



**Εξειδικευμένη υποστήριξη της ζωής σε ειδικές καταστάσεις
Υποξία, υπο/υπερθερμία, υπο/υπερκαλιαιμία, υποογκαιμία**

ΚΩΝ/ΝΟΣ ΣΤΑΜΟΥΛΗΣ
Ανασθησιολόγος Επιμ. Α'
Ανασθησιολογική Κλινική
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Εξειδικευμένη υποστήριξη της ζωής σε ειδικές καταστάσεις

ABCDE APPROACH TO THE ACUTELY ILL PATIENT

Airway

stridor wheeze ?
gurgling no sound

LOOK • clear & patent → maintain

LISTEN • at risk → suction/maintain

FEEL • obstructed → open & maintain

HEAD-TILT + CHIN-LIFT

Breathing

INSPECTION → RR, expansion, equal movement & air entry, wounds...

PALPATION → confirm expansion, muscles work, tenderness, emphysema...

PERCUSSION → note equality, vibrations...

AUSCULTATION → equality, vesicular murmur, additional sounds...

SaO₂ + **HIGH FLOW NON-REBREATHING MASK**... **BRAIN PNEUMOTHORAX**

Circulation

PULSE → HR, central/peripheral, volume, regularity

BLOOD PRESSURE → hypo/normo/hypertensive

PERFUSION → colour, CRT < 2"

~~WIND MASSES, TACE BLOODS, STOP HEMORRHAGE, PAIN BALANCE,~~
~~MONITOR RESPIRATORY/HAEMODYNAMIC, ECG MONITORING~~

Disability

CONSCIOUSNESS → GCS or AVPU (Alert, Voice, Pain, Unresponsive)

