Altered mental status in pregnancy

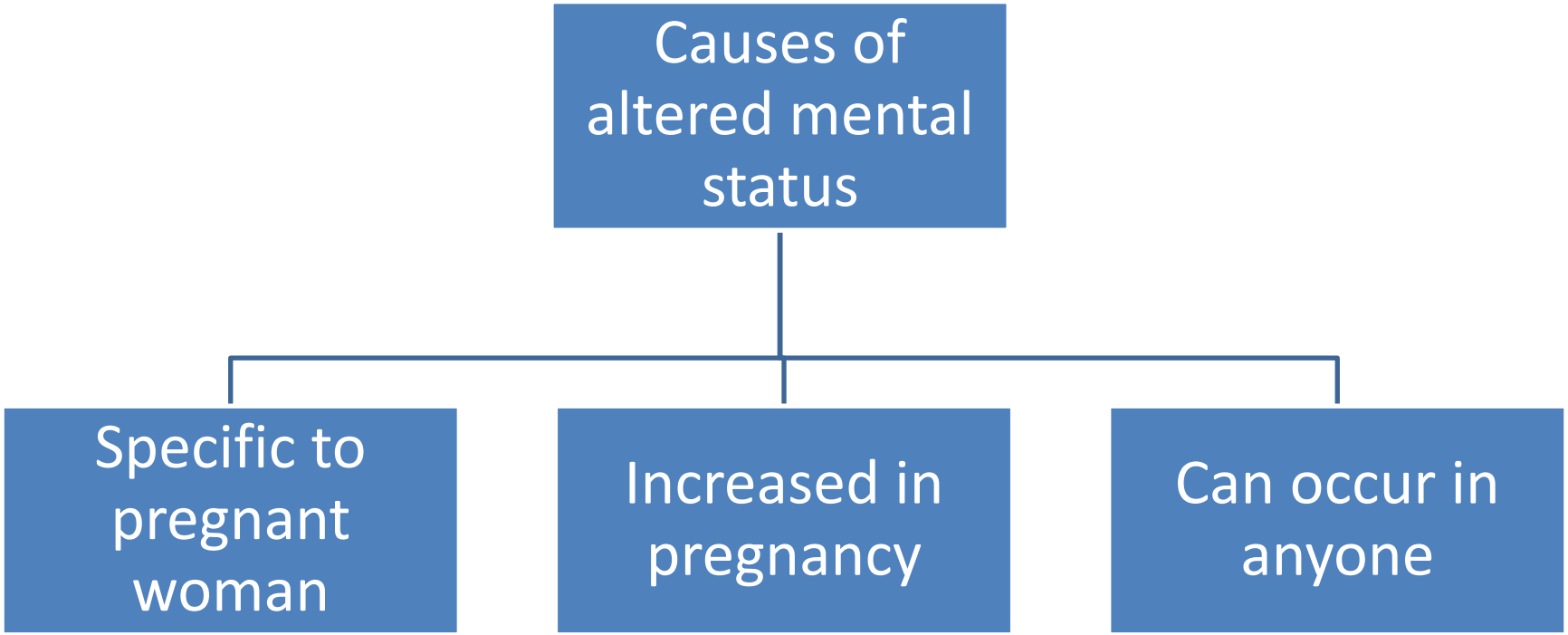
For the group #1

- 25 Year old G2P2, Gayatri who underwent an uneventful delivery presents to hospital 8 days after delivery. Her relatives complain that “आएँ बाएँ बोल रही है” . She is refusing to feed or take care of her baby.
- Question 1 – What specific questions would you ASK in a first quick history?

Required to ask

- Fever
- Vaginal discharge
- Head ache, vomiting
- Head injury
- Seizures/PIH
- Focal neurological deficits

Discussion about history taking



As with any woman...

- Malaria
- Sepsis
- Hypoxia
- Hypovolemia
- Meningitis, TBM
- Metabolic abnormalities

As with any woman...

