

THE UNCONSCIOUS PATIENT

- Assess and treat ABC
- Measure temperature and test glucose with BM stick (treat hyperpyrexia or hypoglycaemia immediately)
- Get as much information as possible (from ambulance crew, relatives, old notes etc.)
- Do a full clinical assessment (including fundoscopy, search for injuries/rashes and neurological exam.)
- Assess depth of coma using Glasgow Coma Scale. Involve anaesthetist if GCS<11 and inform senior ED doctor.
- Causes to consider:
 1. **Brain:**
 - Head injury
 - CVA
 - Fits
 - Meningitis/ encephalitis
 2. **Outside brain**
 - Hypoglycaemia
 - DKA
 - Other metabolic
 - Renal failure
 - Hepatic failure
 - Respiratory failure
 - Cardiac failure
 3. **Outside body**
 - Drugs (especially Ecstasy if hyperpyrexia)
 - Alcohol
 - Carbon monoxide poisoning
 4. **Environment**
 - Hypothermia
 - Hysteria
- If no diagnosis after clinical examination, blood tests and x-rays, or if focal neurology consider urgent CT scan

Pupils

| Pupil size and reactivity | Cause |
|---------------------------|---|
| Small reactive pupils | Metabolic disorders Medullary lesion |
| Pinpoint pupils | Metabolic disorders Narcotic/organophosphate ingestions |
| Fixed midsize pupils | Midbrain lesion |
| Fixed dilated pupils | Hypothermia Severe hypoxia Barbiturates (late sign) During and post seizure |
| Unilateral dilated pupil | Anticholinergic drugs Rapidly expanding ipsilateral lesion Tentorial herniation Third nerve lesion Epileptic seizures |

Signs of Raised ICP

1. Abnormal oculoccephalic reflexes (avoid in head injury)
 - When head is turned to left or right a normal response is for eyes to move away from the head movement; an abnormal response is no or random movement
 - When the head is flexed, a normal response is deviation of the eyes upward; a loss of conjugate upward gaze is a sign suggestive of raised ICP
2. Abnormal posturing
 - Decorticate (flexed arms, extended legs)
 - Decerebrate (extended arms. Extended legs)
3. Abnormal pupillary responses
 - Unilateral or bilateral dilation suggests raised ICP
4. Abnormal breathing patterns
 - Cheyne-Stokes
 - Apnoea
5. Cushing's triad:
 - Slow pulse
 - Raised BP
 - Abnormal breathing pattern

STATUS EPILEPTICUS

Ask for senior advice

- ABC + oxygen by NRRM
- Check blood glucose
- IV diazepam up to 10 mg slowly iv
- Phenytoin 15mg/kg by iv infusion (unless patient is on this already) (max. 1g)
- Consider 'Pabrinex' slow iv if history/suspicion of chronic alcohol excess

- Seek anaesthetic help
- Consider paraldehyde
- Consider phenobarbitone

Seek an underlying cause especially:

- Focal neurology – CT
- Injury – CT
- Fever or sepsis – consider acyclovir + cefotaxime
- Poisoning – try to get more history

One of the commonest causes of non-responding status is pseudoseizures – this diagnosis should only be considered by a very experienced doctor – seek help

FITS, FAINTS AND FUNNY TURNS (SEE STATUS EPILEPTICUS, STROKE, TIA AND TLOC)

Many will require outpatient investigation but few require admission, although patients who live alone should not be discharged alone; family help or a care package should be sought. Although alarming for patients, carers and doctors, most have a benign prognosis.

“Funny turn” describes an ill-defined episode of impaired consciousness from which the patient has more or less recovered by the time they reach Emergency Department. This is an extremely common presentation to Emergency Department so you must develop a good system for rapidly evaluating these patients. The cause for the funny turn is usually cardiovascular or neurological. A meticulous history including an eyewitness account is the single most important aid to diagnosis. What was the patient

doing just before the attack? Ascertain whether or not consciousness was lost. If it was, rapid recovery suggests CVS cause, while more gradual recovery suggests NS. Was there injury, tongue biting or incontinence? Is there a history or family history of heart disease or epilepsy?

