UK HEMS

Clinical Excellence in Helicopter Medicine

Overdose and Toxicology

Aims:

- Identify the categories of patients with overdose or drug toxicity who may be seen by HEMS
- Describe the general and specific pre-hospital treatments of overdose or drug toxicity
- Have a general awareness of the legal aspects of the medical care of these patients

Background:

Overdoses and drug toxicity are common presentations to the Emergency Department in the UK. There are a huge variety of clinical features that can present depending on the nature and quantity of the substance ingested. Some overdoses or drug ingestions are associated with specific symptoms and signs (toxidromes) and the recognition of these can assist in diagnosis. Few overdoses have specific antidotes or management strategies so for the most part, treatment is supportive both in the pre-hospital setting and in hospital.

In general, overdoses and drug toxicities are less likely to generate a HEMS response. Patients who are severely agitated, unconscious, or in cardio-respiratory arrest following overdose are more likely to be seen by the HEMS team. There is potential for the use of the service in a secondary transport capacity to transfer patients for specialist care. Burns patients, particularly from enclosed space fires, may have cyanide or carbon monoxide toxicity and HEMS may offer specific treatment options for these patients.

Policy:

General treatment of overdose and drug toxicity

- In general, treatment is to identify the nature and quantity of the ingestion, to support the airway, breathing and circulation as necessary, and to transport the patient to the nearest appropriate hospital
- The nearest Emergency Department is appropriate in the majority of cases. If the patient is unconscious, in cardio-respiratory arrest, agitated, or if a significant clinical deterioration is expected, the patient should be triaged to a hospital with ITU capability
- RSI indications and procedures are as per the 'RSI' SOP
- Sedation should be considered as per the 'analgesia and sedation' SOP

Specific pre-hospital treatments

- **Naloxone** is indicated for the reversal of suspected opiate toxicity. Indications include respiratory depression and/or a reduced level of consciousness. A number of routes of administration are available. Large and repeated doses may be required
- **Sodium bicarbonate** is indicated in tri-cyclic antidepressant overdose. Indications include:
    - Tachycardia >120 beats per minute
    - QRS prolongation
    - Arrhythmias in the setting of TCA overdose
    - Agitation in the setting of TCA overdose
- **Calcium chloride** is indicated for compromising hypotension in the setting of calcium channel blocker overdose
- **Benzodiazepines (such as midazolam)** are used in the treatment of chest pain associated with cocaine ingestion (as well as in the general supportive management of agitated or fitting patients who have drug toxicity)
- **Hydroxycobalamin (CyanoKit)** is licensed for the pre-hospital treatment of suspected cyanide poisoning. Local policies should be followed as to whether this drug should be carried by the HEMS team and as to indications and method of administration
- **Oxygen** is the treatment for suspected carbon monoxide toxicity. Ensure that the patient is breathing 100% oxygen as soon as possible. Intubation and ventilation may be required.

- Cocaine toxicity is known to be associated with acute myocardial infarction. This should be treated according to the 'Acute Coronary Syndrome' SOP in addition to the following:
    - Benzodiazepines may be useful to control agitation, tachycardia and hypertension. Large doses may be required.
    - Beta-blockers are contra-indicated
    - Cocaine-related intracerebral haemorrhage may mimic some of the features of acute MI (particularly in patients who are unconscious or who have a low GCS)
- Cardiac arrest should be treated according to the 'cardiac arrest' SOP and the 'QCPR' SOP in addition to the following:
    - Specific drug treatments outlined above should be considered
    - Prolonged resuscitation may be appropriate so consideration should be given to transporting the patient to the nearest appropriate hospital once QCPR and necessary specific treatments have been initiated

Secondary transfers

- Requests for secondary transfers should be managed as per the 'secondary transfers' SOP

Legal considerations

- The Mental Capacity Act (2005) relates to the issues of capacity and consent to medical treatment. It is complicated legislation to interpret and apply, especially in the pre-hospital setting. The duty pre-hospital care consultant should be contacted in any cases of doubt
- Patients who have taken overdoses or who have drug toxicity may refuse medical treatment or transport to hospital. Unconscious patients who respond to initial treatment and return to a normal mental state may also legitimately refuse further treatment
- The HEMS team should be familiar with the full content of the Mental Capacity Act in order to make decisions regarding capacity and consent

Mental Capacity Act (2005) - Summary

- Treatment can only be provided to a competent adult if he or she gives consent
- Any physical contact or treatment without consent may constitute assault or battery
- Consent may be written, verbal, or implied by actions
- A signature on a consent form does not prove that the consent was valid
- Valid consent is based on the patient's capacity to understand information, retain information, evaluate this information, and communicate decision
- The law presupposes that any registered medical practitioner is qualified to assess capacity and that all adults have capacity to consent unless proven otherwise
- Conscious adults without serious mental dysfunction are assumed to have capacity
- Patients may be competent to make some healthcare decisions but not others
- The patient must understand what he or she is consenting to but the doctor is only obliged to provide that information about a procedure and its risks that a reasonable group of doctors would disclose in the same circumstances (the Bolam test)
- The patient's right to self-determination takes legal precedence over the physician's duty to preserve life – a competent adult can refuse any treatment even if doing so puts his or her life at risk. The patient has no obligation to justify this decision
- Competent pregnant women may refuse treatment even to the detriment of the fetus
- No-one can give consent on behalf of an incompetent adult. Such patients may still be treated if it is in their 'best interests'
- Consent may be withdrawn by a competent adult at any time
- Consent obtained by deceit is invalid