- Urinary tract infection
- Leptospirosis
- Scrub typhus
- Head injury
- Drugs/alcohol/toxins

Increase in pregnancy

- Malaria
- Urinary tract infection
- CVT
- Acute hepatic derangement
- Stroke
- Metabolic abnormalities
- Drugs/sedation

Specific to pregnancy

- Puerperal sepsis
- Pre-eclampsia /Eclampsia
- Post partum psychosis
- Post partum depression

In Gayatri....

- Fever
- Vaginal discharge

Question 2 – What specific things would you EXAMINE a first quick look?

Required to do

- Check fever
- PR
- RR
- BP
- GCS/AVPU/Orientation

q SOFA

- SpO2
- Simultaneously RDT (malaria) and GRBS

- In any altered mental status RDT(malaria) and GRBS MUST be done.

Required to do

- Pallor
- Per vaginal examination - every woman with fever in post partum period, tenderness, uterine size
- Per abdomen - size of uterus, spleen
- CNS –Neck stiffness, pupils, plantars
- R/S - signs of consolidation

Good to do

- “Bare minimum” CNS examination

Note that....

- History and exam targeted first at excluding

  Common and high morbidity eg. Malaria

  THEN

  Less common but high morbidity eg. pyelonephritis/sepsis

  THEN

  Common but lower morbidity eg. Post partum depression

- Psychiatric diagnosis is a diagnosis of exclusion
- Should not be made without 48 hours of close inpatient observation and normal lab reports.
- Preferably 2 physicians to examine patient prior to making psychiatric diagnosis

In Gayatri...

- Fever - 102F
- PR - 110/min
- RR - 42/min
- BP- 90/70
- GCS – 14/15
- SpO2 - 97% room air

q SOFA

q SOFA

- Systolic blood pressure less than 100 - 1 point
- High respiratory rate – 22 breaths per minute – 1 point
- Altered mentation ie. GCS < 15 - 1 point

Patient 1

- BP - 80/50
- PR - 100/min
- RR - 16/min
- SpO2 - 98%
- Altered mental status present.

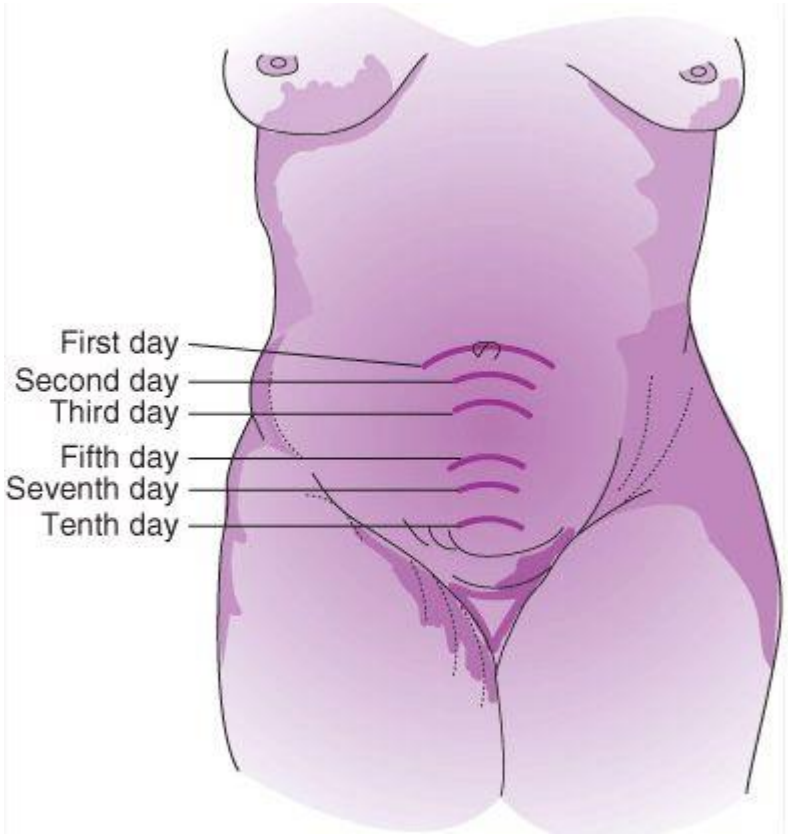
- q SOFA SCORE - ??

