Acute Coronary Syndrome (ACS) Pathway

Provisional diagnosis	Previous lab investigations if any:
Duration of previous hospitalization (if)	

CO-MORBIDS				
	☐Hypertension	☐COPD	☐Immunocompromised	☐Post-Transplant
	☐Type 2 Diabetes Mellitus	☐CLD	☐Malignancy / Chemo Tx	☐Alcoholic
	☐CAD	☐CKD	☐Steroids / Immuno suppressant Drugs	☐Smoker

Chest pain	
Onset of Chest pain	__ : __ am /pm
Duration	__ hrs : __ min

Immediate General Assessment and stabilization

☐A: Airway - Assess and maintain patent airway ☐ (NIV/MV)
☐B: Breathing - Assess and administer oxygen if required;
aim SpO2 ≥ 94%
☐C: Circulation - Vascular access, blood collection,
- Send for Blood glucose/CBC/RFT/LFT/ /PT, INR, APTT, Troponin I, NT Pro BNP
- Maintain Blood pressure with target of map around 65mm of Hg

☐ Inform cardiology team.
☐12 lead ECG
☐Emergency 2D echo
☐ MORPHINE 2.5 mg IV stat for pain
☐Sorbitrate 5mg/10mg + NTG infusion(avoid in case of RVMI or IWMI)

Rule out non- Ischemic causes of chest pain

Aortic dissection
Pulmonary embolus
Gastrointestinal
Pericarditis
Trauma
Musculoskeletal

Symptoms of Myocardial ischaemia

Pain or tightness in chest, jaw, neck, left arm, right arm or epigastrium associated with symptoms of dyspnoea, diaphoresis or fatigue

