Management of TIA

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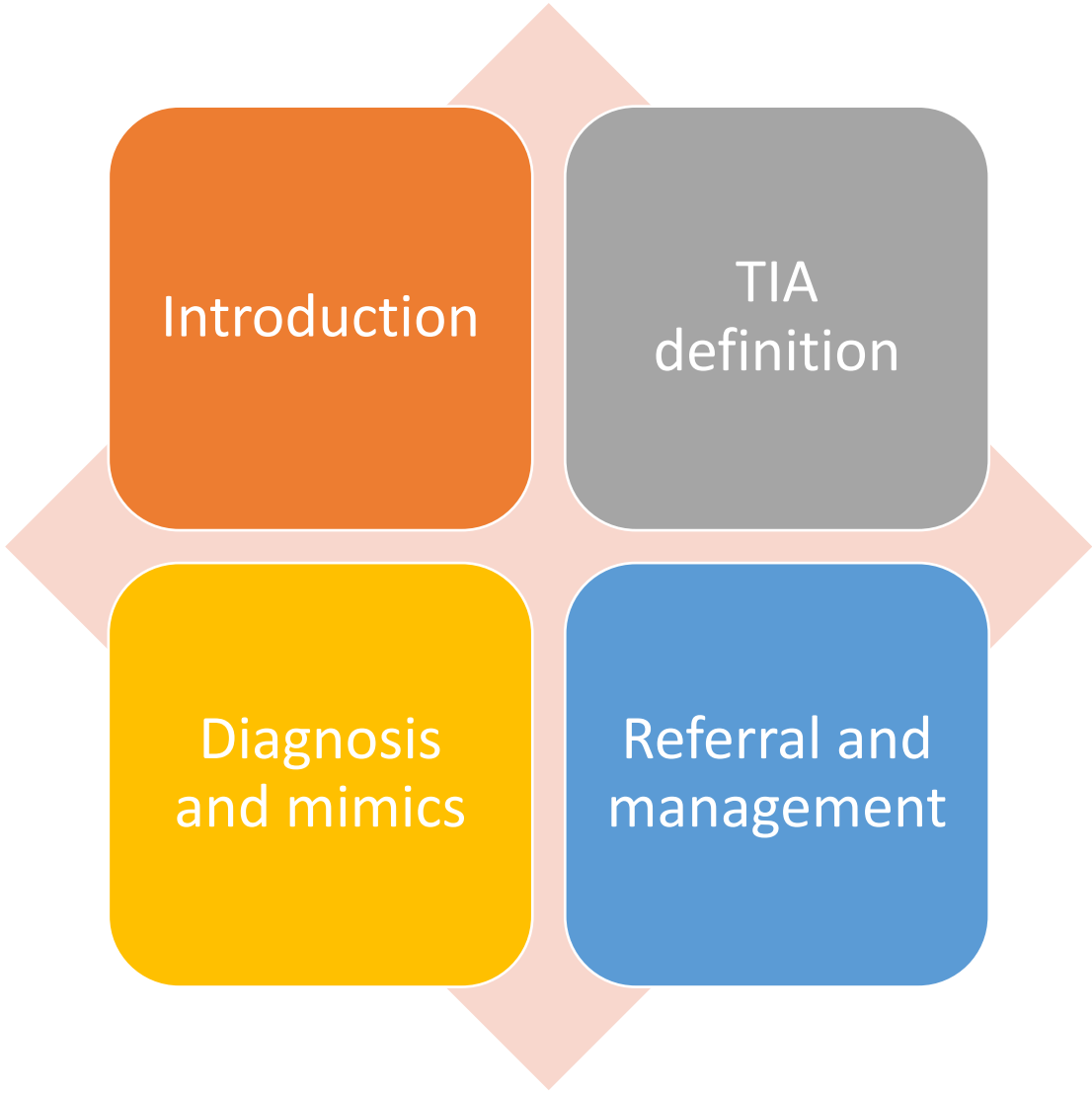
Objectives:


Introduction
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Introduction

Transient ischaemic attack (TIA) and suspected TIA are a common presentation to acute stroke services.

An increased risk of stroke following TIA is recognised, especially in the acute phase.

In about a quarter of stroke patients, a TIA has preceded the stroke.

A TIA may provide a short window of opportunity to reduce the risk of long-term morbidity and mortality

Definition

Is a transient (less than 24 hours) neurological dysfunction caused by focal brain, spinal cord, or retinal ischemia, without evidence of acute infarction.