(Contrary to popular belief, TIA is an uncommon cause for transient loss of consciousness.)

A full history is imperative to include pre-morbid history, prodromal symptoms, length of time unconscious, degree of amnesia and confusion on recovery.

- A neurological cause, for example, epilepsy, SAH, can often be identified by the history, examination and the appropriate referral made.
- 50% of all cases have a cardiac cause and again, these can be determined by history, examination and ECG. Investigate and treat accordingly.

The remaining cases can be classified under five categories

1. Simple Faint

Definite provocational factors with associated prodromal symptoms and which are unlikely to occur whilst sitting or lying. Benign in nature.

These patients can often be discharged home from the ED without follow-up.

If recurrent, will need to check the 3 “Ps” apply on each occasion

Provocation Prodrome Postural

(If not see Number 3 below).

2. Loss of consciousness/ loss of or altered awareness likely to be unexplained syncope and low risk of re-occurrence

These have no relevant abnormality on CVS and neurological examination and normal ECG.

Consider the TLOC guidelines

3. Loss of consciousness/ loss of or altered awareness likely to be unexplained syncope and high risk of re-occurrence

Factors indicating high risk:

- abnormal ECG
- clinical evidence of structural heart disease
- syncope causing injury, occurring at the wheel or whilst sitting or lying
- more than one episode in previous six months.

These patients usually need admitted under cardiology team, especially if first occurrence. Further investigations such as ambulatory ECG (48hrs), echocardiography and exercise testing may be indicated after specialist opinion has been sought.

4. Presumed loss of consciousness/loss of or altered awareness with seizure markers

The category is for those where there is a strong clinical suspicion of epilepsy but no definite evidence.

The seizure markers act as indicators and are not absolutes

- a) unconsciousness for more than 5 mins.
- b) amnesia greater than 5 mins
- c) injury
- d) tongue biting
- e) incontinence
- f) remain conscious but with confused behaviour
- g) headache post attack

For patients presenting with first (possible) seizure consider Observation Ward pathway, if multiple episodes admit under medical team. Discharged patients should be referred to neurology OPD if not already under their care.

5. Loss of consciousness/loss of or altered awareness with no clinical pointers

This category will have had appropriate neurology and cardiac opinion and investigations but with no abnormality detected. These patients should be admitted under appropriate team as clinically indicated.

All patients should have:

- Their medication list scrutinised (check ECR)
- Thorough CVS examination including erect & supine BP (wait 1 min and 3 mins to check erect BP) and auscultation of the neck.
- Thorough NS examination including fundoscopy
- An ECG – any arrhythmia or a $QT_c > 460$ mseconds is an indication for cardiac referral.

The term “**Faint**” should be reserved for a vasovagal episode, usually in younger patients. It is usually preceded by nausea, vomiting, and sweating and often relates to some kind of situational stress. Some patients who faint will have a very brief convulsion especially if not allowed to lie flat.

A “**Drop Attack**” is a sudden falling to ground without loss of consciousness. Usually caused by a balance problem or postural hypotension.

A **seizure** may be ‘generalised’ or ‘partial’ (+/- complex). A change to fit pattern usually merits admission to the medical ward. Beware of the post-ictal patient who has not fully recovered - always observe for a while and mobilise prior to discharge. Don’t forget to exclude injury - skull fracture and dislocated shoulder are the commonest.

HEADACHES (SEE MENINGOCOCCAL DISEASE)

Be careful of this presentation to Emergency Department. All patients (including those who have had a CT scan) should be reviewed by GP, if not admitted. Temp, fundoscopy and BP are always mandatory.

Red flag symptoms

- Worst ever headache
- Sudden onset - maximum intensity within one hour
- Prolonged headache
- Vomiting more than once
- Fainting/collapse
- New neurological deficit
- New cognitive dysfunction
- Headache with pyrexia

These 'Red Flag' symptoms are very significant – CT Scan is usually required.