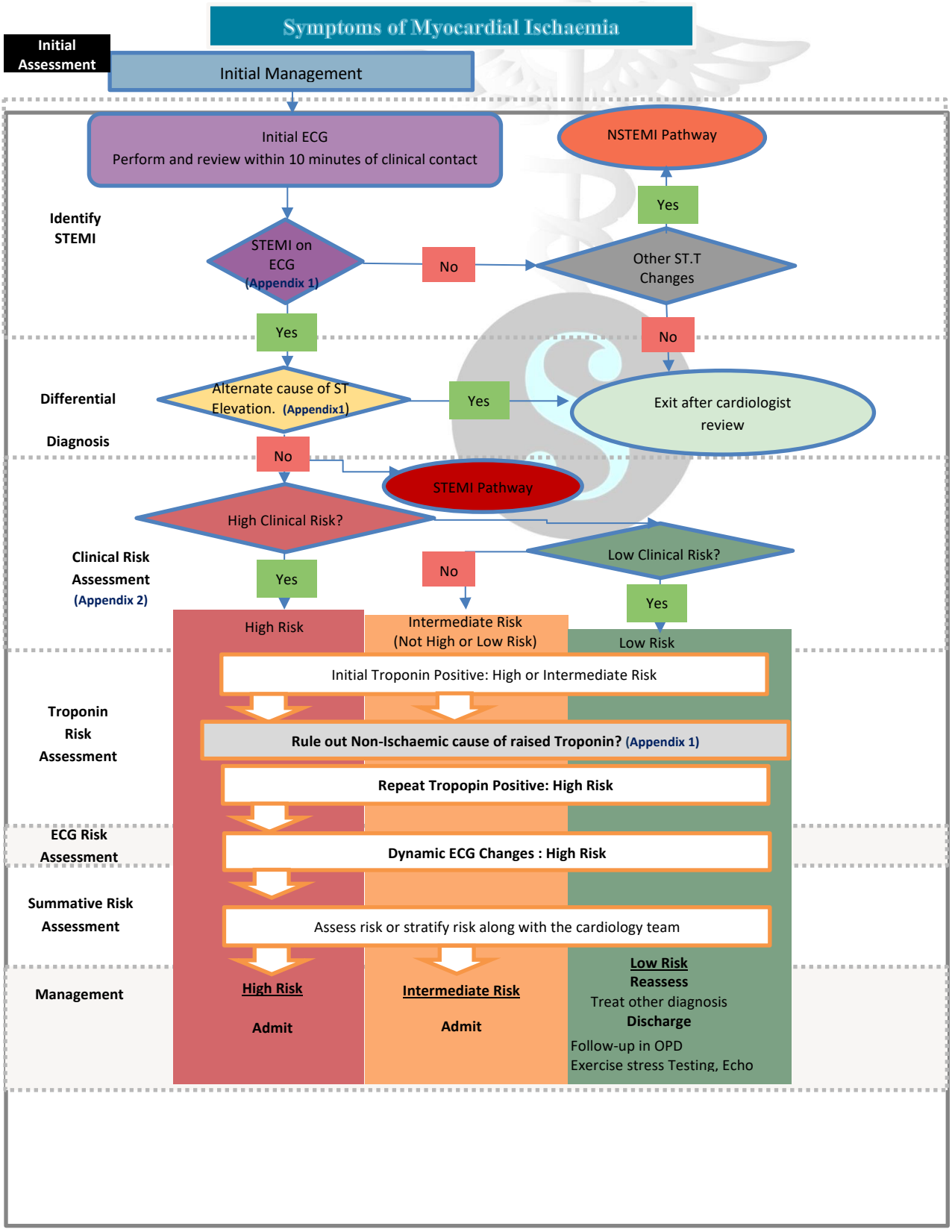
Palpitations

Groups associated with atypical presentation

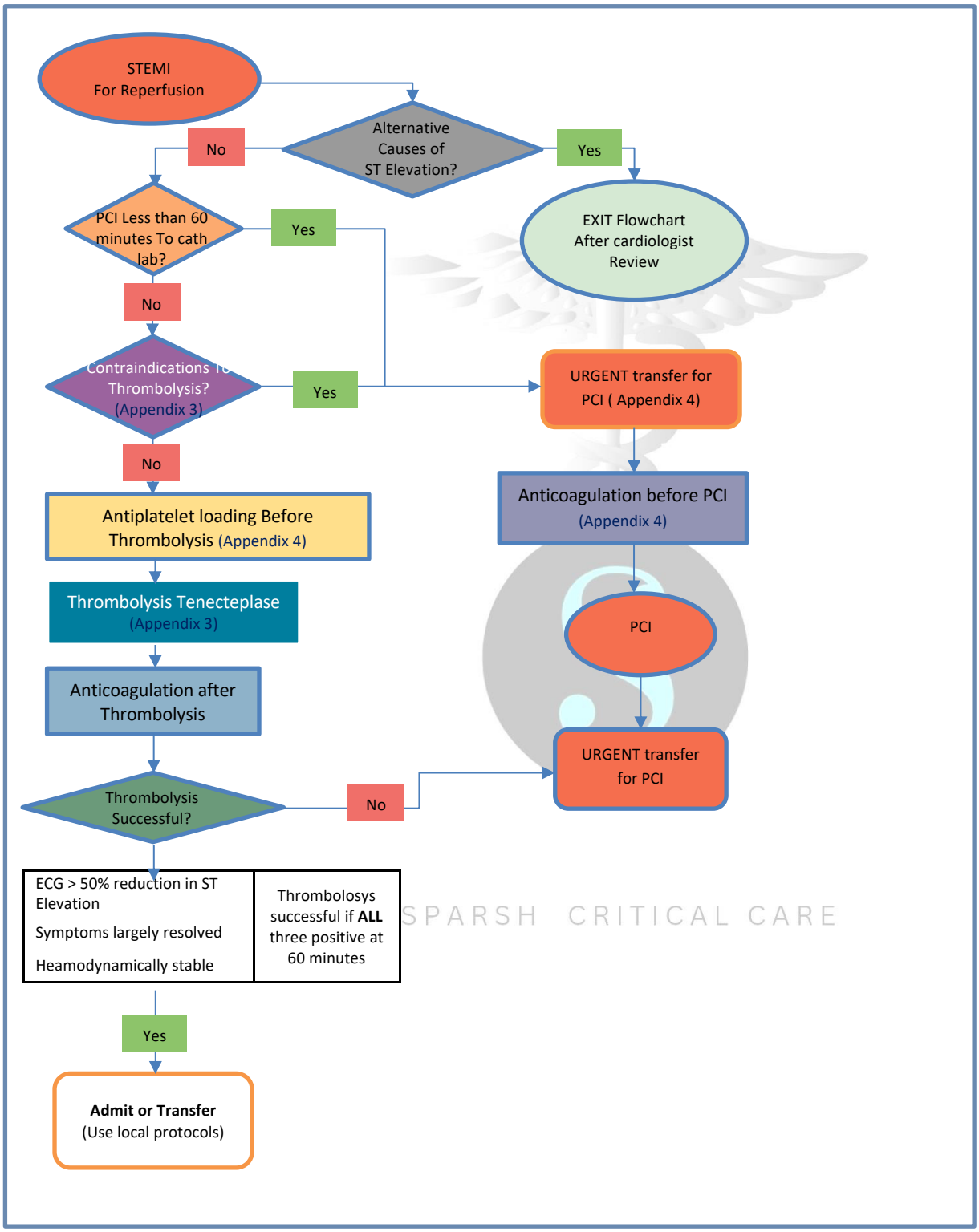
Female

People with diabetes

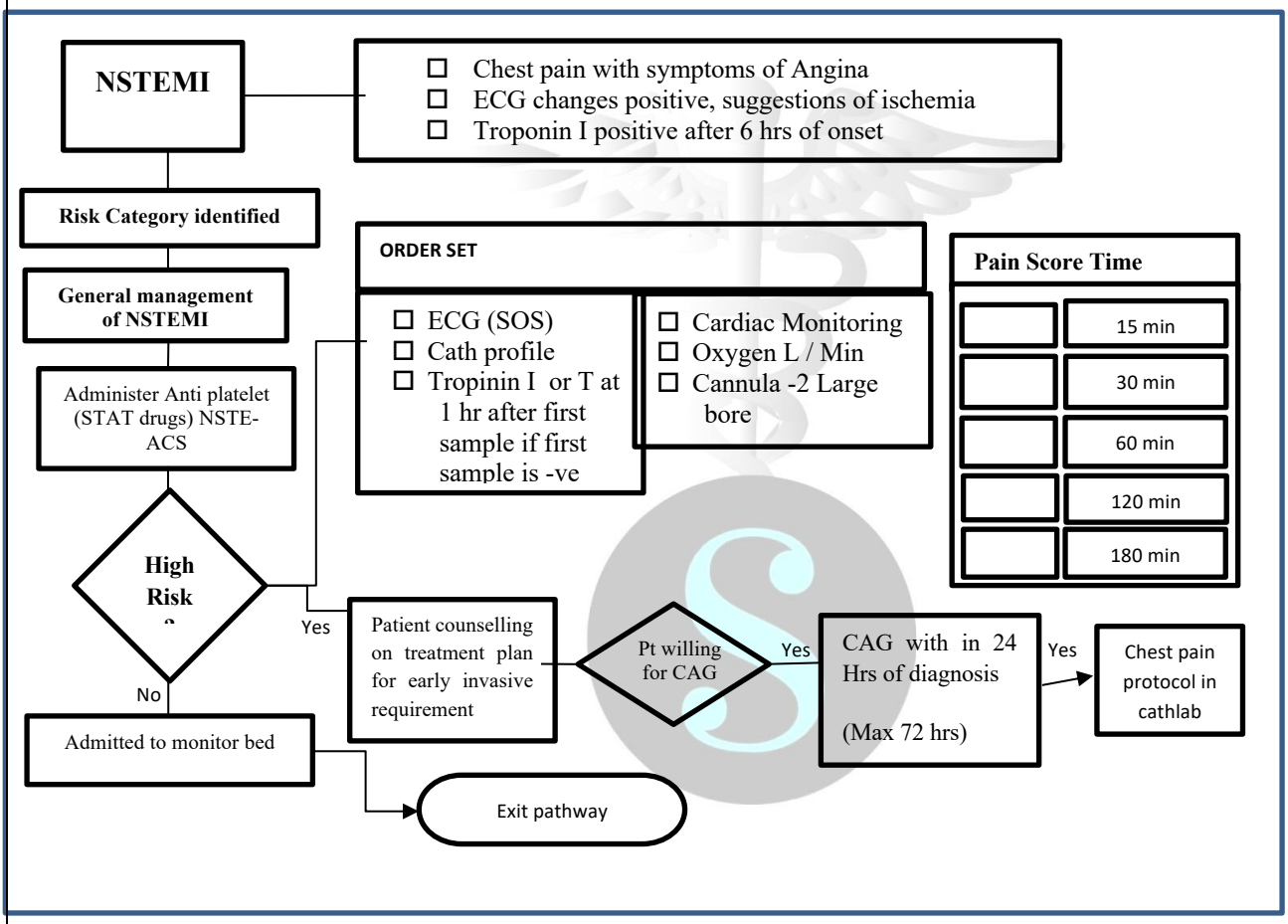
Elderly



STEMI PATHWAY



NSTEMI PATHWAY



	DRUGS FOR NSTEMI ORDER SET		
	Aspirin 300mg (soluble) unless already given or contraindicated		
AND	Heparin 60u/kg bolus followed by 12u/kg/hr infusion OR LMWH (Enoxaparin-1mg/kg bid SC)		
PLUS	ATORVASTATIN	80mg	
	Agent	**18-74 years**	**75 years and over**
PLUS	Ticagrelor	180mg	180mg
	OR Clopidogrel	300-600mg	75mg
	OR Prasugrel	60mg	No dose
	OR (GP IIb/IIIa) inhibitors		

ICU Days	EVENTS / SUPPORTS
1	☐MV ☐RRT ☐Vasopressors ☐Organ dysfunction ☐Others
2	☐MV ☐RRT ☐Vasopressors ☐Organ dysfunction ☐Others
3	☐MV ☐RRT ☐Vasopressors ☐Organ dysfunction ☐Others
4	☐MV ☐RRT ☐Vasopressors ☐Organ dysfunction ☐Others