Patient 2

- BP – 110/84
- PR- 99/min
- SpO2- 86%
- RR -32
- Altered mental status

- q SOFA -??

- MSE- agitated and violent. Not oriented
- PV - cervical motion tenderness and forniceal tenderness. Foul smelling discharge present.
- P/A - uterus at umbilicus



- Rapid institution of broad spectrum antibiotics
- Time to antibiotics crucial within 1 hr of suspicion.
- Do not wait for investigations
- Ampicillin/Ceftriaxone plus Gentamicin plus Metronidazole.
- Fluids – 30 ml/ Kgs over 3 hours
- If RDT not available in 1st hour – empirical iv Artesunate 2.4 mg per kg iv stat

Question 3 - What would you ADVISE within the first 1 hour of management of this patient?

What would you not do?

- Sedation should not be used.
- Anti-psychotics should be cautiously used when cause of agitation is organic.
- Do not wait for any lab reports before FIRST DOSE of iv antibiotics.
- Do not rely on phone information – SEE a sick patient personally.

- Question 4 - What investigations will you ADVISE ?

Required to send

- RDT – done
- GRBS - done
- Total counts/differentials, platelets
- Urine routine/microscopy

Good to send

- Na, K
- SGPT
- Creatinine

Question 5 – would you do a lumbar puncture?

- As clear cause for an altered mental status is found an LP is not essential in this patient.

- Question 6 - How will you now MONITOR this patient?

- For a patient in shock – every 15 mins
- For a sick/unstable patient- at least every hour
- Vitals to be checked by nurses AND doctors.
- For a stable patient – every 4-6 hrs.
- Must have specific cut off for nursing staff to inform.

GAMATRI 245579.

Impression — Altered mental status in post partum period.

Probable puerperal sepsis.

Adv 10.00 am

- BP
- PR
- RR
- Temperature

} 8 hrly

- Strict urine - input output chart
- GRBS 8 6 hrly.
- Inform if systolic BP < 90 mm Hg
- Inform if PR > 120/min.
- Inform if RR > 30/min.
- Inform if urine output < 30 ml/hr.
- Inform if GRBS < 60.

24/6/17	10	26/6	80/-	40/-			2025/-	SDF	DC	
							50/-	100/-		

Systolic blood pressure	<90 or >160 mm Hg
Diastolic blood pressure	>100 mm Hg
Heart rate	<50 or >120 beats/ minute
Respiratory rate	<10 or >30 breaths/ minute
Oxygen saturation on room air	<95% at sea level
Oliguria	<35 mL/hour for ≥2 hours
Maternal agitation, confusion or unresponsiveness; patient with preeclampsia reporting an unremitting headache or shortness of breath	

- All parameters change fast in patients with altered mental status

  REASSESS REASSESS REASESSS!!

assessed at 11.am

been given 1st dose antibiotics

RDT - ve

RBS - 92.

nil — 99°.

PR - 90/min [previously 110].

RR - 30/min [previously 42]

BP - 94/80 mm hg.

SpO_2 - 97%.

GCS - 14/15.

