Looking for Atrial Fibrillation after stroke and TIA

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Atrial Fibrillation

Atrial Flutter
Pathophysiology

- AF & Flutter associated with higher risk of ischaemic stroke – 5 fold
- Strokes occurring in AF tend to be more serious than those due to other causes - ? Size and constitution of emboli
- AF may not be persistent/permanent
- Paroxysmal AF (PAF) also associated with increased risk – less than permanent
- Likely that amount of PAF is one determinant of risk
Secondary prevention

• Identification of AF after TIA or ischaemic stroke
  • Established AF
    • Identification easy on 12 lead ECG
    • Risk stratification in presence of relative contraindications – tools available
    • Uncertainty about timing of initiation of anticoagulation – ongoing RCTs
    • Access to DOACs variable
  • Paroxysmal AF
    • Inadequate and variable access to ambulatory monitoring of rhythm
    • Uncertainty about which patients to monitor to give worthwhile yield
    • Uncertainty about amount of AF which should trigger switch to anticoagulation
Atrial fibrillation/flutter

- May not be only risk factor
  - Atheroma in aortic arch and large vessels – artery to artery embolism
  - Small vessel disease
  - Other cardiac sources of embolism (PFO, prosthetic valves, endocarditis)

- We make the assumption that those with highest risk AF, are likely to be those in whom the AF caused the stroke and that they are the patients who have most to gain from anticoagulation.

- Therefore patients with competing causes of ischaemic stroke, may have less benefit from anticoagulation than those in whom AF is predominant cause
The RCP (Lond) 2016 guidelines

People with ischaemic stroke or TIA who would be eligible for secondary prevention for AF (anticoagulation or left atrial appendage device closure)

• should undergo a period of prolonged (at least 12 hours) cardiac monitoring

• and in whom no other cause of stroke has been found should be considered for more prolonged ECG monitoring (24 hours or longer), particularly if they have a pattern of cerebral ischaemia on brain imaging suggestive of cardiac embolism
European Society of Cardiology guidelines 2016 (endorsed by ESO)

- Inpatients with TIA or ischaemic stroke, screening for AF is recommended by short-term ECG recording followed by continuous ECG monitoring for at least 72 hours
Which patients

• Those in whom Paroxysmal AF is likely to be the predominant underlying cause.

• Not those with:
  • Persistent AF/flutter
  • Lacunar strokes
  • Severe carotid atheroma
  • Dissection
Yield from looking for PAF

• Looking for PAF costs money – money which could otherwise be used to benefit patients.

• The balance of benefit per cost will reduce with the

• yield i.e. the number of patients with PAF detected / number in whom it is sought.
It is not worth looking for paroxysmal AF unless finding it would alter management

- Therefore, seems little point in patients with:
  - Definite contraindications to anticoagulation with DOACS and warfarin
    - Recurrent serious bleeds, active bleeding sources
      - (unless appendage occlusion becomes accepted)
  - Definite indication for lifelong anticoagulation (e.g. recurrent VTE)
  - Patients wanting comfort care only
PAF likely to be more prevalent

• Older patients
• Patients with cardiac disease (recent MI, cardiac failure, valvular disease)
• No other explanation for their stroke
• Those with cortical ischaemic strokes, especially if distributed in different vascular territories
How long and how?

• PAF is a spectrum
• A few short bursts of AF (seconds) occurring over years.
• Mostly AF, but sometimes reverting for short periods to SR
• Unlikely to be associated with the same risk, and therefore benefit from anticoagulation
• Longer monitoring will pick up more patients at the brief end of the spectrum
Screening for PAF

- Monitors on stroke units
- Interrogation of dual chamber pacemaker
- 24, 48, 72, and longer Holter ECG monitoring
- Commercially available ambulatory AF detection services - 7-14 days
  - E.g. Zio patch, Bardy Carnation, R-test
- Reveal LINQ implantable devices – 30+ days
Which method?

• High Sensitivity – picks up the largest proportion of PAF which is relevant (i.e. would lead one to anticoagulated)
• High Specificity – does not tell you they have PAF, when they do not
• Lowest cost
  • Set up (up front investment)
  • Cost per case

• Holter - ? £100 but limited staff to interpret therefore long waits
• Patches - £150-300 and interpretation included – rapid results
• Link Reveal - £ 2,000 to 4,000
Embolic Stroke of Uncertain Source (ESUS)

• An entity which has been pushed hard by manufacturers of DOACS
• Essentially all patients with ischaemic stroke which is not due to:
  • Persistent AF, or PAF identified on a 24 hour tape or equivalent
  • “Significant stenosis of extracranial arteries
  • Small vessel disease – lacunar infarcts
  • Dissections etc
• RCTs of DOAC vs Antiplatelet med are ongoing
  • NAVIGATE ESUS – Rivaroxaban 15mg vs Aspirin 100mg (n= 7000)
  • RE-SPECT ESUS – Dabigatran 110/150mg bd vs Aspirin 100mg (n=6000)
  • ATTICUS – Apixaban 5mg bd vs Aspirin 100mg (n=500)
  • Reporting in 2018/19– but if strongly positive might alter the approach we take i.e. less prolonged monitoring
• Need to be able to dis-invest in prolonged monitoring
Survey of stroke physicians

• Survey monkey sent to stroke physicians in May 2017
• Do you have locally agreed criteria for selecting patients who should have prolonged monitoring? – No
• Do you have access to prolonged monitoring
  • Some had bedside monitoring for inpatients
  • All had access to Holter 24 hr ECG but long delays and limited access to more prolonged taped
  • Tayside had access to R test machines but were only ones who got prompt results of monitoring
National Standards

Aim to stimulate progress and encourage investment

• Stroke services should have written, locally agreed criteria to select those patients with stroke or TIA who should be offered prolonged ECG monitoring to detect paroxysmal AF.

• Patients meeting those criteria should have prompt access to at least 72 hours of ECG monitoring to detect paroxysmal AF.

• The results of the prolonged monitoring should be available within two weeks of referral for monitoring to facilitate early secondary prevention.
Next steps

• Agree local criteria
• Estimate numbers of patients who will need to be monitored on basis of these criteria
• Decide if this volume can be provided with current services and in time scales required
• Consider using newer technologies
• ? Procure these nationally to beat down price
Possible criteria for selecting patients to have prolonged monitoring

- No known AF/Flutter
- No definite indication, or contraindication to anticoagulants
- No established cause of stroke e.g. carotid stenosis, lacune, dissection
- No dual chamber pacemaker or implanted defibrillator
- Frequent palpitations
- Syncope or pre-syncope
- Recent cardiac surgery or myocardial infarction
- Cardiac failure
- Ischaemic events in more than one vascular territory