5	☐MV ☐RRT ☐Vasopressors ☐Organ dysfunction ☐Others
6	☐MV ☐RRT ☐Vasopressors ☐Organ dysfunction ☐Others
7	☐MV ☐RRT ☐Vasopressors ☐Organ dysfunction ☐Others
>7 days Course of illness	

Outcome

I. APACHE II/IV Score: _____ 2. SOFA Score at the time of admission:_____ , 48hr: _____ at the time of transfer out / LAMA / Discharge:_____ 3. Length of ICU Stay:_____ 4.Length of Hospital stay:____

II. Organ Failure : ☐AKI ☐Liver failure ☐Coagulopathy ☐Encephalopathy ☐Myocardial Dysfunction ☐CIPNM ☐MV dependent

III. Renal replacement therapy_____day from CRRT / SLED

IV. MV_____ duration ☐Proning ☐ECMO ☐Tracheostomy

V. Outcome: ☐Death ☐Survived (Discharged from ICU / Transfer out to stepdown / HDU/ Room) ☐LAMA

☐Ambulated ☐Bed ridden (with support / without support)

Doctor Name: _____, Sign: _____

Appendix 1:

ECG STEMI Criteria

Ongoing Chest Pain

AND ST elevation of 1mm or more in 2 or more adjacent leads except V_2 and V3 which require ST elevation of

- 2.5mm or more in men under 40 years
- 2.0mm or more in men aged 40 years or over
- 1.5mm or more in women

OR Left bundle branch block and hemodynamically unstable

OR Left bundle branch block and hemodynamically stable with positive modified Sgarbossa criteria

OR Posterior infarct (ST depression V-V): needs posterior ECG

OR de Winter T waves V_2-V_5

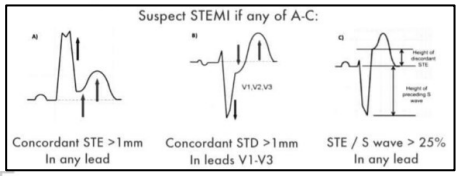
Alternative causes of ST Elevation

- Intracranial bleed
- Ventricular aneurysm
- Coronary vasospasm
- Early repolarisation
- Wellens syndrome
- Pericarditis
- Ventricular paced rhythm
- Left ventricular hypertrophy
- Cardiomyopathy
- Hyperkalemia
- Myocarditis
- Left bundle branch block
- Takotsubo cardiomyopathy
- Brugada syndrome
- Previous AMI

