Objectives:
1. To review risks of thrombolysis to support informed consent
2. To elucidate contraindications to thrombolysis based on time and characteristics of stroke onset
3. To identify etiologies and mechanisms for stuttering (repetitive, transient) symptoms and review investigations and management
4. To review CT contraindications to thrombolysis

KEY MESSAGES

Risks of thrombolysis
- Average risks of some thrombolysis complications
  - symptomatic intracranial hemorrhage 6%
  - major systemic hemorrhage 2%
  - angioedema 5%
- Individual risks of thrombolysis can be assisted with various scoring systems
  - HAT (Hemorrhage after Thrombolysis) [Article]
  - iScore [Article]

Thrombolysis contraindications based on time/characteristics of stroke onset
- 4.5 hour window - Appropriate to consider thrombolysis for most patients. See Appendix A: Contraindications to Consider [Article]
- 3-4.5 hour window candidates must be reviewed for additional contraindications including
  - Patient is < 80 years of age
  - Patient does not have a history of both diabetes AND stroke
  - Patient is not taking Warfarin (Coumadin) or any other anticoagulant regardless of INR/coagulation results
  - NIHSS is < 25
- Wake-up Strokes are subject of ongoing study.
  - Standard of care is to time eligibility from time last seen Normal
  - Rigorous history needed to determine when they were last Normal
  - New imagining modalities may help with estimation of time of onset in wake-up stroke but supporting evidence is forthcoming. [Article]

Intracranial stenosis
- Prevalence about 6% [Article]
- High risk of recurrent stroke >20%
- Medical management offers lower short term risk than endovascular therapy for intracranial lesions
• Medical management offers similar long term risk to endovascular therapy for intracranial lesions
• Medical Management typically consists of aspirin (325 mg per day) for the duration of follow-up, clopidogrel (75 mg per day) for 90 days. [Article]

CT contraindications to thrombolysis
• Contraindications
  o Evidence of intracranial hemorrhage on noncontrast CT
  o CT shows multilobar infarction (hypodensity greater than 1/3 cerebral hemisphere)
• A history of both diabetes AND previous stroke is a contraindication to thrombolysis in 3-4.5 hour window; Old ischemic stroke on CT would be important in this context
• Petechial hemorrhage on CT NOT a contraindication on its own
• ASPECTS score helps to predict individual risk [Article]

APPENDIX A – CONTRAINDICATIONS TO CONSIDER

Absolute Contraindications to tPA Use for Acute Ischemic Stroke
1. > 4.5 hours from stroke onset
2. Patient is taking new, direct anticoagulants (apixaban, rivaroxaban or dabigatran)
3. History of intraparenchymal brain hemorrhage (microbleeds are exempt)
4. Severe, uncontrollable hypertension (systolic BP> 180mm Hg or diastolic >110 mm Hg) that does not respond to acute therapy.
5. Serious head trauma or stroke in the previous three months.
6. Thrombocytopenia (platelets <70,000), known coagulopathy or INR ≥ 1.7
7. Severe hypoglycemia (<2.7 mmol/L) or hyperglycemia (>22.2 mmol/L)
8. Ischemic changes on CT of ≥ 1/3 of vascular (usually MCA) territory or ASPECTS score ≤ 7.
9. Active internal bleeding

Relative Contraindications to tPA Use for Acute Ischemic Stroke
1. Recent major surgery (14 days – NINDS recommendation) or 3 months (ECASS recommendation)
2. Arterial puncture of a noncompressible blood vessel in the past 7 days.
3. GI or GU bleeding in the past 21 days
4. Myocardial infarction in the past 3 months.
5. High grade brain tumors (primary or metastatic), possibly vascular malformations.

APPENDIX B - SESSION DETAILS

Date: Thursday, January 26, 2017, 16:30-17:30
Host Site: Huron Perth Healthcare Alliance, Stratford General Hospital

Case presentations:
1. Wake-up Stroke
2. Intracranial Stenosis
3. CT contraindications to thrombolysis

REFERENCES

South West Stroke Project


**Reviewed and approved by:**

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**Consultant:** Dr. G. Bryan Young, Attending Neurologist, Owen Sound Hospital, and Emeritus Professor of Neurology and Critical Care, Western University