Pre-Hospital and Disaster Questions

Fellowship Group 2017\_2

**Question 1**

You are the retrieval consultant attending a multi vehicle accident on a busy highway. Two 4-wheel drive vehicles have collided with a chemical tanker which has spilled its contents onto the road. There is a fire officer in attendance who has taken responsibility for the site command and control. There are 5 casualties, four of which have self extracated and are on the roadside and 1 who is trapped within a vehicle. The fire officer is waiting to give you a METHANE report to update you on the current situation

1. With regards management of mass casualty situations what are the 7 “key elements of a disaster response” ? (7 marks)

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* Outline the meaning of the disaster communication acronym METHANE (7 marks)
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* What are the two types of triage that occur in a mass casualty situation, and what does the result of each triage determine? (4)

|  |  |
| --- | --- |
| * Triage Type | * Determines what? |
|  |  |
|  |  |

* Your initial survey of the scene reveals that all but one of the patients are walking wounded. The last patient is trapped in a vehicle by his legs. He is screaming in pain with an obvious severe pelvic crush injury. BP 60/30, P160, Sats 80%, RR 46 with reduced AE right chest. It is estimated that it will take 20minutes to free him safely. List the immediate management steps you will take. You have access to an arm/torso but not to the airway.
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1.

Command and Control

Safety

Communications

Assessment

Triage

Treatment

Transport

2. **METHANE acronym**

•M - Major incident declared, activate plan

•E - Exact location

•T - Type of incident

•H - Hazards

•A - Access

•N - Number and type of casualties

•E - Emergency services present and required

|  |  |
| --- | --- |
| * Triage Type | * Determines what? |
| * Seive | * Which area the pt goes to and in what order |
| * Sort | * Order of transport to hospital |

1. Analgesia – Ketamine 1mg/kg
2. IV Line
3. IV fluids/O negative blood if available
4. Bicarbonate prior to release of crush
5. Consider pelvic binder if possible
6. Decompress tension PTX
7. O2

**Question 2**

A 46 year old man has fallen from a horse in a rural area of the Northern Territory. He has obvious lower limb and pelvic injuries and pain in his right chest.

You have been tasked as the prehospital doctor to retrieve this patient to the nearest trauma centre. There is a local GP at the site.

Observations

P110

BP 100/60

Sats 91% 15L NRB

RR 30

GCS 15

1. List the FIVE factors that require consideration when deciding whether to opt for helicopter versus fixed wing retrieval vs road transport (5)

* Speed of transfer required
* Distance of transfer
* Weight of patient
* Need for sea level transfer
* Weather
* Availability of vehicles
* Availability of pilot with flying hours
* Appropriate landing zone/airstrip
* Terrain – mountains to cross – not poss with helo

After consideration of all of the necessary factors it has been decided that helicopter transfer is the safest and best option

2. List the factors, specific to helicopter transfer, that will potentially impact the management of and outcome for your patient. Give an example with each (5)

* Vibration – interference with arterial line/ECG trace
* Noise – cant hear the sats beep
* Space limitation – hard to carry out procedures
* Altitude – risk of tension PTX and hypoxia, cuff pressures, need for ICC, aspiration risk
* Movement – risk of motion sickness/vomiting/aspiration
* Temperature – hypothermia part of deadly triad in trauma

You have made contact with the GP on site who has basic resus skills and basic GP practice equipment (no specialty trauma equipment) and simple drugs.

3. List the advice you would provide him with to management the patient until the team arrives.

* Oxygenate (already doing this)
* Apply sheet as a pelvic binder and tape feet in internal rotation
* IV lines x2
* Aim for BP > 70 systolic – permissive hypotension
* Analgesia – titrated parenteral – whatever available
* Check for signs of tension and decompress with IVC 2nd IS MCL if found or develops with regular reassessment
* Ensure neurovascular status of lower limbs intact – reduce any overt deformities if evidence of acute compromise

**Question 3**

You are the consultant in charge at a tertiary centre. A 4 week old infant has be brought in with a history intermittent cyanosis and respiratory distress. You suspect that they have Tetralogy of Fallot on the basis of a bedside echo by an adult cardiologist. You have fully examined the child and found no alternative cause. The nearest centre with paediatric cardiology services is 2000km away. The child is currently very stable, feeding and is undistressed. The last episode was 6 hours ago.