Don't miss:

- Sub-arachnoid haemorrhage (usually sudden onset; reaches maximum intensity within 60 mins)
- Meningitis (fever and/or rash)
- Encephalitis (fever, ataxia, drowsiness/confusion)
- Raised ICP (CNS signs or papilloedema, typical symptoms)
- Temporal arteritis (older patients -check ESR if age >60)
- Acute closed angle glaucoma (headache, red eye, visual disturbance, nausea)

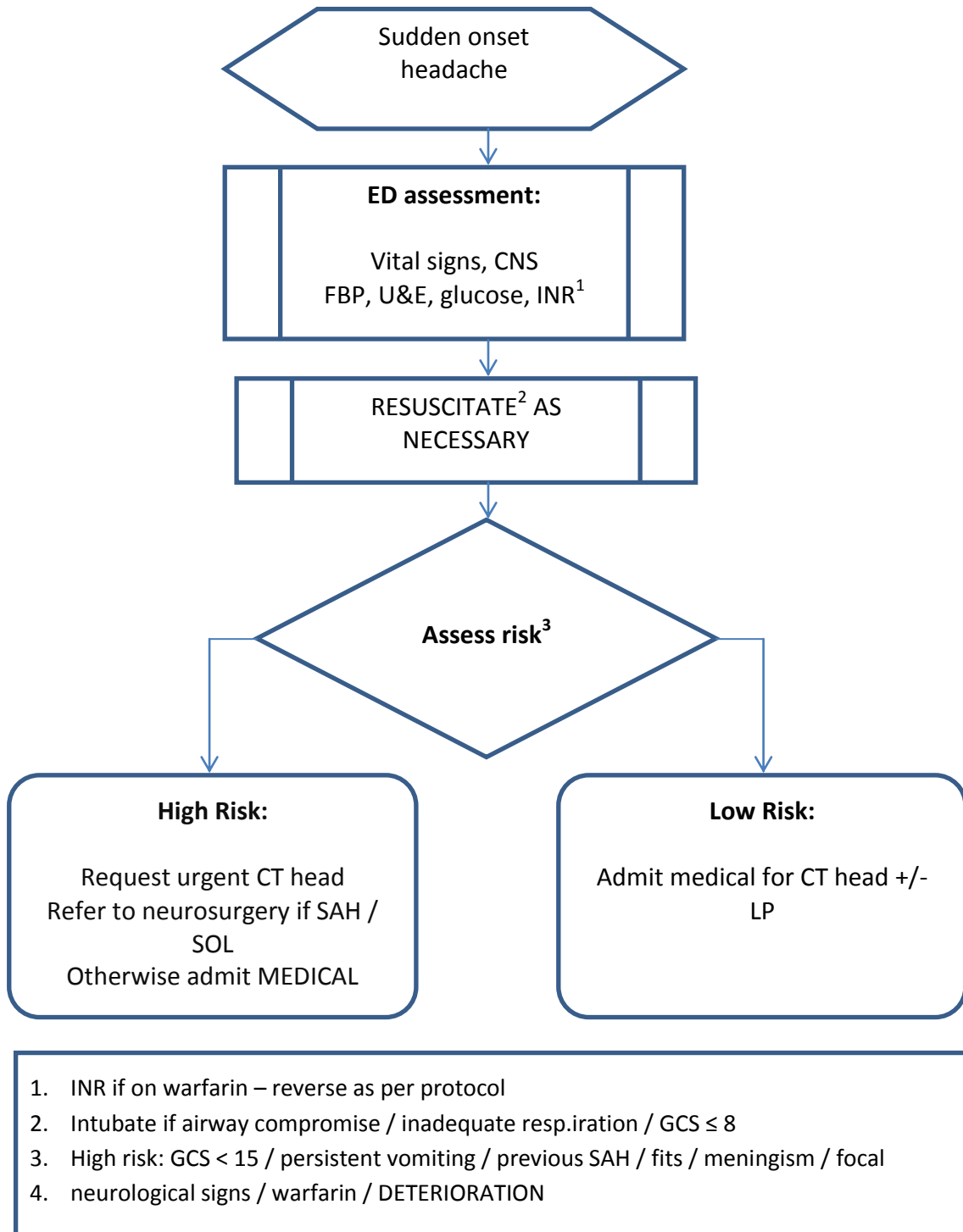
Common causes are migraine, neck problems and "tension". If a patient has symptoms suggesting **migraine** and there are no contra-indications, use "Imigran" subcutaneously and re-evaluate after 30 mins. Alternatively a combination of IV fluids, high flow oxygen, aspirin 900mg PO, chlorphenamine 10mg IV and antiemetic can be useful. Todd's paresis is a senior clinician diagnosis.

