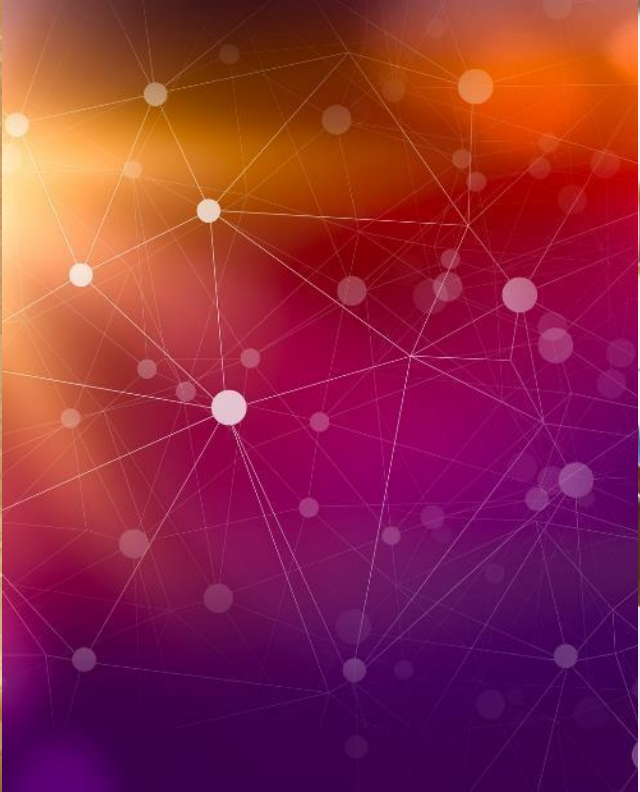




Stroke Education Session #1

Kyla Brown (PT)





How can I help?

- Strokes in a bed crisis
- Miss the bypass policy
- Acute patients having strokes peri-op or associated with illness

Agenda

General overview of Stroke Types

Approach to Ax / Localization

Case Study #1 and #2

Assess them with me

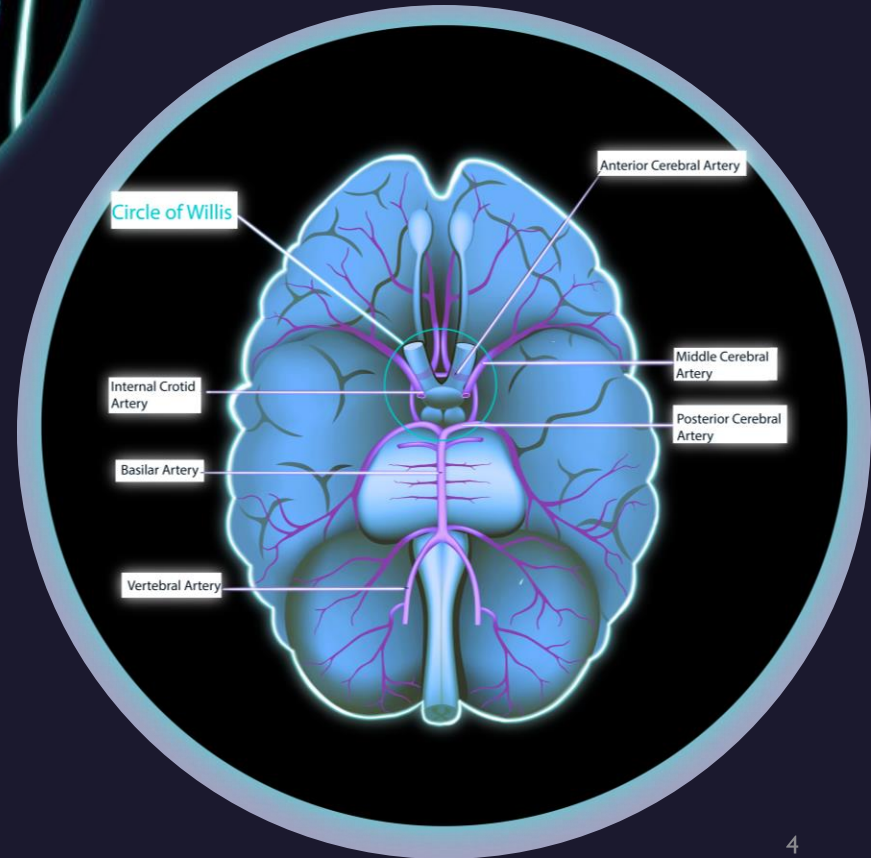
Treat them with me



Stroke Terminology —

Lesion Localization

- Anatomical Structure Involved
 - Lobe/Nuclei/Brainstem
- Bamford/ Oxford Classification
 - TACS/PACS/LACS/POCS
- Vascular Distribution
 - ACA/ MCA/ PCA/ Post Circ