urine output -

50 ml in this hour

phael pulses good. tongue moist

SKILL STATION - 1

Glasgow Coma Scale

Points Scored

Best motor response

Best verbal response

Eye opening

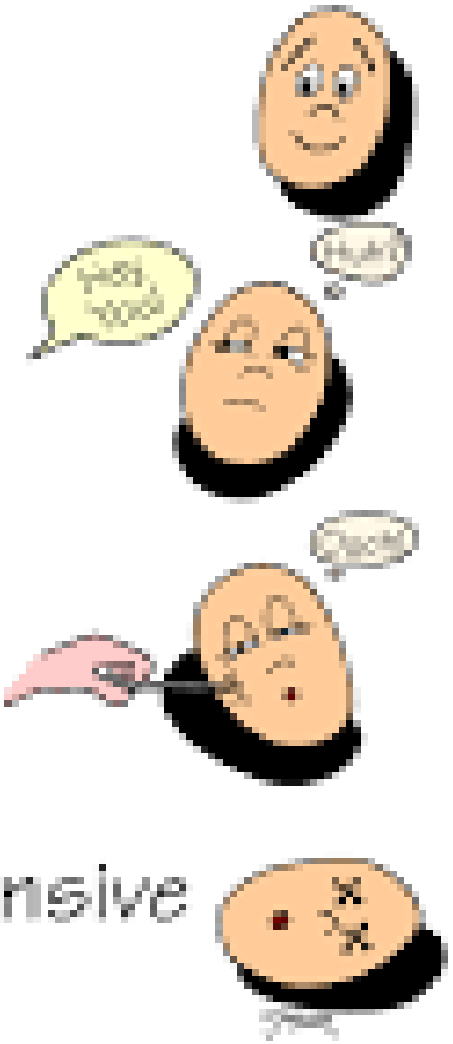
LEVELS OF CONSCIOUSNESS

A Alert

V Verbal Stimuli

P Painful Stimuli

U Unresponsive



For the group #2

- Suman, a 22 year old G4P2A1 comes to you at 36 completed weeks of pregnancy with complaints of fever for 2 days with extreme drowsiness for the last 1 day. Her relative has gone for registration and no further history is available at this time.
- Question 1 - What are the first things you would SEE in this lady?

- PR
- RR
- BP
- GCS

q SOFA

- SpO2
- Simultaneously RDT (malaria) and GRBS

- Fever - 102 F
- PR- 20/min
- RR- 45/min
- GCS - 12/15
- BP- 70/50
- SpO2 - 95 % room air

What would you ADVISE as first steps of management?

- C,A,B
- Check vitals
- Oxygen, monitor, 2 wide bore IV cannula
- Give bolus NS – 30ml/kg in 3 hours.

- Broad spectrum antibiotics in the first hour- high dose Ceftriaxone and Metronidazole
- Obtain hourly vitals. Goal systolic BP > 90
- Catheterize
- RBS
- RDT (malaria)

- What next would you SEE in this patient?

- Remember - good light
  - good exposure

- Pallor
- Icterus
- Lymphadenopathy
- Rashes/Eschars
- Neck stiffness
- Pupils/plantars
- Hepatomegaly, splenomegaly
- Crepitations/wheeze

- What would you ADVISE in this patient?

Required to send

- Total counts/differentials, platelets
- RDT (malaria)
- RBS
- Urine routine/microscopy

Good to send

- Na, K
- SGPT
- Creatinine

- RDT – positive for p. falciparum
- RBS- 52

What further tests will you send and how will you manage?

- Inj. Artesunate 2.4 mg per kg iv stat

  then at 12 and 24 hrs

  then od

  then oral ACT when patient can tolerate.
- In 1st trimester - Quinine , 20 mg per Kg loading dose over 4 hrs

  then 10 mg per Kg 8 hrly over 24 hrs

- IV Dextrose 50 % bolus and then continuous infusion
- Can de-escalate antibiotics
- Fluids, blood as needed

Further tests -

- Hb
- Bilirubin
- S.creatinine (if not done)
- RBS - q 4-6 hrly on Day 1

Systolic blood pressure	<90 or >160 mm Hg
Diastolic blood pressure	>100 mm Hg
Heart rate	<50 or >120 beats/ minute
Respiratory rate	<10 or >30 breaths/ minute
Oxygen saturation on room air	<95% at sea level
Oliguria	<35 mL/hour for ≥2 hours
Maternal agitation, confusion or unresponsiveness; patient with preeclampsia reporting an unremitting headache or shortness of breath	

Monitoring

- BP, PR, RR, SpO2
- Urine output and colour – hydration status
- GRBS

SKILL STATION -2

Meningitis
Signs and Symptoms

Severe stiffness of the hamstrings causes an inability to straighten the leg when the hip is flexed to 90 degrees (Adam, 2009)

Severe neck stiffness causes a patient's hips and knees to flex when the neck is flexed (Adam, 2009)

For the group #3

- Madhu a 22 year old primigravida at 34 weeks pregnancy was brought to the hospital by her husband with a history of having been found drowsy and disoriented.