ECG STEMI Equivalents: for Rperfusion

Diagnosis of STEMI in Left bundle branch block (LBBB) using modified Sgarbossa criteria

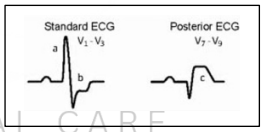
1. Any lead with > 1mm concordant ST elevation (QRS and ST in same direction) **OR**
2. Any lead in V_1-V_3 with > 1mm concordant ST depression (QRS and ST in same direction) **OR**
3. Any lead with ST elevation more than 25% of a preceding S wave



- New onset LBBB in a stable patient with chest pain is no longer an indication for reperfusion. Urgent reperfusion is indicated if LBBB AND a strong clinical suspicion of ongoing ischaemia.

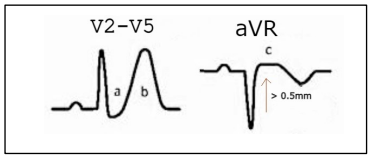
Posterior Infarct

a. R wave greater than S wave in V_1-V_2
b. ST depression V_1-V_3 on standard ECG
c. ST elevation V_7-V_9 on posterior ECG



de Winter T waves

a. Up-sloping ST depression in V_2- V_5
b. Tall T waves in chest leads: V_2-V_5
c. Slight ST elevation aVR > 0.5mm



Non-Ischaemic causes of Troponin elevation

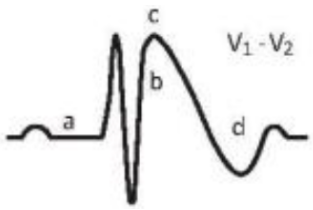
- Heart failure
- Cardiotoxic drugs
- Arrhythmia
- Myocarditis
- Sepsis
- Renal failure
- Cocaine
- Pulmonary Embolus
- Cardiomyopathy

ECG STEMI Mimics: NOT for Reperfusion

Brugada syndrome

Potential for critical arrhythmia: for Cardiology review

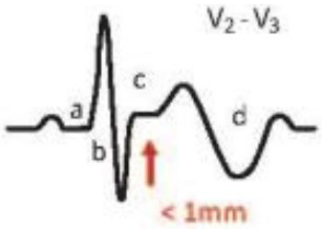
a. Broad P wave with PQ prolongation
b. J point elevation
c. Rounded ST elevation
d. Inverted or biphasic T waves



Wellens syndrome

Critical LAD stenosis: for urgent Cardiology review

a. No precordial Q waves
b. Normal precordial R wave progression
c. Minimally elevated ST segment (< 1mm)
d. Inverted or biphasic T waves V_1-V (mainly V_2-V3)



Appendix 2:

Clinical Risk Assessment.

High Clinical Risk Criteria

ANY of the following:

- ☐ Ongoing symptoms despite treatment
- ☐ Syncope at presentation OR SBP less than 90mmHg
- ☐ Left ventricular failure (acute onset)
- ☐ Significant arrhythmia (2nd or 3rd degree AV block or VT)
- ☐ AMI, PCI or CABG within previous 6 months
- ☐ Dynamic ECG: ST changes (>0.5mm up or down) or new T wave inversion

Low Clinical Risk Criteria

Symptom free with non-ischaemic ECGs and **ALL the following**:

- ☐ Age less than 45 years (unless in High Risk Population)
- ☐ Symptoms atypical for angina
- ☐ No known coronary artery disease

Intermediate Clinical Risk Criteria

☐ If the patient doesn't fit in to the above two he will be considered as Intermediate Risk.

