Heat Illness

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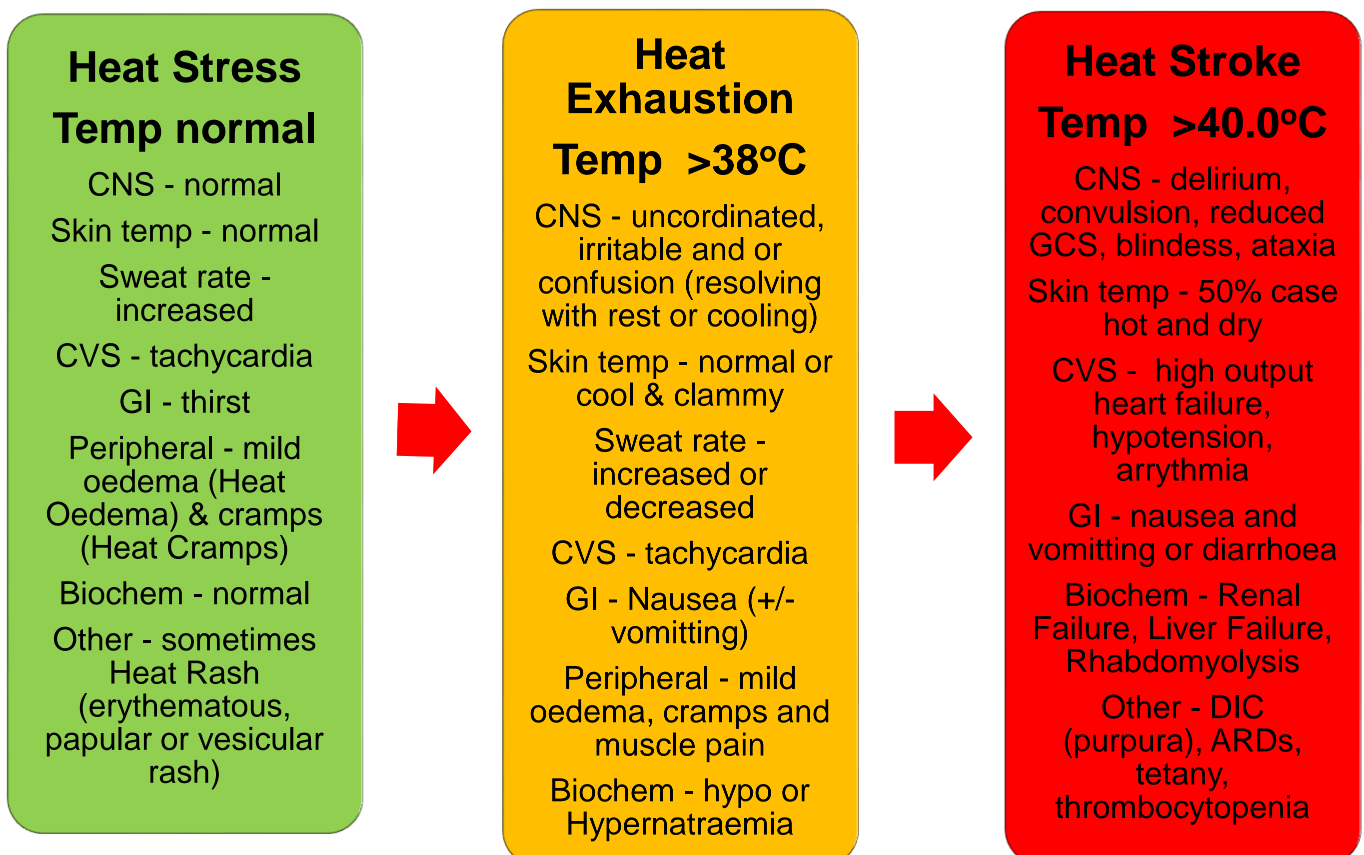
Background

- Heat illness is a continuum of disease
- Causes include environmental (classic), exertional or a combination of both. For the purposes of this guideline there is no differentiation between the causes of Heat illness as the in-hospital management remains the same.
- Differential diagnoses include: infection (e.g. Brain abscess, Encephalitis, Meningitis), CNS conditions, Status Epilepticus, Toxidromes, Aspirin overdose, illicit drugs (including PCP, MDMA, Cocaine and Amphetamines), medications (e.g. neuroleptics), Neuroleptic Malignant Syndrome, Phaeochromocytoma, Thyroid Storm and Malignant Hyperthermia.

Assessment

Once heat illness is suspected, document a **temperature** (rectal).
For suspected heat exhaustion or heat stroke do a **Capillary Blood Gas** and **Urine Dip**.

Signs, symptoms and investigation findings for each stage of heat illness:



Management

CAUTION – Antipyretics have no role in the management of heat illness

Removal of patients from a hot environment, cessation of exercise (if applicable) and initial cooling strategies in the pre-hospital phase represent the initial management of heat illness.

Management of stages of heat illness:

Heat Stress (usually self-limiting)

Discharge with safety-netting advice;

- Rest, stretch or massage affected muscle groups, hydrate (water +/- Dioralyte™) and avoid exposure to heat & sun until asymptomatic

Heat Exhaustion (may progress rapidly to life threatening Heat Stroke)

1. Admit
2. Intravenous Access
3. Bloods - **FBC**, **U&E**, **LFT**, **Clotting, Calcium, Phosphate, Creatine Kinase** and **Blood Gas**
4. 12-lead ECG if significant electrolyte abnormalities
5. **Hydrate** (if taking oral fluid initially Dioralyte™ or if required IV fluids [individually assess requirements])
6. **Cool the patient**:
    - Remove clothing
    - Lie patient down and consider elevating legs
    - Evaporative cooling most effective **initial** cooling strategy (tepid water sprayed over skin whilst fanning)
    - If evaporative cooling ineffective wrap ice-packs in towels and place around neck, axilla and groin OR cover in towels soaked in ice-water OR cooling blankets (if available)
    - Avoid cold water immersion in children (risk of discomfort, agitation, shivering, combativeness, overshoot hypothermia and bradycardia)

Heat Stroke (Medical Emergency)

Key differentiation with heat exhaustion is ALTERED MENTAL STATUS

- Manage as for heat exhaustion
- **Ensure assessment and stabilisation of ABCDE**

Heat Stroke (Medical Emergency) cont.

- If signs of hypovolaemia consider I.V fluid bolus (20ml/kg of **room temperature** crystalloid)
- Treat seizures with Lorazepam (0.1mg/kg IV)
- Consider using benzodiazepines to treat agitation or excessive shivering (evidence is limited)
- Aim to cool to 39°C (avoiding overshoot hypothermia)
- Consider urinary catheter to monitor urine output
- **Admit to HDU (+/- consider retrieval)**
- Consider CT Brain if persistent CNS symptoms despite cooling or signs of raised ICP
- Dantrolene has no role in the management of heat stroke

Resources

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