions??

www.ferne.org
ferne@ferne.org

Andy Jagoda, MD
Andy.Jagoda@msnyuhealth.org

jagoda_coma_bic_symp_sea_0805.ppt 8/3/2005 5:02 PM

Andy Jagoda, MD, FACEP 