For patients with **cluster headaches** (severe migraine-type headaches with nasal stuffiness and lacrimation that come in "clusters" lasting several days) 100% oxygen via NRRM may produce a dramatic improvement.

A normal CT scan does not rule out sub-arachnoid haemorrhage and sensitivity decreases with time – Day 1 95% sensitivity, day 7 50% sensitivity.

If sub-**arachnoid haemorrhage** is the working diagnosis then the patient will need to be admitted medically for lumbar puncture.

Sudden Onset Headache Pathway



STROKE

- Consider all patients who present within 3.5 hours from onset of stroke symptoms for lysis

1. Hyperacute Stroke

There is now good evidence that emergency lysis of hyperacute THROMBOTIC stroke within 3.5 hours of onset of attack is of significant benefit to SELECTED patients.

This makes assessment of suspected acute stroke a top priority medical emergency.

The steps below should be taken SIMULTANEOUSLY as far as possible:

Emergency Management of Suspected Hyperacute Stroke

- Pre- alert the stroke team (bleep 6000) if standby call or alert if Rosier positive (see below)
- Resuscitation (ABC including 100% O₂ and iv fluids, urinary catheter. Urgent Coag, FBP and U&E)
- Consider / correct reversible causes e.g. hypoglycaemia that may be mimicking a stroke
- Identify cause of stroke i.e. Ischaemic or Haemorrhagic? (emergency CT scan phone ROD – ask about warfarin, heparin/ bleeding disorders)

a) Stroke Team

- Contact via fast bleep 6000 and ask for stroke lysis team (24 hours a day)
- In hours this service is provided by a dedicated stroke team.
- Out of hours this will initially be the Medical SpR who will liaise with the on-call stroke consultant
- The stroke team will determine appropriateness of lysis

b) Rosier Score

1. Has there been loss of consciousness or syncope? Y(-1) N(0)

2. Has there been seizure activity? Y(-1) N(0)

Is there is a NEW ACUTE onset (or on awakening from sleep)

i. Asymmetric facial weakness Y(+1) N(0)

ii. Asymmetric arm weakness Y(+1) N(0)

iii. Asymmetric leg weakness Y(+1) N(0)

iv. Speech disturbance Y(+1) N(0)

v. Visual field defect Y(+1) N(0)

*Total score _____ (-2 to +5)

If score is +1 or above assess suitability for Thrombolysis and complete the assessment overleaf.

N.B. Stroke unlikely but not completely excluded if total scores are below 0.

c) Stroke Lysis

Consent should be gained by the stroke team and lysis given by the stroke team. The dose of rt-PA (alteplase) for acute stroke is 0.9mg/kg, maximum 90mg. 10% of the dose is given by i.v. bolus injection and the remainder by iv infusion over 60 minutes. See BNF – not recommended for patients aged 80 and over.

e) After care

Patients require close observation and nursing and continuous monitoring following lysis. They should be moved to an appropriate bed in CCU as soon as possible. If any deterioration, contact the stroke team/medical SpR.