Stroke Terminology

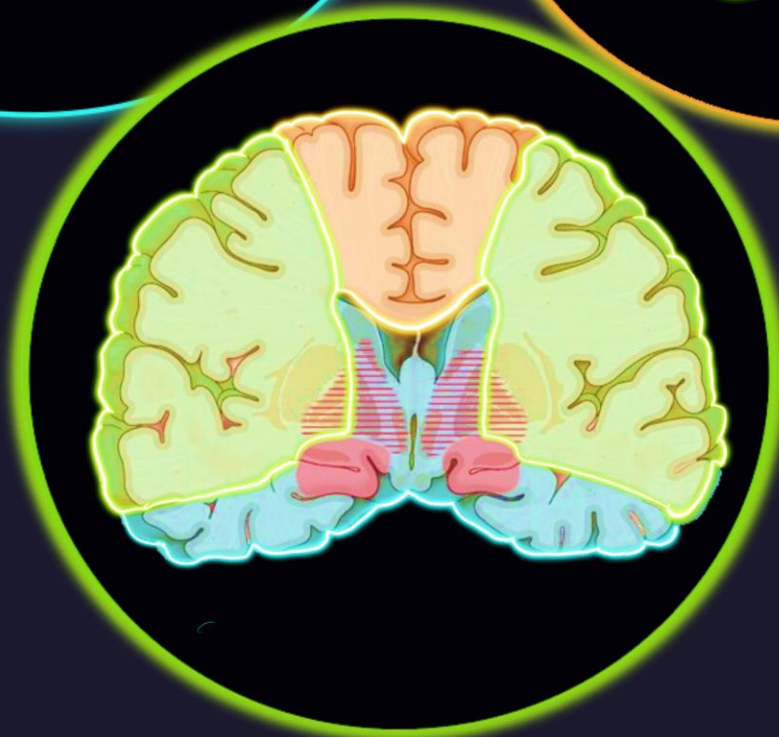
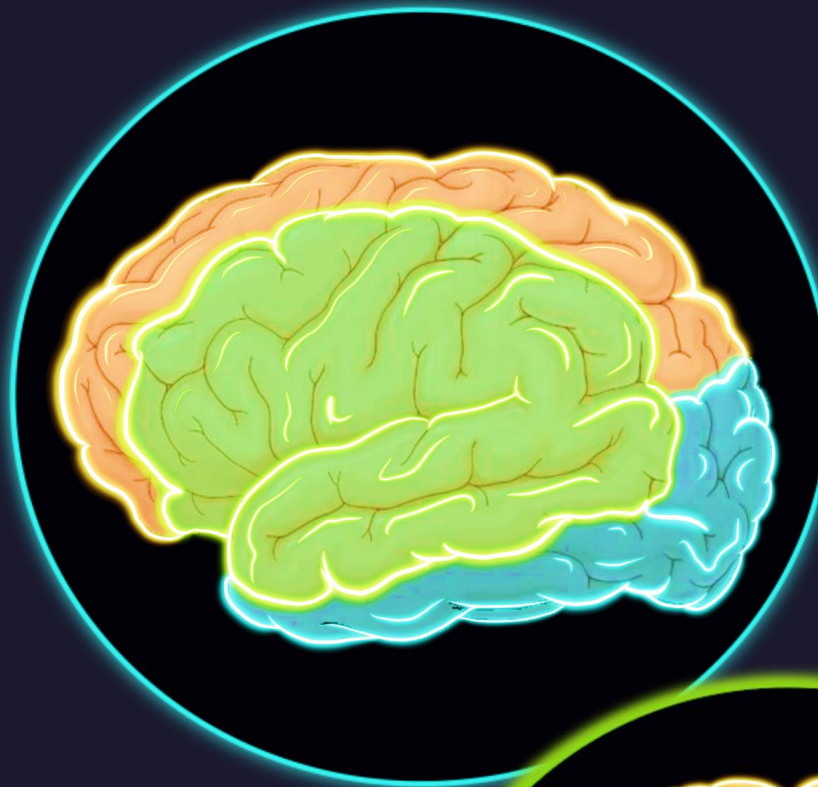
Vascular Territories