A TIA has a sudden onset and can last from a few minutes to 24 hours. Most people have complete resolution of symptoms and signs within 1 hour.

NOT useful, why?

- Vast majority of TIAs last less 1 hour.
- 30-50% of TIAs are associated with infarction on diffusion weighted MRI.
- Acute ischaemic stroke requires urgent treatment within minutes let alone 24 hours.

New ‘tissue based’ AHA definition:

“a brief episode of neurological dysfunction caused by focal brain or retinal ischemia, with clinical symptoms typically lasting less than one hour, and without evidence of acute infarction”

Diagnosis (NICE)

- The person presents with sudden onset, focal neurological deficit which has completely resolved within 24 hours of onset and cannot be explained by another condition such as hypoglycaemia. Most TIAs are thought to resolve within 1 hour but can persist for up to 24 hours.

Nature of symptoms:

Positive: excess of neuronal discharge –visual (flashing lights, zig-zags, lines, shapes), sensory (pain, paraesthesia), motor (limb jerking)

Negative: loss of neuronal function –loss of vision, hearing, sensation or power.

TIA –negative symptoms mostly –arterial territory.

Seizure & migraine –positive symptoms particularly at the outset.

Focal neurological deficits may include:

Unilateral weakness or sensory loss.

Dysphasia.

Ataxia, vertigo, or loss of balance.

Sudden transient loss of vision in one eye (amaurosis fugax), diplopia, or homonymous hemianopia.

Cranial nerve defects.

Onset & progression:

- Abrupt onset of maximal symptoms.
- If multiple symptoms –all generally occur together.
- Gradual offset over minutes.
- Migraine occurs over minutes to tens of minutes –positive symptoms initially may be replaced by negative ones e.g. spreading paraesthesia followed by numbness; visual aura followed by field defect.
- Seizures progress over seconds –usually one functional domain e.g. motor or sensory –can be recurrent and stereotyped.

Duration of symptoms:

TIA's –nearly always < 1 hr (mostly < 10 mins).

Migraine with aura usually 10-30 mins(can be few hours).

Seizures usually < 5 mins.

Syncope –few seconds (unless remains upright).

Episodes recurring over some years – unlikely TIA.

Unlikely TIA

Non-focal symptoms:

LOC

Dizziness

Generalized weakness

Mental confusion

Loss of vision if associated with LOC

Sphincter incontinence

Headache and TIA

- Mild headache –1/6 TIA.
- Usually ipsilateral to affected carotid territory.
- More common in posterior TIA.
- Think about carotid or vertebral dissection.
- Bilateral headache –TIA unlikely

Differentials & mimics

Trauma

Systemic or local infection including:

- Central nervous system abscess.
- Encephalitis.
- Sepsis.

Encephalopathies such as:

- Hypertensive encephalopathy.
- Wernicke’s encephalopathy.

Space occupying lesions including:

- Tumour.
- Subdural haematoma.

Other conditions such as:

- Acute confusional state.
- Dementia.
- Vasculitis.
- Somatoform or conversion disorder.

Other Differentials & mimics

These account for at least 20–25% of acute presentations and include:

Toxic/metabolic disturbance such as:

- Hypoglycaemia.
- Drug and alcohol toxicity.

Conditions which can cause dizziness or disturbed balance such as:

- Syncope.
- Labyrinthine disorders — vertigo, Meniere's disease, labyrinthitis.

Neurological conditions such as:

- Seizure.
- Migraine with aura.
- Demyelination — multiple sclerosis.
- Peripheral neuropathies such as Bell’s palsy.
- Spinal epidural haematoma.

Migraine

- Hemiplegic Migraine.
- Acephalgic Migraine.
- Ophthalmoplegic Migraine.
- Basilar Migraine.
- Prolonged Aura.
- Status migrainosus.

Gradual Onset (> 5 mins)
Positive symptoms.
Symptom spread over several seconds to minutes.
Gradual resolution -minutes to days.
Headache –not always.
Recurrent Stereotyped attacks.
Typically, young.