2. Other stroke patients

Even if they are not eligible for lysis, stroke patient will benefit from the other evidence based interventions

- iv fluids/Fluid Balance Chart and nil orally until swallowing has been assessed
- temperature regulation- paracetamol if temp>37.5
- blood glucose regulation- sliding scale insulin

- blood pressure control- over next 24hrs (*not acutely*)
- early admission to a Stroke Unit

When to order an urgent CT scan?

- Diagnosis in doubt
- Suspected SAH
- Suspected hydrocephalus 2^o to CVA
- On warfarin or heparin (or coagulopathy)
- Acutely deteriorating
- >48 hours since onset

TRANSIENT ISCHAEMIC ATTACK

Like stroke, TIA is the result of carotid- or vertebro-basilar territory ischaemia. It is common in older patients but it can occasionally occur in the young, usually due to an undiagnosed cardiac lesion or thrombophilia. Migraine or Todd's paresis can mimic stroke but this is a diagnosis for a senior clinician only.

TIA is abrupt in onset, focal and completely resolved within 24hours. The signs fall within a vascular territory such that there are negative symptoms i.e. something is absent.

Patients who have persistent neurology and signs, new AF or cardiac murmurs, significant hypertension or are high risk should be admitted.

a) Risk Assessment 'ABCD² score'

| Indicator | 2 | 1 | 0 |
|-------------------|---------------------|--------------------------|-----------|
| Age | - | > 60 yrs | - |
| BP | - | SBP >140 or DBP >90 | - |
| Clinical features | Unilateral weakness | Speech disturbance alone | other |
| Duration | > 60 mins | 10 – 59 mins | < 10 mins |
| Diabetes | - | Present | - |

b) Admission

- ABCD² score greater than 6 or if weekend
- Patients who still have symptoms
- Patients who have had a number of resolving TIA's in the days prior should be CT scanned and admitted.
- Patients on Warfarin should be admitted.

c) TIA Clinic

Fax the referral to Consultant Physician c/o Mrs Kathryn Williamson at --- 02825635237, marking it "TIA CLINIC".

Commence ASPIRIN and STATIN

Advise the patient they are NOT allowed to drive until seen in clinic (and document in notes)



CREST SUMMARY OF MANAGEMENT OF TRANSIENT ISCHAEMIC ATTACK (TIA) IN PRIMARY CARE*

Definition

A transient ischaemic attack is a clinical syndrome characterised by an acute loss of focal cerebral or monocular function with symptoms usually lasting less than 30 minutes and attributable to inadequate blood supply.

Risk of Stroke after TIA

8% of patients with TIA will have a stroke within 7 days of event, half of these occur within the first 48 hours.
Urgent intervention is necessary to reduce the risk.

THE HISTORY OF THE EVENT IS CRUCIAL IN MAKING THE DIAGNOSIS

IDENTIFY

TIA more likely if the following are present

- Limb weakness as a presenting symptom
- Speech difficulty as a presenting symptom
- Transient monocular blindness
- Risk factors for vascular disease

TIA unlikely if the patient presents with

- Loss of consciousness
- Isolated dizziness or vertigo
- Isolated confusion
- Symptoms still present 3 hours after onset (more likely to be stroke)
- Headache

TREAT

Start Aspirin 300mg stat and then aspirin 75mg + dipyridamole MR 200mg BD thereafter, provided no contraindications and symptoms are fully resolved.

Commence statin immediately. For confirmed TIA target cholesterol is below 3.5 mmol/L.

BP Reduction in acute phase is not recommended

Consider alternative diagnoses

Some examples include:
stroke; epilepsy; migraine; syncope; cranial arteritis i.e. loss of sight and headache

REFER TO TIA CLINIC

Patients with TIA who are otherwise well should be referred **immediately** to a TIA clinic via fax or email for expert opinion, investigations and appropriate management.

OR

REFER TO ACUTE STROKE UNIT FOR ADMISSION

The following patients should be admitted to stroke unit:

- Patients on warfarin
- Patients with > 1 TIA in 1 week
- Patients with ABCD score of 6 (see section 9 of CREST doc)

*Adapted from EHSSB stroke strategy implementation project guidance