BLOOD GLUCOSE → BM

PUPILS

LATERALISING SIGNS

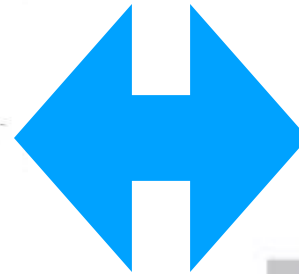
TREAT UNDERLYING CAUSE

Exposure

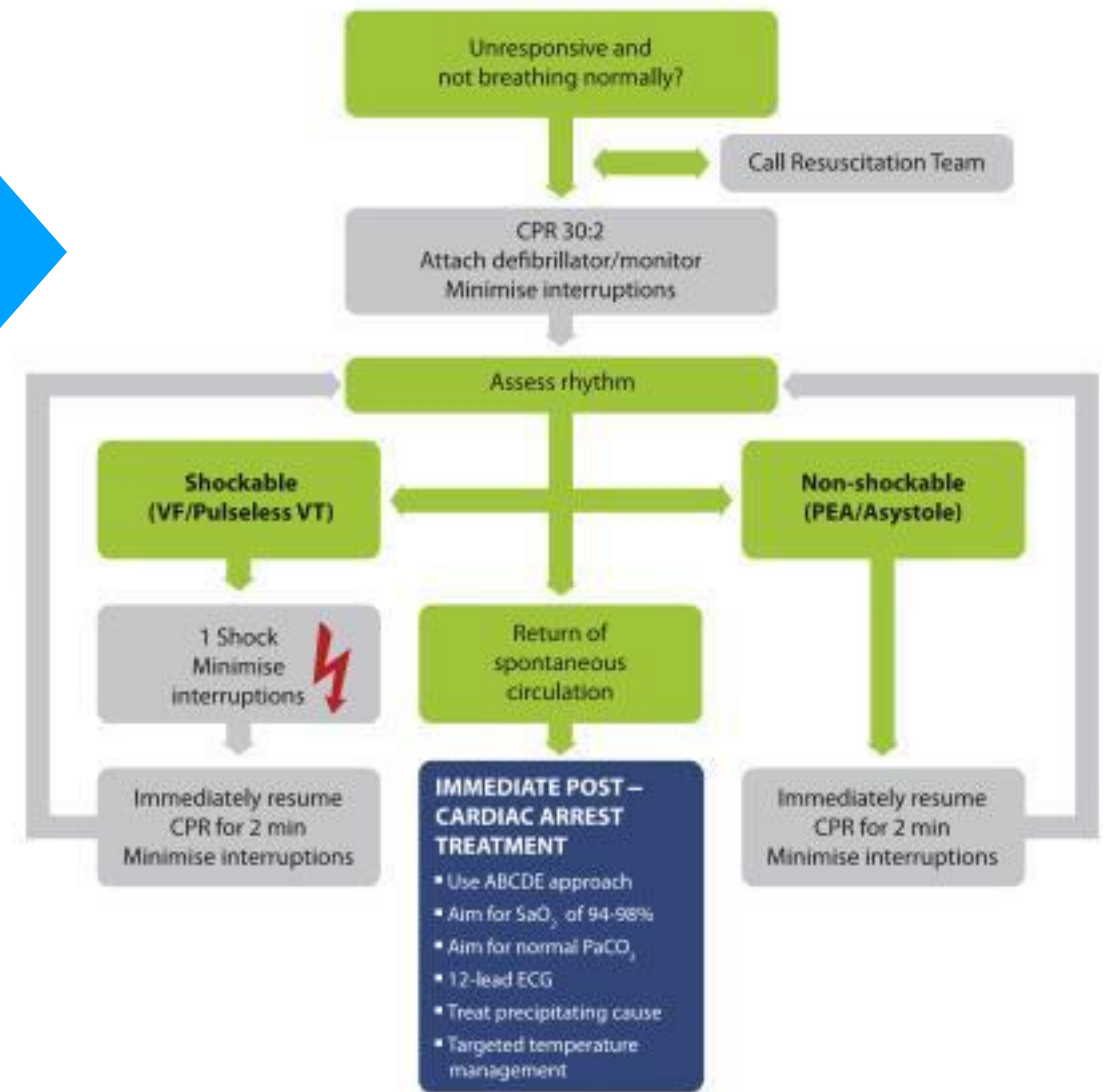
INSPECTION → injuries, bleeding, rash, wounds...

TEMPERATURE

MANTAIN DIGNITY



Advanced Life Support



call for help

and **ASSESS - TREAT - REASSESS**

Reason
Story
Vitals
Plan

or

Situation
Background
Assessment
Recommendation

DURING CPR

- Ensure high quality chest compressions
- Minimise interruptions to compressions
- Give oxygen
- Use waveform capnography
- Continuous compressions when advanced airway in place
- Vascular access (intravenous or intraosseous)
- Give adrenaline every 3-5 min
- Give amiodarone after 3 shocks

TREAT REVERSIBLE CAUSES

- | | |
|-------------------------------|------------------------------------|
| Hypoxia | Thrombosis - coronary or pulmonary |
| Hypovolaemia | Tension pneumothorax |
| Hypo-/hyperkalaemia/metabolic | Tamponade - cardiac |
| Hypothermia/hyperthermia | Toxins |

CONSIDER

- Ultrasound imaging
- Mechanical chest compressions to facilitate transfer/treatment
- Coronary angiography and percutaneous coronary intervention
- Extracorporeal CPR

Fig. 3.2. Advanced life support algorithm. CPR - cardiopulmonary resuscitation; VF/Pulseless VT - ventricular fibrillation/pulseless ventricular tachycardia; PEA - pulseless electrical activity; ABCDE - Airway, Breathing, Circulation, Disability, Exposure; SaO₂ - oxygen saturation; PaCO₂ - partial pressure carbon dioxide in arterial blood; ECG - electrocardiogram.