Anterior Circulation

- ACA/MCA

Posterior Circulation

- PCA
- Cerebellum/ Brainstem



MCA Strokes

RIGHT MCA SYNDROME

- Left hemiparesis
- Left hemisensory deficit
- Left visual field cut (Homonymous hemianopia/ quadrantanopia)
- Left Hemineglect (visual/ spatial/ tactile)
- Anosagnosia

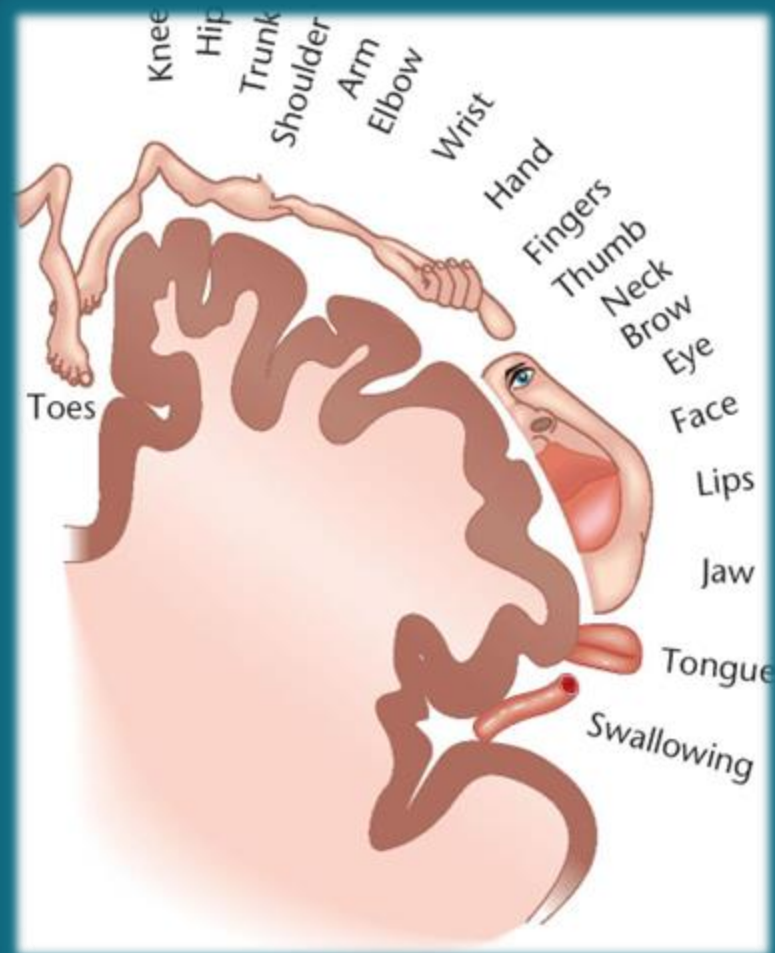
LEFT MCA SYNDROME

- Right hemiparesis
- Right hemisensory deficit
- Right visual field cut (Homonymous hemianopia/ quadrantanopia)
- Right Inattention
- Aphasia

MCA Strokes

RIGHT MCA SYNDROME

- **Left hemiparesis**
- **Left hemisensory deficit**
- Left visual field cut (Homonymous hemianopia/ quadrantanopia)
- Left Hemineglect (visual/ spatial/ tactile)
- Anosagnosia



MCA Strokes

RIGHT MCA SYNDROME

- Left hemiparesis
- Left hemisensory deficit
- **Left visual field cut (Homonymous hemianopia/ quadrantanopia)**
- Left Hemineglect (visual/ spatial/ tactile)
- Anosagnosia



In homonymous hemianopia, one would only be able to see what is happening in just one half of each eye.