Migrainous Infarcts

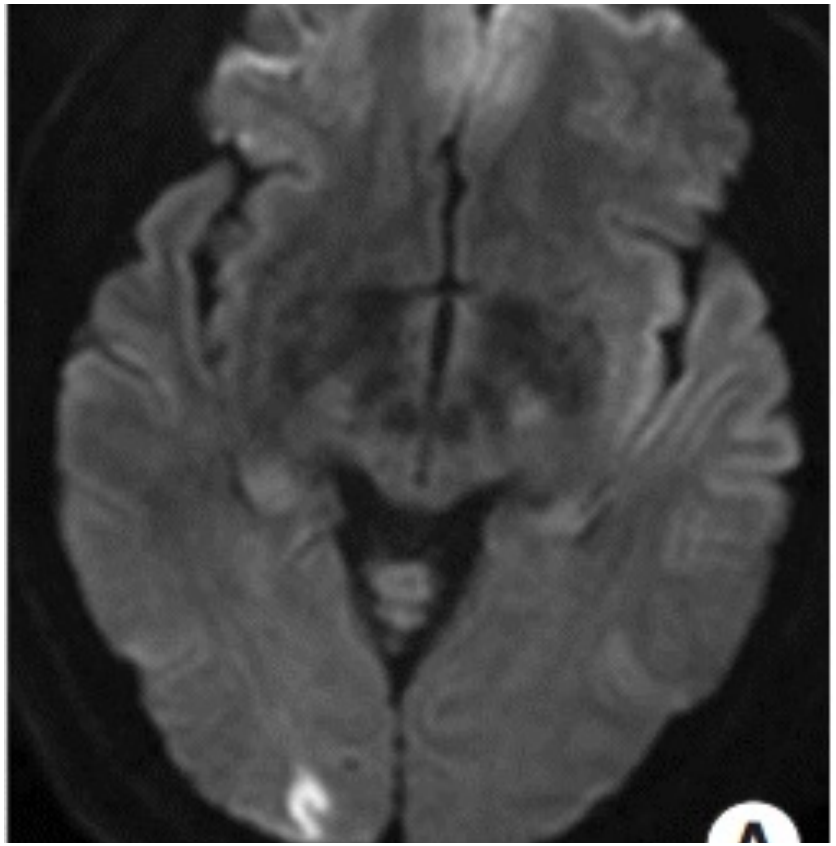
- Classical Migraine –vascular risk factor

Migrainous infarction:

- Infarct during attack where aura lasts > 60 mins

More prevalent in:

- Young women (<45 years)
- OCP
- Smokers
- Account for 0.2-0.5% Ischaemic stroke
- Most commonly posterior circulation



Seizure

- Generalised should be easier to identify –but can be brief:
- Confusion, involuntary movements, incontinence.
- Negative motor symptoms are very rare as a sole manifestation of seizure.
- Complete speech arrest –Seizure > TIA.
- Recurrent stereotyped events –unlikely TIA.

Partial Seizures

- Common TIA mimic:
- Young or middle-aged adults.
- Positive neurological symptoms.
- ‘March’ of symptoms.
- Recurrent stereotypical attacks.
- +/-amnesia of event.

Syncope

- Transient loss of consciousness & postural tone associated with rapid recovery.
- Presyncope symptoms:

➢ Faintness

➢ Dimming vision

➢ Muffling soundS

- Pallor, sweating, nausea.
- TIA extremely unlikely with history of TLOC.

Triggers:

➢ Emotion, fear

➢ Change in posture

Acute vestibular syndrome

- Dizziness / giddiness –what does this mean?

True rotational vertigo vs. presyncope vs. unsteadiness

- Population-based study –only 3%of emergency presentations for ‘dizziness’ have TIA.
- Dix-Hallpike & Head-impulse tests are specific but not sensitive.
- In those with vascular risk factors –difficult to determine.

Posterior circulation TIA

Unlikely if isolated:

Unsteadiness / vertigo

Dysarthria

Diplopia

Drop-attacks

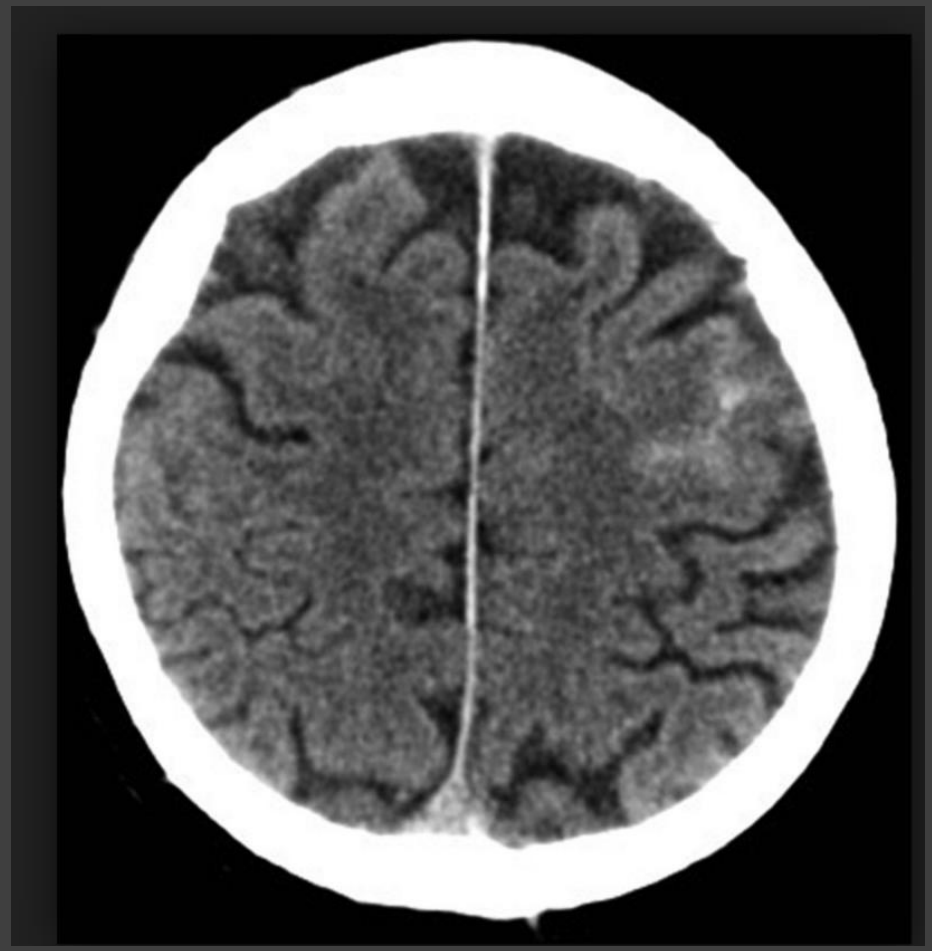
Weakness

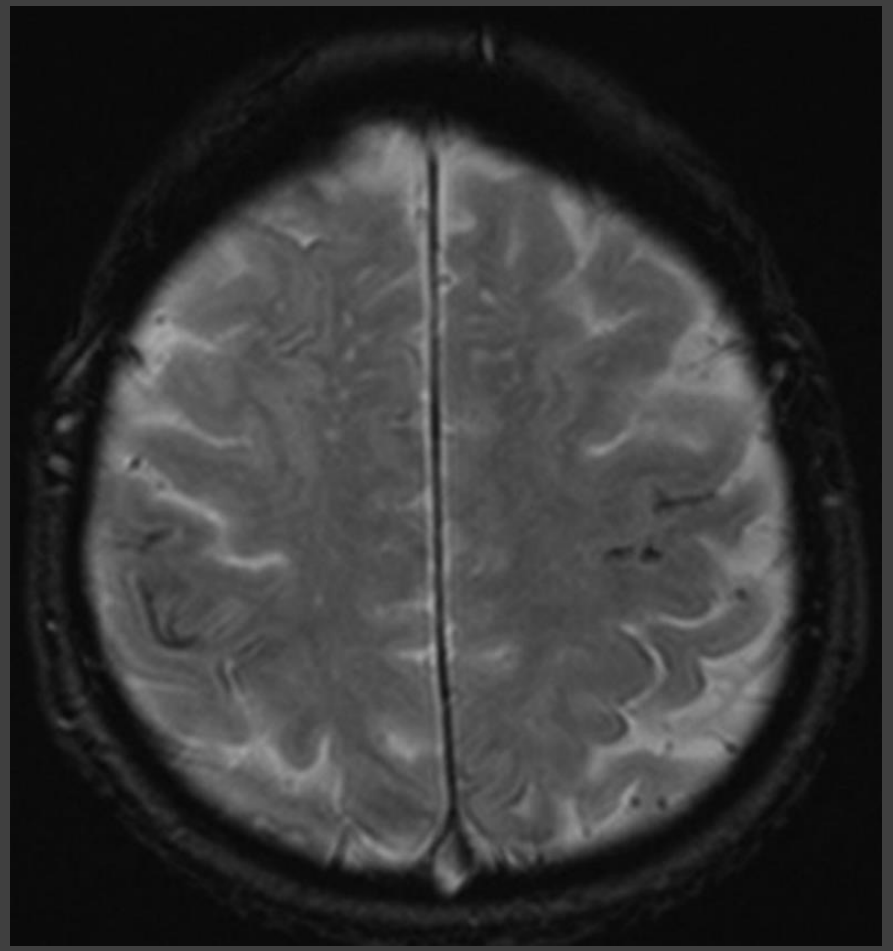
Sensory loss confined to one part of face / limb

