Clinical Practice Procedures:
Cardiac/Autonomous fibrinolysis administration

Disclaimer and copyright
©2018 Queensland Government

All rights reserved. Without limiting the reservation of copyright, no person shall reproduce, store in a retrieval system or transmit in any form, or by any means, part or the whole of the Queensland Ambulance Service (‘QAS’) Clinical practice manual (‘CPM’) without the prior written permission of the Commissioner.

The QAS accepts no responsibility for any modification, redistribution or use of the CPM or any part thereof. The CPM is expressly intended for use by QAS paramedics when performing duties and delivering ambulance services for, and on behalf of, the QAS.

Under no circumstances will the QAS, its employees or agents, be liable for any loss, injury, claim, liability or damages of any kind resulting from the unauthorised use of, or reliance upon the CPM or its contents.

While effort has been made to contact all copyright owners this has not always been possible. The QAS would welcome notification from any copyright holder who has been omitted or incorrectly acknowledged.

All feedback and suggestions are welcome, please forward to: Clinical.Guidelines@ambulance.qld.gov.au

<table>
<thead>
<tr>
<th>Date</th>
<th>April, 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose</td>
<td>To ensure a consistent procedural approach to Autonomous fibrinolysis administration.</td>
</tr>
<tr>
<td>Scope</td>
<td>Applies to all QAS clinical staff.</td>
</tr>
<tr>
<td>Author</td>
<td>Clinical Quality &amp; Patient Safety Unit, QAS</td>
</tr>
<tr>
<td>Review date</td>
<td>April, 2021</td>
</tr>
<tr>
<td>Information security</td>
<td>This document has been security classified using the Queensland Government Information Security Classification Framework (QGISCF) as UNCLASSIFIED and will be managed according to the requirements of the QGISF.</td>
</tr>
</tbody>
</table>

This work is licensed under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License. To view a copy of this license, visit http://creativecommons.org/licenses/by-nc-nd/4.0/.
Rapid recognition of STEMI with prompt restoration of coronary artery perfusion is the key to myocardial salvage and decreasing mortality. Paramedic initiated pre-hospital fibrinolysis has been demonstrated to be safe, effective and can minimise the time to definitive treatment.[1–6]

**Indications**

Autonomous fibrinolysis administration is to be considered for all adult patients meeting the following criteria:

- **Proximity to a pPCI facility:**
  - Patient located > 60 minutes transport time (from time of first STEMI 12-Lead ECG) to a pPCI capable hospital.

- **Patient assessment:**
  - GCS = 15; AND
  - Classic ongoing ischaemic chest pain < 6 hours in duration. *Note: Atypical ischaemic chest pain is excluded.*

- **12-Lead ECG consistent with STEMI:**
  - Persistent ST-segment elevation of ≥ 1 mm in at least two contiguous limb leads; AND/OR
  - ST-segment elevation of ≥ 2 mm in at least two contiguous chest leads (V1 – V6); AND
  - Normal QRS width (< 0.12 seconds); OR
  - Right bundle branch block (RBBB) identified on the 12-Lead ECG.

**Contraindications**

- < 18 OR > 75 years of age
- Uncontrolled hypertension (systolic BP > 180 mmHg AND/OR diastolic BP > 110 at any stage during current acute episode)
- Known allergy to tenecteplase, enoxaparin or clopidogrel
- Left BBB identified on 12-Lead ECG
- Current or history of thrombocytopenia
- Active tuberculosis
- Known cerebral disease, in particular a malignant intracranial neoplasm OR arteriovenous malformation
- Prior intracranial haemorrhage
- Ischaemic stroke OR Transient Ischaemic Attack (TIA) within last 3 months
- History of significant closed head or facial trauma within last 3 months
- Suspected aortic dissection (including new neurological symptoms)
- History of major trauma or surgery (including laser eye surgery) within last 6 weeks
Contraindications (cont.)