Εξειδικευμένη υποστήριξη της ζωής σε ειδικές καταστάσεις

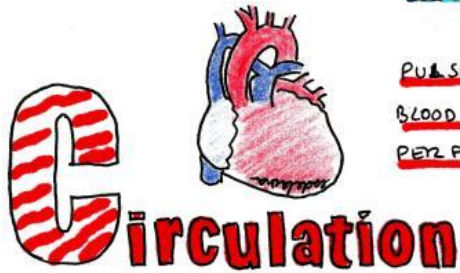
ABCDE APPROACH TO THE ACUTELY ILL PATIENT



! **LOOK** • clear & patent → maintain
 stridor ? **LISTEN** • at risk → suction / maintain
 wheeze ? **FEEL** • obstructed → open & maintain
 gurgling
 no sound
HEAD-TILT + CHIN LIFT



INSPECTION → RR, expansion, equal movement & air entry, wounds...
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SatO₂ + HIGH FLOW NON-REBREATHING MASK... BRAIN PNEUMOTHORAX



PULSE → HR, central / peripheral, volume, regularity
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PERFUSION → colour, CRT < 2"
~~WIND MASSES, PINK BLOODS, STOP HEMORRHAGE, PULSUS SERRATUS,~~
~~MONITOR RESPIRATORY RATE, STOP HEMORRHAGE~~



CONSCIOUSNESS → GCS or AVPU (Alert, Voice, Pain, Unresponsive)
BLOOD GLUCOSE → BM
PUPILS
LATERALISING SIGNS
TREAT UNDERLYING CAUSE



INSPECTION → injuries, bleeding, rash, wounds...
TEMPERATURE
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Υποβολαιμία

Αίτια:

- * αιμορραγία, τραύμα, έμετοι, διάρροιες, εγκαύματα, αδυναμία λήψης νερού

Κλινική εικόνα:

- * διαταραχή επιπέδου συνείδησης
 ταχύπνοια, ταχυκαρδία, διούρηση, υπόταση,



Αντιμετώπιση:

- * Φλεβική πρόσβαση, monitoring, τοποθέτηση ουροκαθετήρα, λήψη αιματοκρίτη, βιοχημικού προφίλ, πηκτικού μηχανισμού, διασταύρωση αίματος, αντικατάσταση όγκου, κλήση ειδικού και αποκατάσταση αιτίου

Εξειδικευμένη υποστήριξη της ζωής σε ειδικές καταστάσεις

Υποξία

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Circulation

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PERFUSION → colour, CRT < 2"

• ANGIO-ACCESSES, PAIN, SWELLING, REDNESS, TENDERNESS, PALLOR, CYANOSIS, VITILLO, DISCREPANCY, SOB, PAIN, PUFFING

Disability

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Exposure

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Αίτια:

- * Κεντρική άπνοια, τραύμα/νόσοι του θωρακικού τοιχώματος, νόσοι του αναπνευστικού, διαταραχές αερισμού αιμάτωσης

Κλινική εικόνα:

- * Ρόγχοι, δύσπνοια, ταχύπνοια, υπόταση/υπερταση, ταχυκαρδία, διαταραχή επιπέδου συνείδησης, κυάνωση

Αντιμετώπιση:

- * Απελευθέρωση αεραγωγού, χορήγηση οξυγόνου, μη επεμβατικός ή επεμβατικός αερισμός, κλήση ειδικού, αντιμετώπιση του αιτίου

Εξειδικευμένη υποστήριξη της ζωής σε ειδικές καταστάσεις

Υποκαλιαιμία

Αίτια:

- ✓ απώλειες από το γαστρεντερικό
- ✓ νεφρικές απώλειες
- ✓ φάρμακα
- ✓ ενδοκρινολογικά νοσήματα
- ✓ Διόρθωση υποκαλιαιμίας

Κλινική εικόνα:

Μυϊκή αδυναμία, δυσκοιλιότητα, αρρυθμία,

U waves

T wave flattening

ST segment changes

arrhythmias, especially if patient is taking digoxin
cardiac arrest (PEA, VF/pVT, asystole)

Αντιμετώπιση:

Διόρθωση καλίου, καταγραφή ΗΕΓραφήματος,
χορήγηση μαγνησίου

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Circulation

PULSE → HR, central/peripheral, volume, regularity
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PERFUSION → colour, CRT < 2"

• ~~check~~ AXES, ~~check~~ BLOODS, ~~check~~ URINE, ~~check~~ RADIOGRAPHS,
~~check~~ VENTILATION, ~~check~~ PAIN, ~~check~~ TEMPERATURE

