Acute Stroke Management Workshop
Case Study

This case study will review the following:

- Anatomy and Physiology of an Acute Stroke
- Neurological Assessment
- Management of Acute Stroke using t-PA
- Management of Acute Stroke
- Secondary Stroke Prevention

Case Study #1

A 68-year-old man presents to the emergency room with garbled speech and severe right-sided weakness involving face/arm/leg. He was watching the 11:00 news when suddenly he slumped over to the right side, unable to speak. His wife called the ambulance immediately and he was taken to the emergency department. After triage, a CODE STROKE was called at 12:15 am. A CT scan of the head was completed by 12:45 am. The medical history was discussed with his wife.

Past Medical History

3 episodes of garbled speech in the last month lasting about 15 minutes each. He was started on ECASA 81mg by his family physician.

HTN x 10 years
Stable angina
Ex smoker x 6 weeks
Borderline cholesterol (diet control)

*Medications*
- ECASA 81mg daily
- Metoprolol 25 mg BID
- Hydrochlorothiazide 25 mg OD
- Nitro-glycerine SL PRN

*Medical Examination*
- B/P 200/110, HR 80 regular, resp 20 with upper airway wheezing, temperature 37.8° on admission
- Cardiovascular: heart sounds normal, no murmur, bruit heard on left side of neck
- Abdominal: soft, non-tender, and no masses
- Neck: no stiffness

*CNS Examination*
- Pupils equal and reactive to light and accommodation
- Gaze preference to the left
- Possible right visual field loss
- Right facial droop (UMN 7th)
- Receptive aphasia
- Severe weakness right arm (0/5), right leg weakness (1/5)
- Sensation: decrease on right side of body to pin prick
- Right Babinski
- Mild hyperreflexia

*Initial Investigations (ER)*
- Ct scan shows no hemorrhage, left hyper-dense MCA sign, no sub-acute changes
- ECG: normal sinus rhythm with occasional PVCs
- Random blood sugar: 6.8, INR: 1.0, Platelets: 160, HB: 142

*Investigation (once admitted)*
- Cerebrovascular Doppler: 80% stenosis Left ICA, 40% stenosis Right ICA
- Transcranial Doppler studies showed cephalad flow with normal mean velocities of bil. Intracranial vertebral and basilar arteries.
Echocardiogram: LV normal size, Posterior wall hypokinetic. Grade 2 LV. No thrombus seen. No shunts seen.
Holter (24 hrs): Sinus rhythm with frequent PVCs, no atrial fib was seen. Patient asymptomatic.
Blood work: Coagulable screen: normal, B12: 260, FBS: 5.2, Total cholesterol: 7.4
Cerebro-angiogram: Confirms severe stenosis of Left ICA 90-95%, mild stenosis of Right ICA

**Part 1: Questions for Discussion**

*Anatomy/Physiology and Neurological Examination*

Discussion about the neurological examination- Pearls of Wisdom
Where is the lesion and what vascular territory supplies this area?
What is the possible etiology?
What are the initial investigations needed in ER for this patient?
What is the possible differential diagnosis?

**Part 2: Questions for Discussion**

*Acute Stroke Management*

What was the time of the stroke onset?
Does this patient meet the inclusion criteria for tPA?
How would you make your decision?
What about the BP?
How would you monitor your patient post tPA?
What other treatment should be initiated in the ER for this patient?
What investigations are still needed post-emergency phase?

**Part 3: Questions for Discussion**

*In-Patient Management*

Any other investigations needed?
What medical or interventional treatment would you recommend at this time?
What interdisciplinary team members should be involved in the management of this patient?
CASE STUDY #2

While driving back from the mall, Mr. Smith noticed that his wife suddenly had difficulty speaking. She made no sense when answering his questions. He decided to drive immediately to the nearest emergency.

Present History

Mrs. Smith is 53 years old, mother of two and works as a receptionist for a private company. She is obese (height is 5’4” and weight 175lbs)
Borderline hypertensive (130/85)
Smokes ½ pack cigarette/day x 30 years
Never had surgery or any past medical problems in the past
Rarely sees her family physician

Medication

Nil

Vital Signs

B/P 145/85, HR 96, Resp. 20, Temp. 36.5°

While waiting to be assessed by the ER physician, Mrs. Smith completely resolves. She feels completely normal and is wondering what happened.

QUESTIONS FOR DISCUSSION

What is the most likely diagnosis?
What investigations would be needed immediately?
What medical treatment would you order?
What recommendations and teaching would you give prior to discharge?
What are the next steps?