MCA Strokes

RIGHT MCA SYNDROME

- Left hemiparesis
- Left hemisensory deficit
- Left visual field cut (Homonymous hemianopia/ quadrantanopia)
- **Left Hemineglect (visual/ spatial/ tactile)**
- Anosagnosia

DOMAINS OF NEGLECT

- Personal/ Peripersonal/ Extrapersonal
- Visual / Tactile Extinction
- We don't diagnose neglect but we can see it in our assessment and treat it during our therapy

MCA Strokes

RIGHT MCA SYNDROME

- Left hemiparesis
- Left hemisensory deficit
- Left visual field cut (Homonymous hemianopia/ quadrantanopia)
- Left Hemineglect (visual/ spatial/ tactile)
- **Anosagnosia**

Preparing for my Neuro Assessment

GETTING READY FOR MY ASSESSMENT

- What did MDs document
- Radiographic findings
- Remember a patient can be vastly different in the days following a stroke
- Remember neuro Ax is a screen. If you find something interesting, you look closer

The way to get started is to quit talking and begin doing.

Walt Disney



Case Study Mrs OK.

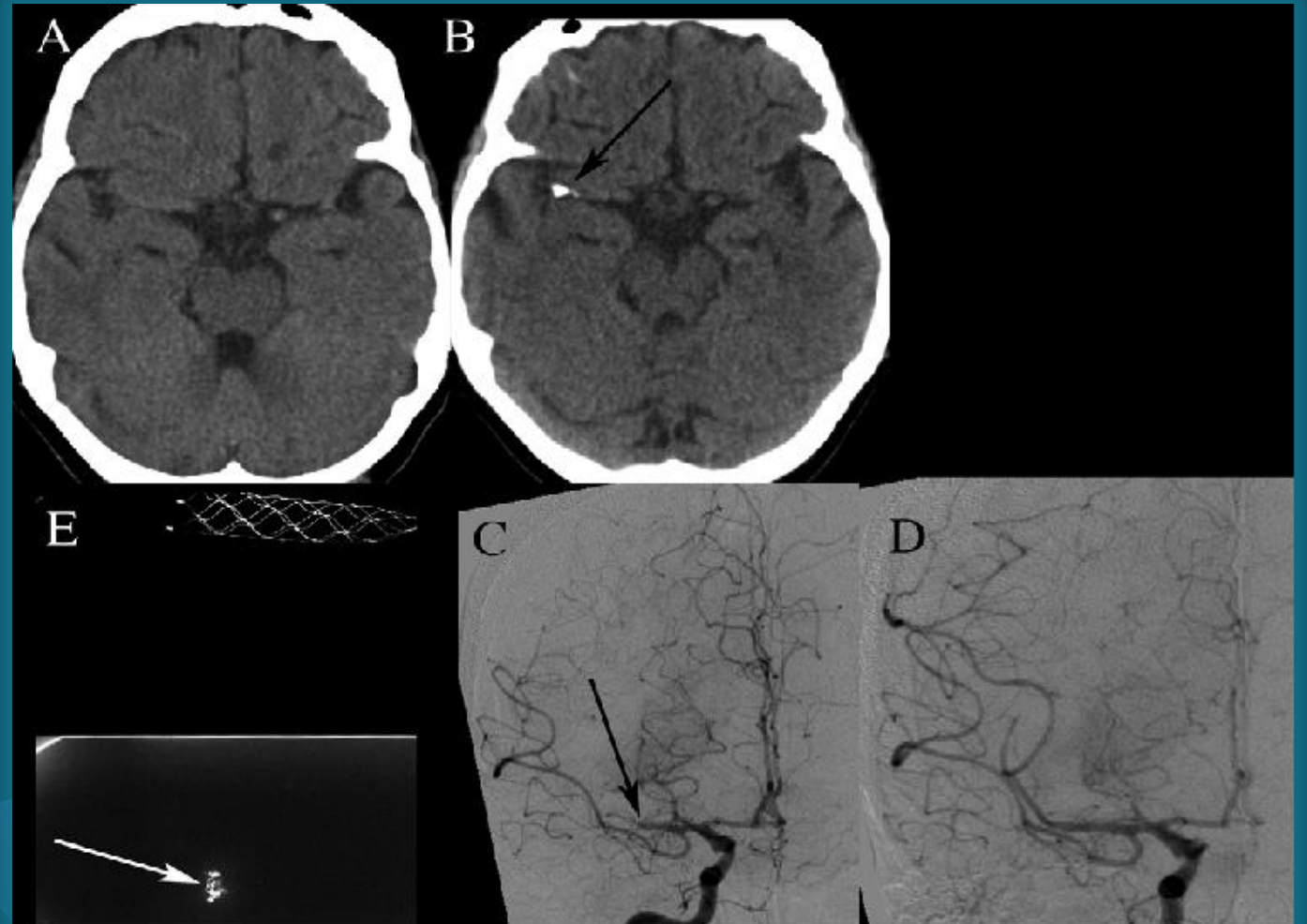
HPI: Pt awoke yesterday morning and upon trying to go to the bathroom was unable to get out of bed. Husband called 911. EHS noted dense left weakness. ASP was activated

