MEDICAL IMAGES – Decisions in acute stroke

DECISIONS IN ACUTE ISCHEMIC STROKE

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How competent are you in making decisions regarding management of ischemic stroke? Test yourself with the three case scenarios presented below. Each is accompanied by a radiological image and questions pertaining to management in that particular scenario. Try to answer the questions before viewing the comments given in the text.

Case 1
Scenario:
A forty year old man is brought to the Emergency department with dense left hemiplegia that started suddenly 48 hours ago. He is mildly confused, not fully oriented to time and place, but answers most questions.

Question:
1. Which of these is most important in management?
   - anti-platelet medication
   - anti-coagulation or thrombolysis
   - counselling the relatives

Case 2
Scenario
A sixty eight year old hypertensive presents with right hemiparesis for 12 hours. Physical examination showed irregular pulse and ECG showed atrial fibrillation.

Questions:
1. What medication will you initiate in this patient and why?
2. Are anti-platelets and thrombolysis relevant in this patient?
Case 1
This patient has a large infarct in the right middle cerebral artery territory and has presented late to the hospital with evidence of brain swelling (effacement of sulci, deformation of lateral ventricle). The mass effect and intracranial pressure due to oedema is likely to increase in the next 24-48 hours leading to life-threatening brain herniation. The most important aspect of management is to counsel the relatives that the clinical condition of the patient is likely to worsen further and that he may require neurosurgical intervention as a life saving measure.

The signs of raised intracranial pressure are deterioration in consciousness, bradycardia and hypertension (Cushing’ response). This patient shows signs of raised intracranial pressure (confusion and disorientation) which is likely to worsen with time. Anti-oedema measures need to be initiated (Mannitol/hypertonic saline) along with anti-epileptic medication and GCS score will need to be monitored closely, preferably in a center with neurosurgical facility.

There is no role for anti-platelet medication in the acute setting for three reasons – 1) there is the possibility of hemorrhagic transformation because it is a large infarct), 2) the infarction is established and there is no tissue that needs to be saved and 3) he may require surgery.

Case 2
The MRI Brain shows a small infarct in the left fronto-parietal white matter which explains the right hemiparesis. The irregular pulse and ECG are suggestive of atrial fibrillation. In this situation, anti-coagulation with heparin must be initiated. Oral anti-coagulation with warfarin must be added on and continued, with monitoring of INR. Anti-coagulation may be safely started because the infarct is small and the possibility of hemorrhagic transformation is small. There is no role for anti-platelet medications and she is outside the window period for thrombolysis.

Case 3
The MRI shows an infarct in the right putaminal region and the MRA shows a cut-off of the right middle cerebral artery. This particular patient will benefit from intravenous thrombolysis. In an ideal situation, she must therefore either receive thrombolysis immediately or be referred to the nearest center that offers thrombolysis if the patients can reach the center in the next 1 to 1.5 hours. The important points to note are:

1. Refer immediately if thrombolysis cannot be initiated in your hospital.
2. Do not waste time in doing a CT scan or any other imaging to rule out hemorrhage if you are referring the patient.
3. Do not start anti-platelet drugs. Cerebro-protective agents are not useful in stroke.
4. Blood pressure up to 220/120 mmHg does not require lowering in the first 24 hours after a stroke.