Usually at least 2 of these posterior circ. symptoms present in true ischaemia

Other mimics

- TGA-> 50yrs –vascular risk factors –temporary loss of laying down new episodic memory –procedural memory intact.
- Ask about features of seizures (lip-smacking, dystonic posturing).
- Tumours / SOL's–stuttering onset over weeks.
- Functional–younger –inconsistent history / examination.
- Amyloid spells / haemorrhagic TIA–difficult to differentiate.





Amyloid spells

What next? –Stroke risk?

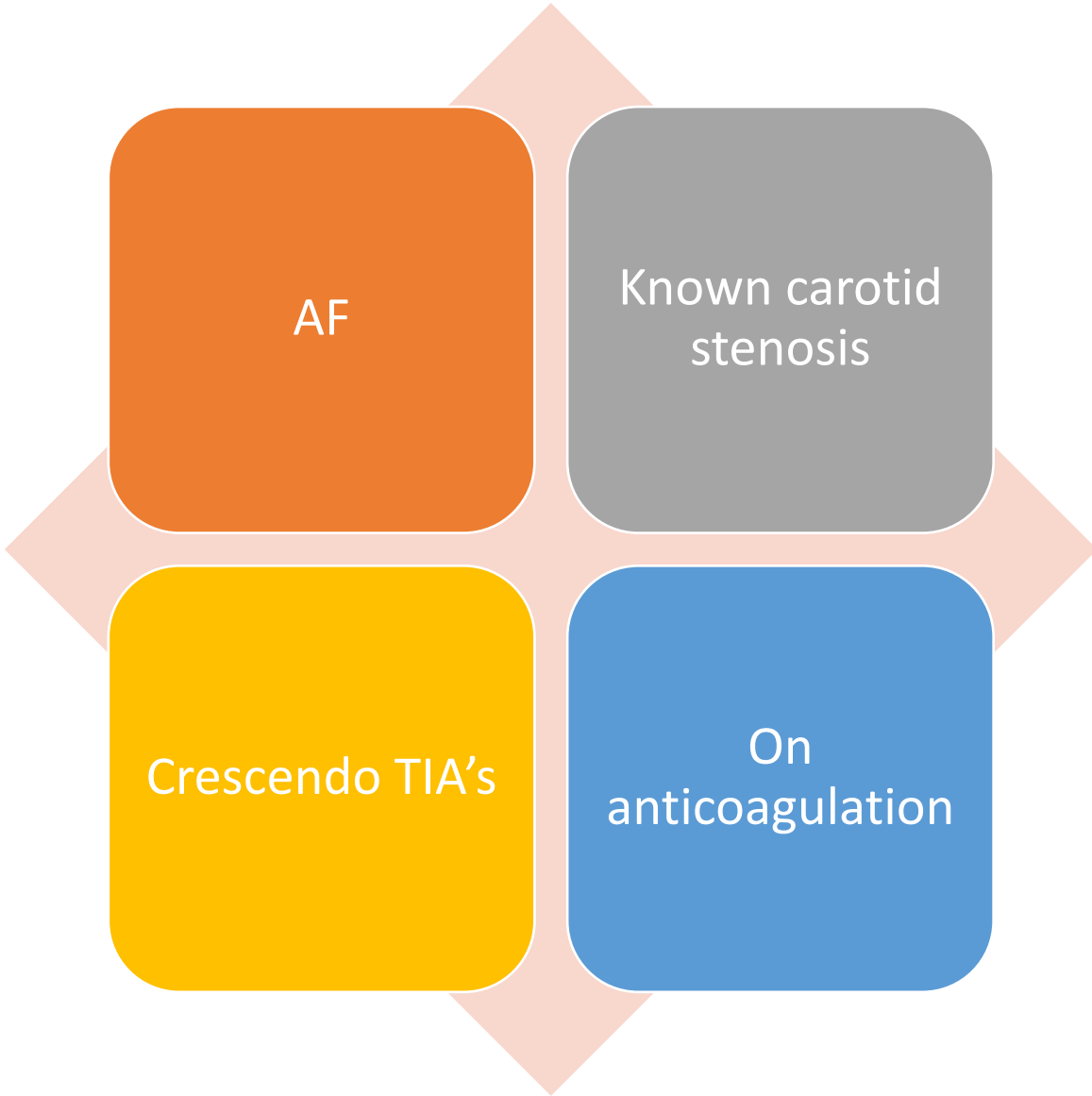
20% strokes preceded by TIA.