Disability

CONSCIOUSNESS → GCS or AVPU (Alert, Voice, Pain, Unresponsive)
BLOOD GLUCOSE → BM
PUPILS
LATERALISING SIGNS
TREAT UNDERLYING CAUSE

Exposure

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TEMPERATURE
MAINTAIN DIGNITY

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and ASSESS - TREAT - REASSESS

Reason
Story
Vitals
Plan

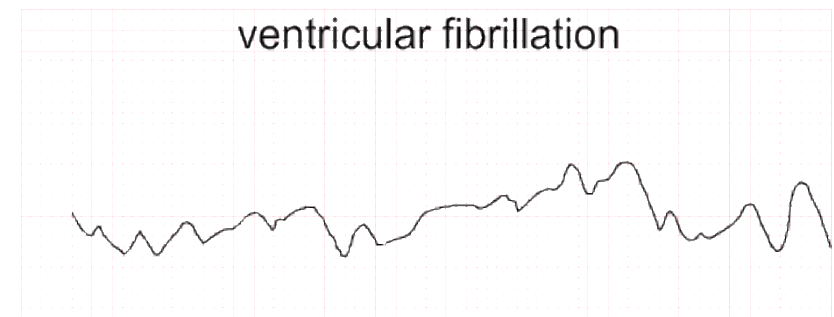
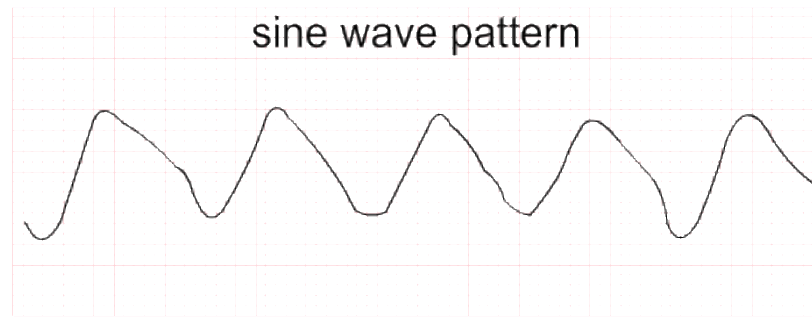
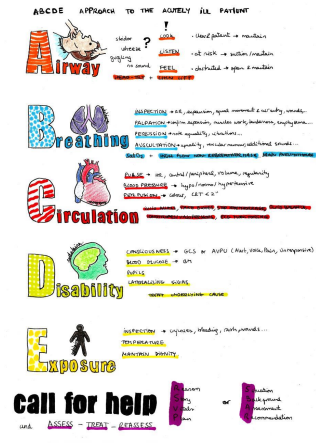
or

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Background
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Εξειδικευμένη υποστήριξη της ζωής σε ειδικές καταστάσεις

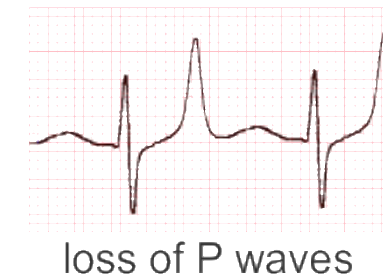
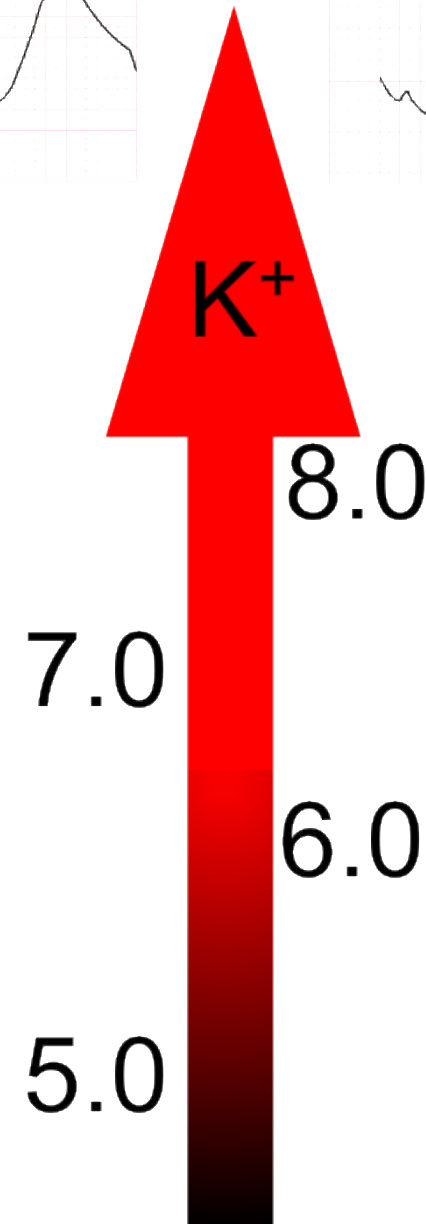
Υπεκαλιαιμία