Neuro Ax:

- Strength: left arm some antigravity/ left hand no mvt/ left leg breaks gravity/mild facial droop
- Sensation: left LT mildly decreased/ tactile extinction noted

Imaging: CTA showed right MI clot

Hyperacute management: Pt received TNK and EVT



Case Study Mrs OHINO

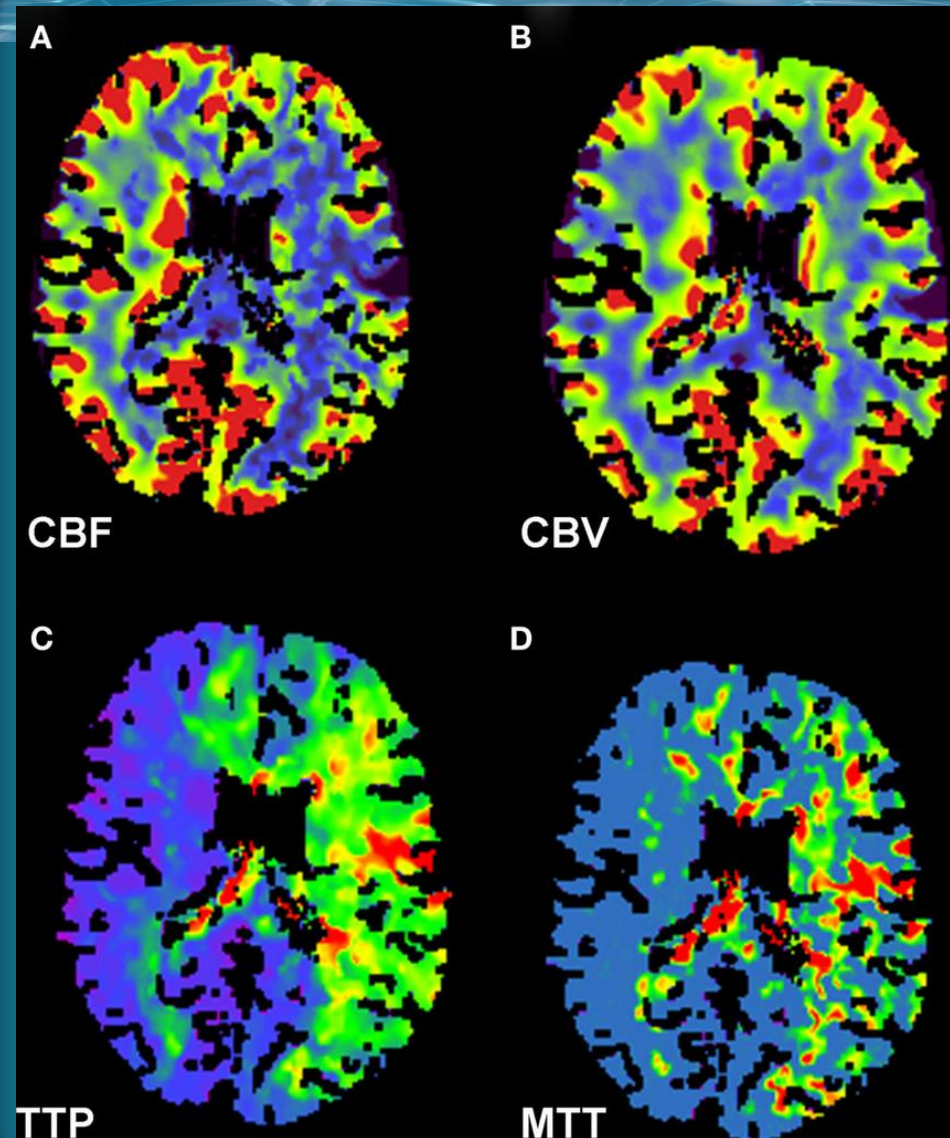
HPI: Pt was found down by niece when she didn't answer her phone. Was last seen well by sister 2 days ago. Niece called 911. EHS noted dense left weakness

