

Hypothermia [29, 60, 250–275]

1. Introduction

- Hypothermia is defined as a core body temperature below 35°C (Figure 3.3). It is a potentially life-threatening condition.
 - There are three main types of hypothermia depending on the speed at which a person loses heat:
 - i. **Acute hypothermia (immersion hypothermia)**
 - This occurs when a person loses heat very rapidly e.g. by falling into cold water. It is associated with near-drowning. Acute hypothermia may also occur in a snow avalanche when it may be associated with asphyxia.
 - ii. **Subacute hypothermia (exhaustion hypothermia)**
 - This typically occurs in a hill walker who is exercising in moderate cold who becomes exhausted and is unable to generate enough heat. Heat loss will occur more rapidly in windy conditions or if the patient is wet or inadequately clothed. It may be associated with injury or frostbite. Do not forget that if one person in a group of walkers is hypothermic, others in the party who are similarly dressed and who have been exposed to identical conditions may also be hypothermic.
 - iii. **Chronic hypothermia**
 - In chronic hypothermia heat loss occurs slowly, often over days or longer. It most commonly occurs in the elderly person living in an inadequately heated house or the person who is sleeping rough. It can be associated with injury or illness e.g. the patient who falls or has a stroke and who is on the floor overnight.
 - Mixed forms of hypothermia may occur; e.g. the exhausted walker who collapses and falls into a stream.
- Diagnosis**
- In order to measure core body temperature accurately and make a diagnosis, a low-reading thermometer is required. In the prehospital environment, measuring the patient's temperature using an oesophageal, bladder or rectal approach may not be practical. However, tympanic thermometry in cold environments may not be reliable (as the probe is not well insulated) and if the patient is in cardiac arrest, with no blood flow in the carotid artery.
 - Because of the difficulty of diagnosing hypothermia in the prehospital environment, patients should be treated as having hypothermia if there is clinical suspicion of the diagnosis based on the risk factors in Table 3.39, the clinical history, examination, and the presence of concurrent injuries or illness which may suggest hypothermia.

Table 3.39 – RISK FACTORS FOR HYPOTHERMIA

Factors
● Older patients > 80 years due to impaired thermoregulation.
● Children due to their proportionately larger body surface area.
● Some medical conditions e.g. hypothyroidism, stroke etc. due to impaired thermoregulation.
● Intoxicated patients e.g. alcohol, recreational drugs.
● In association with near-drowning and in patients exposed to cold, wet and windy environments especially if inadequately dressed.
● Patients suffering from exhaustion.
● Injury and immobility.
● Decreased level of consciousness.

2. Incidence

- The true incidence is unknown but the ONS report fewer than 400 deaths per annum in England and Wales. However, it is suggested that hypothermia may be under-diagnosed in temperate climates such as the UK.
- Death from hypothermia is more common in women than men and in people over 80 years old.

3. Pathophysiology

As the core body temperature falls there may be:

- Progressive decrease in the level of consciousness (**refer to altered level of consciousness guideline**).
- Other brain dysfunction e.g. slurring of speech, muscular incoordination.
- Slowing heart rate.
- Slowing respiratory rate.
- Development of cardiac arrhythmias (sinus bradycardia → atrial fibrillation → ventricular fibrillation → asystole).
- Cooling the body decreases oxygen demand and is protective for the brain and vital organs; therefore **DO NOT STOP CARDIAC RESUSCITATION IN THE FIELD** as good outcomes have resulted from prolonged resuscitation of hypothermic patients.

4. Severity and Outcome

The severity of hypothermia can be classified into mild, moderate and severe depending on the patient's core body temperature (Figure 3.3).

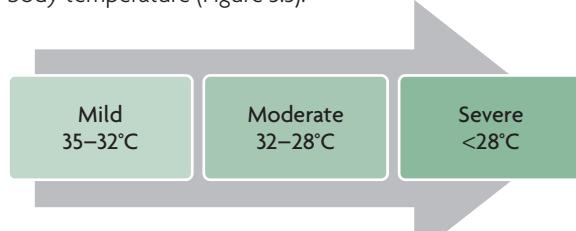


Figure 3.3 – Severity of hypothermia.