



Traumatic Cardiac Arrest

Plymouth Hospitals 
NHS Trust

Tactics, Techniques
And Procedures

Action:	Trauma Team Leader				
Info:	Trauma Team Members				
Related documents:	Trauma Call SOP Damage Control Surgery SOP				
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This will be a consultant-led hospital trauma call.

In PEA arrest following trauma (blunt and penetrating):

(NB This SOP does not apply to medical arrests + minimal trauma, e.g., an older patient who has sustained a minor head injury in the course of their arrest)

The patient has a low or very low output state rather than a true cardiac arrest.

The patient has one of 4 reversible pathologies:

1. Hypoxia.
2. Hypovolaemia.
3. Tension pneumothorax.
4. Cardiac tamponade (remember, blunt trauma patients *can* have this).

External chest compressions are not indicated until 1 - 4 have been addressed. Usually the patient is under-filled, and the pulse returns as patient is oxygenated and blood given. External chest compressions in the context of a low output state can make the low output even lower, or injure the patient in the context of significant chest trauma !

The recipe for PEA traumatic arrest patients is as follows:

1. Do not do external chest compressions.
2. Do not give vasopressors (e.g., adrenaline, metaraminol).
3. Oxygenate.
4. Infuse 4 units of warmed O-neg blood stat.
If possible give the blood via a rapid infuser (flush line first to check that cannula is satisfactory). A subclavian trauma line may be required.
If there is a delay, squeeze the blood in manually or with a pressure bag. If possible take a blood sample prior to commencing infusion, for on-going cross-match.
5. Perform bilateral thoracostomies, unless certain that a tension pneumothorax is not present (caution: can be bilateral).
6. Ultrasound the heart immediately to check for tamponade and volume status.
7. If PEA and tamponade present, the patient needs immediate thoracotomy.
8. Ultrasound the abdomen.
If positive and the pressure comes up with blood, go to theatre (standby/ activate the Damage Control Surgery protocol).
9. X-ray the chest.
If massive haemothorax (whiteout) and the pressure comes up with blood, go to theatre (standby/ activate the Damage Control Surgery protocol).
10. X-ray the pelvis.
If significant disruption and the pressure comes up with blood, go to theatre (standby/ activate the Damage Control Surgery protocol).

11. If patient remains in PEA after:

- Oxygenation,
- 4 units of blood,
- Bilateral thoracostomies
- Tamponade exclusion

and

- Abdominal ultrasound is strongly positive, or significant pelvic disruption is seen on pelvic XR,
=> the patient may be a candidate for thoracotomy, aortic compression and further blood/products prior to theatre. Or resuscitation may be deemed futile.

12. If patient remains in PEA after:

- Oxygenation,
- 4 units of blood,
- Bilateral thoracostomies
- Tamponade exclusion

and

- CXR show massive *unilateral* haemothorax
=> the patient may be a candidate for thoracotomy, lung collapse / compression, aortic compression and further blood/products prior to theatre. Or resuscitation may be deemed futile.

Asystole

If the patient is in asystole then resuscitation is likely to be futile. On a case-by-case basis it may be appropriate to do CPR whilst attending to 1-4 reversible pathologies.

VF

If the patient is in VF they are usually older and resuscitation is likely to be futile. On a case-to-case basis it may be appropriate to do CPR (internal cardiac massage) for two minutes whilst attending to

1-4 reversible pathologies. After the two minutes shock the patient once, then do CPR for two minutes then stop CPR and make a decision as to futility or not.

Emergency thoracotomy has four uses.

1. Tamponade relief.
2. To collapse and compress lung for haemostasis of unilateral lung injury causing a massive haemothorax.
3. To compress thoracic aorta if exsanguinating below the diaphragm.
4. Internal cardiac massage.