Neuro Ax:

- Strength: left arm no mvt/ left leg no movement
- Sensation: Unable to localize to left

Imaging: CTP shows dense right MCA hypoperfusion

Hyperacute management: ASP was activated but patient outside of window for thrombolysis and no clot evident on CTA



Our Assessment of Right MCA

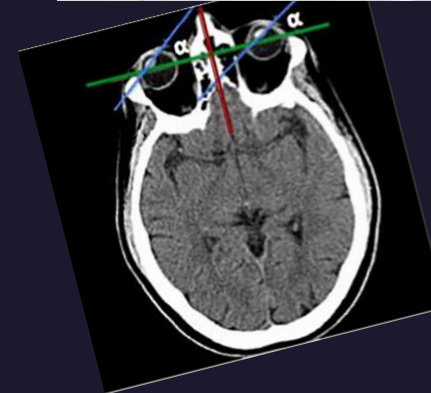
OBSERVATION IN BED/EOB

- Forced Gaze deviation
- Gaze Preference
- Scanning past midline
- Position in Bed - Kitty corner
- Position of Limb
- Cognitive components like insight and attention

MRS. OK

- Patient tells us that all her stroke deficits are resolved, and she is back to herself
- Tends to pay better attention to OT on right side of bed. Does scan to find PT on left side of bed when cued
- Moving left arm and leg spontaneously against gravity but not well controlled
- When sat at EOB had to be cued as sat up on L hand. L foot not in contact with the ground. Unaware of same

MRS. OHNO



Our Assessment of Right MCA

STRENGTH

- Initial Ax is a **screen** looking for patterns of weakness
 - Lateralizing weakness
 - UMN pattern of weakness/ synergies
 - Pattern of return of movement
- Objective Measures: Chedoke vs MMT
- Looking for neglect:
 - Default to right Limb- when asking for left
 - Bring attn to limb to test it
 - Some tasks tested bilaterally- if different tested unilaterally
 - Bedside exam and functional strength may differ

MRS. OK

- Initially lifted right when asked to SLR on left
- Some observed L clumsiness but was able to move better when attention drawn to that side
- When testing bilateral tasks subtle L weakness but improved with unilateral testing
- Noted bridge pull test positive and HF/ KF/DF/EV mildly weaker on L (MMT 4)
- CM stage 4 leg

MRS OHNO

- Very difficult to assess. Pt dysarthric with left facial weakness
- Lots of cueing to attend and watch leg
- Able to facilitate some hip adduction and extension and Sh IR (MMT 1)
- Nil actively at foot
- CM Stage 2 leg; 1 foot

Our Assessment of Right MCA

SENSATION

- Tingling or Numbness?
- Light Touch
 - Quantify difference
 - Localization
 - Tactile Extinction
- JPS – static vs dynamic
- Sharp/Dull
- Vision
 - Visual field
 - Visual Extinction

MRS. OK

- Reports no tingling or numbness
- Reports LT feels less on left with testing
 - 50% at knee
 - 20% at feet
 - Able to localize
- Tactile extinction evident on DSS
- JPS inconsistent on left and right
- No HH found but visual extinction

MRS OHNO

- Reports sensation feels the same from side to side
- Unable to localize any LT stimuli on L
- JPS inaccurate
- No response to L visual threat elicited

Our Assessment of Right MCA

STONE/ SPASTICITY

- MAS
- Clonus
- Babinski/ Hoffman's

COORDINATION

- Heel Shin/ Finger to Nose
 - Intention tremor/ Dysmetria
 - Cerebellar/ sensory/ ataxic hemiparesis
- RAM – Coordination/ Cognition
 - Rate/ Rhythm and Repetition

MRS OK

- Tone
 - MAS I+ pf, I KE, I+ HE
- Coordination
 - Mild dysmetria on left on HS and FN improved on repetitions
 - RAM mildly clumsy on left but better unilaterally though slower

MRS OHNO

- Tone
 - Flaccid UE except MAS I IR
 - Flaccid LE except MAS I pfs
 - Babinski +ve
 - Clonus >5 beats at ankle
- Coordination
 - Unable to complete