- The patient was apparently well when he left for work in the morning but upon returning she was found to be in an altered state. She had a history of irregular ANC check up.

- What could your differentials be with this history?

- Eclampsia/seizure
- Malaria
- Encephalitis
- Postpartum sepsis
- Stroke/CVT

The nurse on duty gives you her vitals sheet

- Fever -98.4
- PR - 72/min
- RR - 16/min
- BP- 180/120
- GCS – 13/15
- SpO2 - 97% room air

qSOFA

What is her q SOFA score?

- What would you like to EXAMINE in this lady?

- GCS
- Oedema
- Jaundice
- Pallor
- Hepatomegaly
- Simultaneously RDT (malaria) and RBS

- Neck stiffness
- Pupils equal/reactive
- Plantars
- “Bare minimum” neurological exam
- Respiratory examination for pulmonary oedema

- What initial tests would you ADVISE ?

Required to send

- Total counts/differentials, platelets
- RDT
- RBS
- Urine albumin

What additionally would you like to ADVISE ?

Good to send

- S. Creatinine
- SGPT
- PT/INR

- Any altered mental status with high BP – Urine for albumin to be sent ASAP.
- Use catheter if need be

Madhu's labs

- Total counts/differentials – 8200, N- 75% L -25%
- Platelets- 80,000
- RDT - negative
- RBS - 80
- Urine albuminuria - 3+
- S. Creatinine – 1
- SGPT - 67
- PT/INR – not available

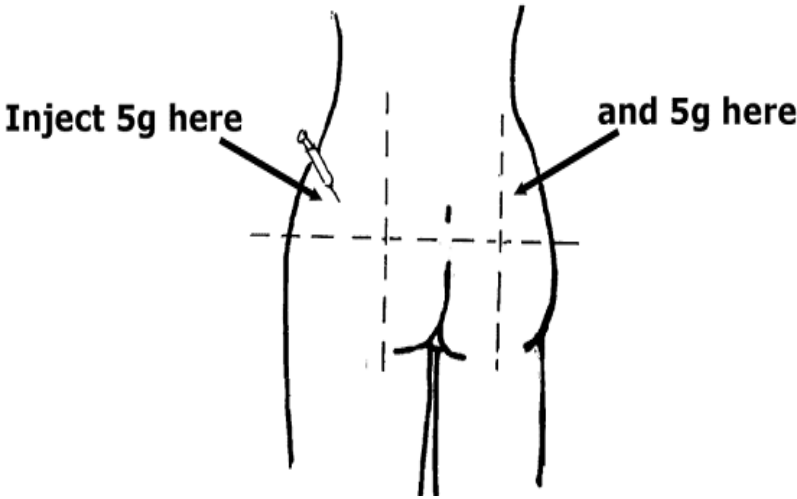
- Probable eclampsia, now in post ictal phase
- HELLP syndrome

- C, A, B
- Keep NPO - beware aspiration
- Left lateral in a dark quiet, monitored place
- Oxygen, pulse oximeter
- 2 wide bore i.v lines

- Foley’s catheter, strict urine output monitoring
- Control hypertension - Labetalol, Nifedepine - SR
- Fluids
- MgS04

At all levels of care...

- Loading dose - Inj MgS04 4 gm iv over 10-15 mins plus 5 gm deep im. each buttock
- Maintenance – 5 gms in alternate buttocks every 4 hrs with monitoring



- How would you MONITOR this lady?

Systolic blood pressure	<90 or >160 mm Hg
Diastolic blood pressure	>100 mm Hg
Heart rate	<50 or >120 beats/ minute
Respiratory rate	<10 or >30 breaths/ minute
Oxygen saturation on room air	<95% at sea level
Oliguria	<35 mL/hour for ≥2 hours
Maternal agitation, confusion or unresponsiveness; patient with preeclampsia reporting an unremitting headache or shortness of breath	

- BP’s – anti hypertensive as needed
- Sensorium - prognostication
- Urine output – magnesium safety, guide fluid management
- Knee jerks- magnesium toxicity
- Respiratory rate – magnesium toxicity, pulmonary oedema
- GRBS - as is usual in altered mental status

For the group # 4

- An 18 year old G1P0 comes to you at 28 weeks of pregnancy. She has recently been sent from her in law's house to her maternal home as she is "weak" and unable to carry out her usual chores. She has been feeling lethargic, been coughing occasionally and has had a poor appetite over the last few weeks

- Since she has come home she has been noticed to be speaking less and irrelevantly and has refused all food and water since the morning of the same day.