Observations

P140

BP 60/40

Sats 99%

RR 40

Temp 36.9

1. What modality of transport will you use to transfer this infant to the accepting centre? (1)

* Fixed Wing Aircraft/Jet

2. Complete the table below, comparing fixed wing with rotary transport (8)

|  |  |  |
| --- | --- | --- |
|  | Pros | Cons |
| Fixed Wing Aircraft | Good over longer distances (>200km)  Can be pressurised  More internal space  Better in bad weather  Better temp control | Need landing strip  Cant access difficult locations  Slower to mobilise |
| Rotary Aircraft | Fast over short distances (50-200km)  Can access difficult sites  No need for landing strip  Quick take off time | Small cabin/space  Noisy  Vibration issues  Unsafe  Weather limited  Limited by mountains/limited altitude  More motion sickness  Unpressurised – hypoxia/PTX etc  Need refuel regularly  Comms via headset |

3. What preparations will you make, as the sending hospital, for transfer of this infant to the receiving centre? (5)

* Contact referral hospital to accept patient and get advice – nicu/paeds/ED etc
* Contact retrieval service to arrange transfer
* Have child reviewed by paediatrics and cardiology prior to transfer
* Patient preparations – IV line controversial – may precipitate tet spell however – weigh up benefit in discussion with retrieval team, keep child warm, confortable and with parent.
* Investigations – non invasive. CXR and ECG
* Ensure that current ED team are aware of what to do in the event of a Tet spell whilst waiting for transfer
* Explain to parent the reasons, risks and benefits of transfer, invite questions.
* Gather paperwork and ensure copied for transfer

Incorrect answers include instituting the treatment for a tet spell – which this child is not currently having

Question 4

You are the consultant in charge in a large tertiary hospital when you receive formal notification of a disaster in the local area. A lorry has collided into a Christmas market 10km away. There are at least 10 people deceased on scene, 6 seriously injured and multiple 10s of walking wounded.

1. What is the definition of a disaster (1)

* An event which overwhelms the resources of a region/location in which it occurs

2. What colour code is this particular disaster labelled with? (1)

* Brown

3. How will you prepare your ED for the surge in ED presentations as a result of this disaster.

* Activate a Disaster if not already notified by pre-hospital personel – this will put into effect a chain of events hospital wide
* Locate ED disaster plan
* Liaise with ED Nurse in charge
* Assess current state of department – make appropriate disposition decisions – e.g. discharge all that can, move those requiring admission to wards
* Ensure ED security and PCAs are aware
* Prepare essential resus equipment (ETT/vents/drugs/fluids/Oneg blood etc)
* Locate disaster triage at point of entry and staffed by a senior ED doctor – colour coded/numbers/specific disaster paperwork/tags as per local hospital.
* Ensure corridors and bed spaces cleared and cleaned
* Set up specific treatment areas with designated teams – e.g ED for serious injuries, outpatients for walking wounded
* Brief staff that only life saving tests/interventions to be performed initially – point of care only

4. As the disaster progresses you now have 6 intubated patients and no free bays. A 19 year old man arrives via ambulance after blunt force trauma. He has been in traumatic arrest for 20 minutes. He has had 3 units of O negative and 1L NaCl, is intubated and ventilated. What are your 2 immediate stepwise actions? (3)

* Bilateral finger thoracostomies
* Check ETT position
* Cease resuscitation if unsuccessful

A resuscitative thoracotomy is not indicated and score 0 awarded if this answer is given