Toronto Stroke Networks

Considerations for Post-thrombolysis Monitoring in a Ward Bed

- As with usual care, tPA thrombolysis will be commenced in the Emergency Department (ED). To support decanting of patients in ED, if a transfer is required while the tPA infusion is running, the patient must be transported by a nurse who can monitor the tPA infusion and trained to monitor continuous ECG. The patient must be on a portable cardiac monitor during transport until infusion is completed.
- Wherever possible, nurses with stroke expertise should care for post-thrombolysis patients, or at minimum have access to consult a practitioner with stroke expertise.
- Patients must be cared for in an area with high visibility (e.g. in a bed closest to the door) to support monitoring by all team members.
- All interprofessional staff, not only nursing, should receive basic stroke education to assess/look for signs & symptoms of stroke in attempt to discover stroke transformation as soon as possible. This should include FAST screening and identify actions to be taken if signs & symptoms of stroke are present.
- A team-based approach can support enhanced monitoring required for the first 24 hours post thrombolysis (e.g. with all interprofessional team members).
- Education for nursing staff should include the Canadian Neurological Scale - - ** pocket cards (laminated and cleaned after each use) for easy reference as well as props for assessing aphasia are highly recommended (photos of key, pencil & watch).
- Fall risk prevention strategies should be implemented immediately to decrease risk of hemorrhage related to trauma.
- Methods of immediate and clear communication for escalation with appropriate clinicians (e.g. stroke neurologist, nurse practitioner, interventionalist) when a patient's condition deteriorates.
- Daily or twice daily huddles should occur to check-in on staff comfort and discuss patients to ensure awareness of current patient status.
- If direct cardiac monitoring is not available, utilize other solutions available in the setting such as telemetry (monitored in real time), defibrillators, or crash cart.

Pre- and Post-tPA Care: Frequently Asked Questions

1. **Is written informed consent required prior to giving tPA?**

   tPA is the standard of care, and currently the only approved medication for acute ischemic stroke treatment. Written informed consent is not required but it is advisable to seek oral expressed consent from the patient or substitute decision maker. If this is not possible to reach a family member in a timely fashion, it should be documented in the patient's clinical chart that treatment was provided as an emergency medical treatment without availability of patient/family participating in the decision-making.

2. **When can a urinary catheter be inserted after giving tPA?**

   NOTE: there is strong evidence to avoid the use of indwelling urinary catheters in patients with stroke, particularly those receiving tPA thrombolysis. If required for a specific medical indication, urinary catheter to straight drainage can be inserted **prior** to tPA infusion or **4 hours** after infusion.

3. **When can a TORBSST be done after giving tPA?**

   A swallowing screen (i.e. TORBBST) can be completed by trained clinicians any time within the 24-hour period after tPA infusion, as appropriate for the patient's clinical condition (i.e. do not complete the TORBSST for patients with significantly altered/decreased level of consciousness, unless to reflect that the patient 'fails' the screen based on level of consciousness). If a patient fails the TORBSST they should be assessed by a speech-language pathologist (S-LP) as soon as possible. TORBSST can be repeated 24 hours later if the patient has not yet been assessed by a S-LP.

4. **When can an NG be inserted after giving tPA?**

   If the TORBSST screen is failed, a speech-language pathologist swallowing assessment is required. If the S-LP determines the patient is unable to swallow safely, an NG can be inserted 4 hours after tPA infusion.

5. **Can an automatic BP cuff be used to measure blood pressure after giving tPA?**

   BP monitoring may be completed via automatic BP cuff. Manual BP may be helpful for BP confirmation if the automated cuff is deemed not reliable (e.g. a very elevated BP). Also note, the risk of bruising of the arm with automated BP cuffs post-tPA with regular monitoring required.

   During and after the administration of tPA, blood pressure (BP) must be measured closely and documented as per the post tPA order set**: i.e. Continuous HR monitoring × 24 h**

   The post-thrombolysis protocol should be followed as closely as possible:

Record BP/HR q 15 min ×2 h, q 30 min × 6 h and q 1 h × 16 h
Maintaining blood pressure within the target range during and after tPA infusion (< 180/105) is essential for better outcomes.

NOTE: Notify physician immediately if systolic BP greater than 180 or less than 100 and/or diastolic BP greater than 105 on 2 occasions, 5 minutes apart

6. **When can antithrombotics (antiplatelets or anticoagulants) be safely started?**

Antiplatelet agents (including low-dose ASA, clopidogrel, prasugrel, ticagrelor, ticlopidine, Aggrenox®, NSAIDS including ketorolac) and anticoagulants both oral (e.g. warfarin, apixaban, dabigatran, rivaroxaban, edoxaban) and injectable (e.g. dalteparin, enoxaparin, fondaparinux, tinzaparin, heparin) should be avoided in the first 24 hours after the tPA bolus administration. Repeat brain imaging (minimum plain CT Head) is required 24 hours after infusion and before starting any antithrombotics. Antithrombotics may be started after this period if clinically indicated and there is no significant intracranial bleeding on the follow up scan.

7. **When can blood be drawn after giving tPA?**

Routine bloods should be deferred until 24 hours post tPA. Urgent blood work, on rare occasions may be required within the first 24 hours. Drawing blood early is a clinical decision based on risk/benefit. If drawn, apply adequate pressure at the puncture site afterwards. Restrict venipunctures to arm veins. Check puncture site frequently for signs of bleeding. If bleeding occurs apply pressure to the puncture site. If an arterial puncture is necessary for other reasons (e.g. rarely, if an arterial line is needed), use an upper extremity artery that is accessible to manual compression. Apply pressure for at least 30 minutes and check the site frequently for bleeding thereafter.

8. **Can IM injections be given after tPA?**

IM injection should be avoided in the first 24 hours after tPA.

9. **When can a patient be mobilized after tPA?**

There is no guideline to suggest the need for bedrest following tPA thrombolysis and it should be activity as tolerated for most patients. Still, nursing teams should monitor any ambulation of patients during this time frame and if there is concern about safe ambulation, early referral to PT/OT is recommended for evaluation of safe ambulation. Early mobilization is associated with better outcomes. However, some patients may require bedrest for a short time, such as following endovascular therapy (EVT) for 4 hours, or if a patient has significant hemodynamic instability.

10. **What are the signs and symptoms of post tPA bleeding/hemorrhage?**

Intracerebral bleeding: Monitor for change in mental status (increased confusion/agitation),

decreased alertness, changes in neurologic signs (pupil size, hand grip strength, extremity motion), headache, nausea +/- vomiting or changes in vision.

Gastrointestinal bleeding: Monitor for hematemesis, abdominal pain or tenderness, hypotension, melena, or frank red blood in stool.

Respiratory tract bleeding: Monitor for hemoptysis, respiratory distress, chest pain, hypotension.

Genito-Urinary tract bleeding: Monitor for hematuria or dark brown urine, vaginal bleeding.

Arterial puncture site (groin)/Retroperitoneal bleeding: Monitor for bruising in the groin/upper thigh, or severe back pain, hypotension.

Generalised bleeding: Monitor for ecchymosis or petechiae.