20-30% TIA's will stroke within next 5 years.

10% will stroke within next 3 months.

5% will stroke within next 2 days.

High risk TIA’s



Imaging for people who have had a suspected TIA or acute non-disabling stroke

Do not offer CT brain scanning to people with a suspected TIA unless there is clinical suspicion of an alternative diagnosis that CT could detect

After specialist assessment in the TIA clinic, consider MRI (including diffusion-weighted and blood-sensitive sequences) to determine the territory of ischaemia, or to detect haemorrhage or alternative pathologies. If MRI is done, perform it on the same day as the assessment

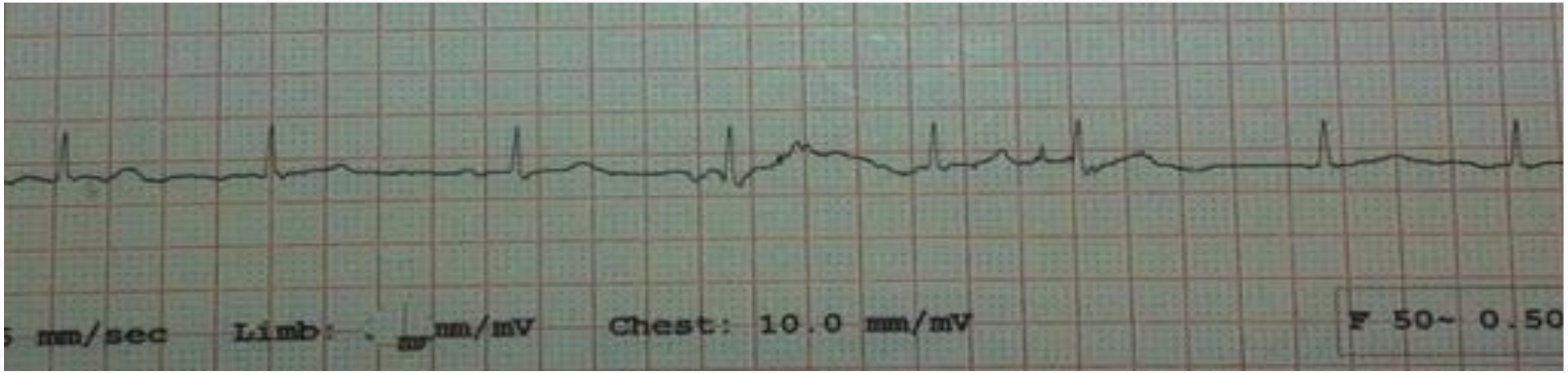
Everyone with TIA who after specialist assessment is considered as a candidate for carotid endarterectomy should have urgent carotid imaging.

Management

Offer	Refer	Do not use	Offer
Offer aspirin (300 mg daily), unless contraindicated, to people who have had a suspected TIA, to be started immediately	Refer immediately people who have had a suspected TIA for specialist assessment and investigation, to be seen within 24 hours of onset of symptoms	Do not use scoring systems, such as ABCD2, to assess risk of subsequent stroke or to inform urgency of referral for people who have had a suspected or confirmed TIA.	Offer secondary prevention, in addition to aspirin, as soon as possible after the diagnosis of TIA is confirmed

TIA and AF

- Offer anticoagulant with immediate effect:
- NOAC
- Treatment dose LMWH until warfarin therapeutic



Carotid Stenosis

- Symptomatic carotid stenosis of 50-99% -assessed and referred for intervention (CEA or stenting) to be performed within first 2 weeks

Secondary prevention

- BP (target < 130/80)
- Lipid management (chol < 4, LDL < 2)
- Diabetes management
- Smoking cessation / alcohol moderation
- Exercise management

Conclusion

Correct diagnosis is key.

Urgent investigation and vascular risk reduction required.

Thank you –any questions?

References

- Stroke and transient ischaemic attack in over 16s: diagnosis and initial management

NICE guideline [NG128] Published: 01 May 2019

https://www.nice.org.uk/guidance/ng128

- European Stroke Organisation (ESO) guidelines on management of transient ischaemic attack, March 2021

https://journals.sagepub.com/doi/full/10.1177/23969873211992905