- What additional history would you like to ASK?

- Weight loss, appetite loss
- H/O T.B contact or past TB
- Headaches, vomiting, focal deficits

- The nurse on duty hands you her vital charts
- Fever -99 F
- PR - 120/min
- RR - 36/min
- BP- 100/68
- GCS – 14/15
- SpO2 - 80% on room air

q SOFA

- What is the most likely cause of her altered mental status?

- On examination you can hear bronchial breathing in right upper lobe as well as extensive crepitations over the right side and left upper lobe.
- How would you proceed? Would you do an X ray chest?
- Would you do a lumbar puncture?

- C, A, B
- Oxygen, pulse oximeter
- 2 wide bore i.v lines
- Fluids
- Antibiotics for a lower respiratory tract infection

- X ray - if crucial to diagnosis with shield
- Sputum for AFB, if negative X 2 then genexpert test.

For the group #5

- 26 Year old G2P2, Rukmini who underwent an uneventful delivery days back presents to hospital 8 days after delivery. Her relatives complain that “आएँ बाएँ बोल रही है”. She is refusing to feed or take care of her baby.

On further history

- These complaints started spontaneously yesterday. There is no h/o fever, vaginal discharge, head ache or vomiting. She had undergone a regular ANC and had no records of hypertension or seizures

- She has not sustained any head injury. She is able to carry out her activities of daily living with prompts and the relatives have not notices any weakness/asymmetry of face/body.

GCS

- Opens eyes spontaneously
- When asked to move right hand - pushes examiner
- When asked her name – starts chanting gayatri mantra

GCS IS..... ??

- Fever – 98.3
- PR – 90/min
- RR - 16/min
- BP – 110/70
- SpO2 -98%
- q SOFA

- What are your differentials at this stage?

- Malaria/encephalopathy
- Structural causes
  - Cerebral venous sinus thrombosis
  - Stroke
  - Subarachnoid haemorrhage
  - Intra-cerebral haemorrhage
  - ICSOL

- Drugs/Toxins
- Post partum psychosis
- Non convulsive status

- What would you SEE on examination?