Appendix 3:

Thrombolysis checklist STEMI	**Age** ……
	Weight ……

Indications: *If Yes to questions 1-6 start thrombolysis*

1.	History suggestive of acute MI	Yes/No
2.	Onset of symptoms within last 12 hours	Yes/No
3.	ECG confirmation of STEMI	Yes/No
4	Circle Yes if there are no absolute contra-indications (see below)	Yes/No
5.	Circle Yes if there are no relative contra-indications (see below)	Yes/No
6.	Counselled on stroke risk (approx. 1%) and consent given	Yes/No

Absolute contra-indications to thrombolysis

1	Previous intracranial hemorrhage or stroke of unknown origin at any time	Yes/No
3.	CNS damage	Yes/No
4.	Intracranial tumour or AVM	Yes/No
5.	Recent major trauma/surgery/head injury within last 2 weeks	Yes/No
6.	Gastrointestinal bleeding in last month	Yes/No
7.	Known bleeding disorder (excluding menses)	Yes/No
8.	Suspected Aortic dissection	Yes/No
9.	Non compressible punctures in past 24 hours (eg liver biopsy, lumbar puncture)	Yes/No
10.	Active internal bleeding	Yes/No
11.	Hypersensitivity to alteplase	Yes/No
12	Pregnancy or 1 week post-partum	Yes/No

Relative contra-indications to thrombolysis

1	TIA or ischaemic stroke in last 3 months	Yes/No
2.	Warfarin therapy (check INR <2) the higher the INR the greater the risk	Yes/No
3	DOAC-eg edoxaban, rivaroxaban, apixaban, dabigatran-consider when was last dose-seek senior advice	Yes/No
5.	Refractory hypertension systolic > 180mmHg, Diastolic > 110mmHg-control prior to thrombolysis	Yes/No
6.	Advanced liver disease	Yes/No
7.	Infective endocarditis	Yes/No
8.	Active peptic ulcer	Yes/No
9.	Prolonged or Traumatic resuscitation (> 10mins)	Yes/No
10.	GI Bleed last 6 month	Yes/No
11.	Bleeding Diathesis	Yes/No
12.	Hypertensive/diabetic retinopathy with Haemorrhage	Yes/No
13	Serious systemic disease	Yes/No

Minor contra-indications to thrombolysis

Retinal Neoplasm
Recent laser treatment
History of hypertension

Appendix 3 Continued

	Antiplatelet loading before Thrombolysis		
	Aspirin (300mg): unless already given or contraindicated+ STATINS		
	Agent	**18-74 years**	**75 years and over**
AND	Clopidogrel	300mg	75mg

Thrombolysis: Tenecteplase 5mg/mL (IV bolus over 10 sec)		
Weight	**18-74 years**	**75 years and over**
Less than 60kg	30mg = 6mL	15mg = 3mL
60 - 69kg	35mg = 7mL	17.5mg = 3.5mL
70 - 79kg	40mg = 8mL	20mg = 4mL
80 - 89kg	45mg = 9mL	22.5mg = 4.5mL
90kg and above	50mg = 10mL	25mg = 5mL

	Anticoagulation after Thrombolysis		
EITHER	**Heparin**	15 Minutes after Thrombolysis use weight based infusion (no loading dose) OR Use local protocol	
OR	**Enoxaparin**	**18-74 Years**	**75 Years and over**
	IV at 15 minutes	30mg IV bolus	No IV dose
	AND SC at 30 Minutes	1mg/kg **SC** (max 100mg)	0.75 mg/kg **SC** (max 75mg)

Appendix 4:

	DRUGS before PCI		
	Aspirin 300mg (soluble) unless already given or contraindicated+ STATINS		
AND	Heparin 5000 units IV OR Use local protocol		
	Agent	**18-74 years**	**75 years and over**
PLUS	Ticagrelor	180mg	180mg
	OR Clopidogrel	300-600mg	75mg
	OR Prasugrel	60mg	No dose

	Antiplatelet loading before Thrombolysis		
	Aspirin (300mg): unless already given or contraindicated+ STATINS		
	Agent	**18-74 years**	**75 years and over**
AND	Clopidogrel	300mg	75mg

Author	Supervised by	Version/Date	Review Date
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