- Internal bleeding (e.g. gastrointestinal (GI) or urinary tract bleed) within last 6 weeks (excluding menses)
- Bleeding or clotting disorder (e.g. haemophilia)
- Current use of anticoagulants (e.g. apixaban, dabigatran, rivaroxaban, warfarin)
- Non-compressible vascular punctures
- Prolonged (> 10 minutes) CPR.
- Known pregnancy or delivered within the last 2 weeks
- History of serious systemic disease (advanced/terminal cancer, severe liver or kidney disease)
- Resident of an aged care facility requiring significant assistance with activities of daily living
- Acute myocardial infarction in the setting of trauma

Complications

- Life-threatening stroke
- Haemorrhage
- Failure to achieve reperfusion
**Procedure – Autonomous fibrinolysis administration**

1. Confirm the patient is indicated for Autonomous Fibrinolysis Administration, specifically:
   - Patient located > 60 minutes transport time (from time of first STEMI 12-Lead ECG) to a PCI capable hospital; **AND**
   - GCS = 15; **AND**
   - Classic ongoing ischaemic chest pain < 6 hours in duration; **AND**
   - Persistent ST-segment elevation of ≥ 1 mm in at least two contiguous limb leads; **AND/OR** ST-segment elevation of ≥ 2 mm in at least two contiguous chest leads (V1 – V6); **AND**
   - Normal QRS width (< 0.12 seconds) **OR** RBBB identified on the 12-Lead ECG.

2. Complete the *Autonomous Fibrinolysis Administration Checklist* (April, 2018).

3. Obtain informed consent from the patient and request the patient sign the *Autonomous Fibrinolysis Administration Checklist* prior to any further action.

   - **If the patient has no contraindications for pre-hospital fibrinolysis,** administer medications (enoxaparin, tenecteplase, and clopidogrel) in accordance with the *Autonomous Fibrinolysis Administration Checklist* and the appropriate QAS DTP. Transport the patient ‘Code 2’ (unless altered vital signs) to hospital ensuring early pre-notification.

   - **If the patient has contraindications for pre-hospital fibrinolysis,** continue treatment in accordance with the relevant QAS Clinical Practice Guideline (CPG) and transport the patient ‘Code 1’ to hospital ensuring early pre-notification.

**Additional information**

- Increased scrutiny and threshold must be applied to patients < 35 years due to the higher likelihood of STEMI mimics such as pericarditis. Paramedics should exercise extreme caution and if doubt exists should wait for a second opinion at the receiving emergency department.

- If any doubt exists regarding the diagnosis of STEMI, the paramedic is not to administer reperfusion therapy.

- Patients must be regularly reassessed and transported with continuous comprehensive monitoring. All ongoing treatment must be in accordance with the relevant CPG.

- Copies of the patient’s 12-Lead ECG (annotated with the patient’s name, date of birth and symptoms) and e-ARF MUST be left with the patient.
Audit

- All cases involving coronary artery reperfusion are subject to clinical audit and review. In situations where there are complications or concerns, officers must immediately contact the QAS Clinical Consultation and Advice Line.

Data collection and research

- All cases where a STEMI has been identified or suspected by a paramedic with a clinical level of ACP2 or above (including those not trained in reperfusion) are subject to specific data collection. This should be facilitated by the completion of a STEMI Capture Form by the treating paramedic and adherence to the following process:
  - On the eARF select final assessment as ‘Acute Myocardial Infarction’ and complete documentation in accordance with current standards.
  - Forward the Autonomous Fibrinolysis Administration Checklist, eARF, STEMI Capture Form and 12-Lead ECG to:

**Manager, Cardiac Outcomes Program**
Information Support, Research & Evaluation Unit
Mail Cluster 10.1
Queensland Ambulance Service
PO Box 1425
BRISBANE, QLD 4001

- Patient meets Autonomous Fibrinolysis criteria according to the QAS Autonomous Fibrinolysis Administration checklist.
- Patient informed consent obtained for enoxaparin, tenecteplase AND clopidogrel administration.
- Administer enoxaparin 30 mg IV
- Administer tenecteplase (weight calculated dose) IV
- Administer clopidogrel 300 mg oral
- Administer enoxaparin 1 mg/kg (up to max 100 mg) SUBCUT at 15 min post initial dose
- Pre-notify as appropriate
- Code 2 transport to hospital unless altered vital signs