- CNS examination including mental status

SKILL STATION -3
“BARE MINIMUM” CNS EXAM

“Bare minimum” CNS examination

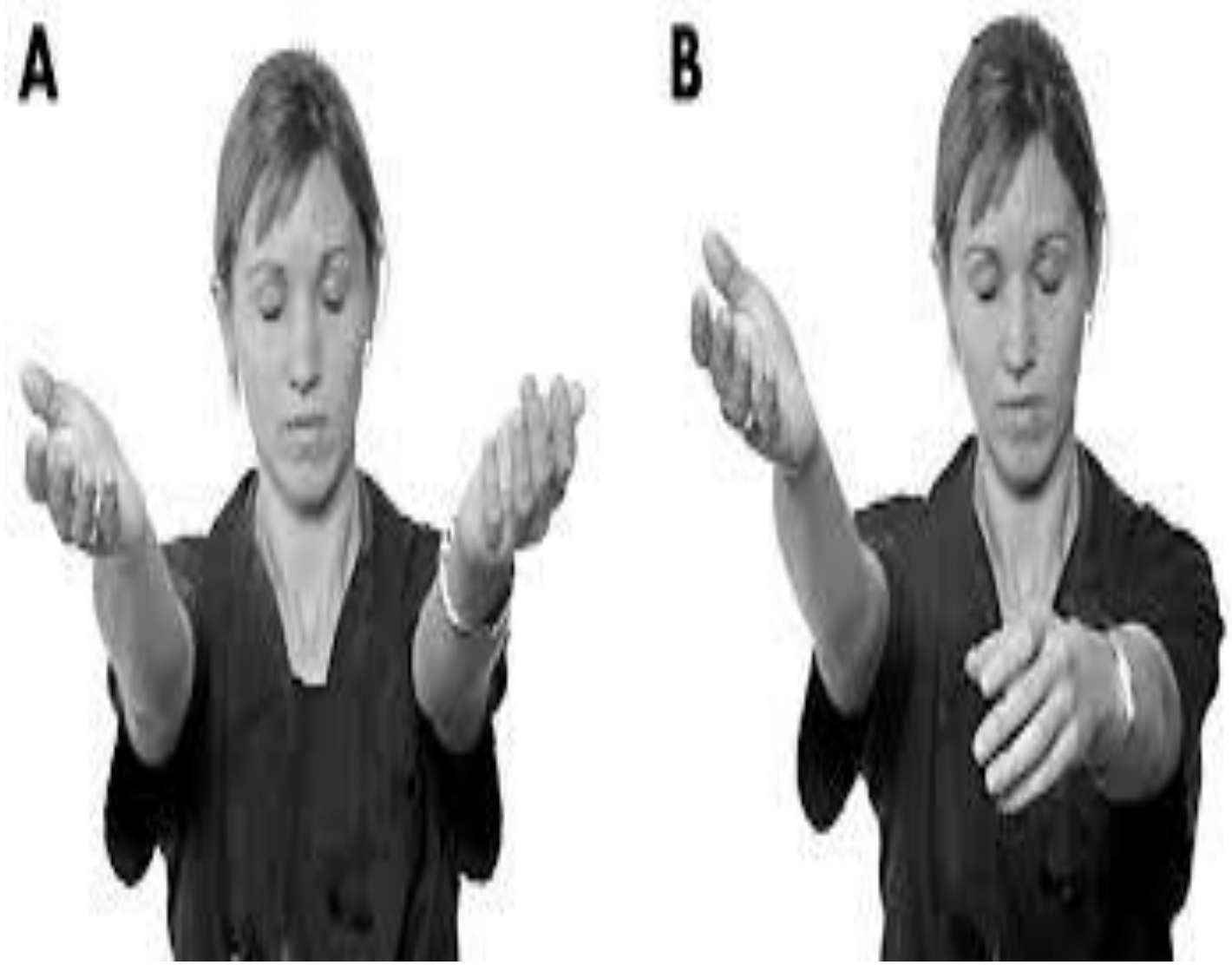
- Mental status - difficulties in communication and recall and insight into past and recent events.
- Cranial nerves- - fundus, visual fields, pupil size and reactivity, EOM, facial movements

- Motor examination - muscle atrophy and extremity tone.

Upper limbs – pronator drift, strength of wrist and fingers

Walk on heel and toes

Knee, ankle and biceps jerk


A
B

- Sensory light touch and temperature of cool object in each extremity
- Double simultaneous stimulation using light touch on hands

- Coordination – rapid alternating movements, finger nose, knee heel shin
- Gait – normal and on heels and toes.

- What investigations would you ADVISE ?

- Total counts/differentials
- RDT
- RBS
- Urine routine/microscopy

- Rule out an organic cause before considering post partum psychosis.
- If no focal deficits, imaging is not essential.

Monitoring to continue...

Systolic blood pressure	<90 or >160 mm Hg
Diastolic blood pressure	>100 mm Hg
Heart rate	<50 or >120 beats/ minute
Respiratory rate	<10 or >30 breaths/ minute
Oxygen saturation on room air	<95% at sea level
Oliguria	<35 mL/hour for ≥2 hours
Maternal agitation, confusion or unresponsiveness; patient with preeclampsia reporting an unremitting headache or shortness of breath	

- What treatment would you ADVISE?

- Atypical anti-psychotic
  Risperidone/Olanzepine - starting at 2/5 mg
- Benzodiazepine cover in the short term only
- Parentral Haloperidol + Promethazine (10/50) for extreme agitation/suicidal/homicidal behaviour.
- Communication and safety

THANK YOU!