Our Assessment of Right MCA

SITTING/STANDING

- Postural Control / Weakness
- Midline Orientation
- Awareness of Position in Space
- Do they launch balance reactions
- Pushers – making life difficult
- Does motor control in standing match up with bedside Ax?
- BERG or parts thereof to look for lateralizing findings

MRS. OK

- Sit - Good postural control but drifting to left with dynamic testing of UE mvts or when distracted. Corrects with cues.
- Standing Balance min ax I with increased L lean but able to achieve static stand
- Drift to left with eyes closed but recognizes and self corrects
- Unable to SLS/ tandem either side (falling left)

MRS OHNO

- Obvious truncal weakness in sitting
- Pushing with R UE. ++Pushing with correction
- Unaware that she is falling to left or that she is being held up by PT
- Without support falls to L with no catching reactions
- Unable to static stand - Max Ax2 to stand with bracing left leg. Some spontaneous HE activation noted. Pushing++

Our Assessment of Right MCA

TRANSFERS

Assessing as Always

- Amount of assist
- Pattern of movement

Perception:

- Orienting in Space
- Protecting Limb/ Engaging Limb
- Pushers in 3D

MRS. OK

- Sup to sit – cueing for left hand getting caught in blankets
- Sit to stand – min ax1 initial give through left leg so bracing required until left leg engage fully. As long as attending to task knee engaged
- Bed to chair – min Ax1 pivot to right. Sat before adequate turn generated

MRS OHNO

- Roll – Unable to orient to railing on L. To right pulled through railing but left arm and leg left behind Mod Ax2
- Supine to sit – max Ax2. pt pushing with RUE towards L requiring disadvantaging RUE
- Sit to Stand – Max Ax2 with LUE sling. Bracing through left LE. ++L lean. Pt cheating right leg laterally to push requiring bracing of right foot
- Bed to chair pivot towards R Max Ax2 pushing++, moving w/c away from bedside Torso falling to L. Attempted to disadvantage RUE but still very difficult to generate turn. Completed dependent weak side pivot transfer Ax₂₂

Our Assessment of Right MCA

AMBULATION

Assessing as always:

- gait pattern – motor control
- Assist/ aid

Setting up to assess perception:

- Orient path so turns on neglectful side (scanning)
- Preload with info to navigate
- Orientation in hallway (bumping into objects)
- Decreased consistent use of affected side

MRS. OK

- Completed 50m with SBA- with PT on right/ posterior
- Bumped left arm on doorframe x1 and missed one turn to left when 3 options available
- Mild decreased L step length and catching L toe in midswing. With mild hip hike. Some veer noted to left in left stance phase
- At times required cueing to attend to left as it would catch and drag. Improved with attention

Let's Treat Our RMCA

TREATMENT PLAN

1. What do I assess Next?
2. Motor Control
3. Balance
4. Mobility

MRS. OK

1. I would Assess BERG and CM
2. Focus on motor control tasks in front of a mirror supervised and Bed/Chair exercises she can do on her own
3. Some supervised balance exercises
Don't trust yet unsupervised in standing (perception)
4. Transfer Training
5. Ongoing gait- retraining
 1. Focus on scanning
 2. Trial Amb aid as forcefield

MRS OHNO

1. Ax hemiplegic shoulder for subluxation and scapular dysfunction as well as ongoing CM of leg foot.
2. Some facilitated AAROM and stretching where there is tone
3. Working at EOB on awareness of midline. Working on scanning. Encouraging up in chair for proprioceptive input
4. Transfers/Sit to Stand training as appropriate

What you may see with neglectful patient

Bed Mobility

- Less roll to one side
- May push away from full turn
- Leaving arm and leg behind or rolling onto them
- Always moving away from midline

Supine to Sit

- Lean to Left – Falling in sitting
- Pushers - Disadvantaging arm to prevent pushing
- Odd arm and leg positioning

Bed to Wheelchair

- Not orienting torso in direction of travel
- Pusher with arm and leg
- Inadequate turn – Once my right leg is there I am DONE

Ambulation

Personal neglect

- Forget to step on that side
- Hand falling off walker
- Giveaway at times
- Catching foot

Ambulation

Peri-personal neglect

- Too close to objects
- Bumping into objects in close vicinity

Environmental neglect

- Orientation in hallway
- Missing rooms/halls
- Not scanning with head past midline or less frequently
- Worse with distraction



Questions????

Thank You

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