Assuming standard cares given
### Patient / Case Details

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surname</td>
<td></td>
</tr>
<tr>
<td>Given Name</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td></td>
</tr>
<tr>
<td>Case Date</td>
<td></td>
</tr>
<tr>
<td>Case Number</td>
<td></td>
</tr>
</tbody>
</table>

### Indications

- **Patient located > 60 minutes transport time (from time of first STEMI 12-Lead ECG) to a pPCI capable hospital?**
- **GCS = 15?**
- **Classic ongoing ischaemic chest pain < 6 hours in duration?**
  - *Note: Atypical chest pain is excluded.*
- **12-Lead ECG with persistent ST-elevation of ≥ 1 mm in at least two contiguous limb leads AND/OR ≥ 2 mm in at least two contiguous chest leads V1–V6?**
- **Normal QRS width (< 0.12 seconds) OR right bundle branch block?**

### Contraindications

- **< 18 OR > 75 years of age?**
- **Uncontrolled hypertension (systolic BP > 180 mmHg AND/OR diastolic BP > 110 mmHg at any stage during current acute episode)?**
- **Known allergy to tenecteplase, enoxaparin or clopidogrel?**
- **Left BBB identified on 12-Lead ECG?**
- **Current or history of thrombocytopenia?**
- **Active tuberculosis?**
- **Known cerebral disease, in particular a malignant intracranial neoplasm OR arteriovenous malformation?**
- **Prior intracranial haemorrhage?**
- **Ischaemic stroke OR Transient Ischaemic Attack (TIA) within last 3 months?**
- **History of significant closed head or facial trauma within last 3 months?**
- **Suspected aortic dissection (including new neurological symptoms)?**
- **History of major trauma or surgery (including laser eye surgery) within last 6 weeks?**
- **Internal bleeding (e.g. GI / urinary tract bleed) within last 6 weeks (excluding menses)?**
- **Bleeding or clotting disorder (e.g. haemophilia)?**
- **Current use of anticoagulants (e.g. apixaban, dabigatran, rivaroxaban, warfarin)?**
- **Non-compressible vascular punctures?**
- **Prolonged (> 10 minutes) CPR?**
- **Known to be pregnant or delivered within last 2 weeks?**
- **History of serious systemic disease (e.g. advanced / terminal cancer, severe liver or kidney disease)?**
- **Resident of an aged care facility requiring significant assistance with activities of daily living?**
- **Acute myocardial infarction in the setting of trauma?**
CONSENT

All patients eligible for Autonomous Fibrinolysis Administration **MUST** read (or have read to them) the following information and if consent is given the patient must sign the bottom section of this form.

It is likely that you are suffering a heart attack.

With your consent I would like to administer the following medications to restore blood flow to your heart:

- drugs which reduce new clot formation called enoxaparin and clopidogrel; **AND**
- a drug to dissolve the clot (blockage) called tenecteplase.

The sooner you receive these medications, the lower the risk from the heart attack.

It is recommended that this treatment is started as soon as possible.

Early treatment with these medications can improve your chance of survival by 20–25%.

These medications can sometimes cause serious side effects in a small number of patients however, this treatment is supported by national and international cardiology guidelines.

The biggest risk is a life-threatening stroke which affects about 1 patient in every 100 treated.

Other significant bleeding which is not normally life-threatening can occur in about 4 patients in every 100 treated.

Some patients also have allergic reactions and other side effects that do not usually cause major problems.

**Medical Records**: I give permission for the QAS to access my hospital record for information relating to this procedure.

| Patient signature | X ............................................................................................................ |

**PARAMEDIC DETAILS**

I certify that I have completed the **Autonomous Fibrinolysis Administration Checklist** and the patient **has given / has not given** (circle appropriate response) consent for the administration of enoxaparin, tenecteplase and clopidogrel.

<table>
<thead>
<tr>
<th>Number</th>
<th>Signature</th>
</tr>
</thead>
</table>