ECG/EKG changes in hyperkalemia



Αίτια:

- * Νεφρική ανεπάρκεια
- * Φάρμακα
- * Καταστροφή ιστών
- * Μεταβολική οξέωση
- * Ενδοκρινικά νοσήματα
- * Δίαιτα
- * Ψευδουπερκαλιαιμία



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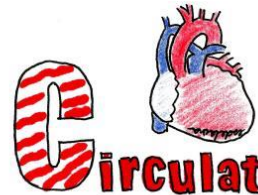
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 PERUSION → colour, CRT < 2"
 VITAL SIGNS, PAIN, TENDerness, SWELLING, REDNESS, WOUNDS, DEFORMITY, PALLOR, ECCHYMOSIS



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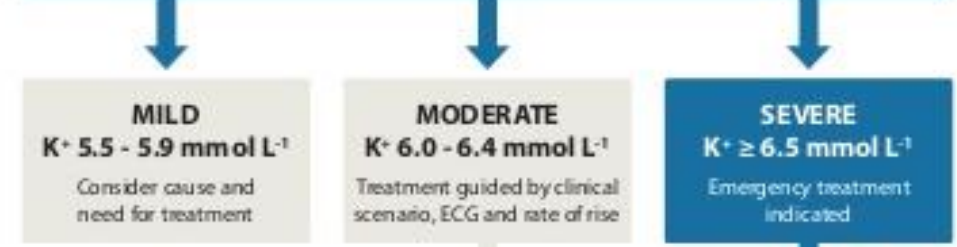
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Reason
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 Vital
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- Assess using ABCDE approach
- 12-lead ECG and monitor cardiac rhythm if serum potassium (K⁺) ≥ 6.5 mmol L⁻¹
- Exclude pseudohyperkalaemia
- Give empirical treatment for arrhythmia if hyperkalaemia suspected



Protect the heart

Shift K⁺ into cells

Remove K⁺ from body

Monitor K⁺ and blood glucose

Prevention

ECG changes?

- Peaked T waves
- Broad QRS
- Bradycardia
- Flat/absent P waves
- Sine wave
- VT

IV calcium
 10 mL 10% calcium chloride IV
 OR 30 mL 10% calcium gluconate IV

- Use large IV access and give over 5-10 min
- Repeat ECG
- Consider further dose after 5 min if ECG changes persist

Insulin-glucose IV infusion
 Glucose (25 g) with 10 units soluble insulin over 15 min IV
 2.5 g glucose = 50 mL 50% glucose OR 125 mL 20% glucose

Salbutamol 10-20 mg nebulised

Consider calcium resonium
 15 g x 4/day oral or
 30 g x 2/day per rectum

Consider dialysis
 Seek expert help

Monitor serum potassium and blood glucose

K⁺ ≥ 6.5 mmol L⁻¹ despite medical therapy

Consider cause of hyperkalaemia and prevent recurrence

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Υπερθερμία

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• ANGIO-GRAMS, FAST BLOODS, SWAP ANTICOAGULANTS, RADIO-OPACITIES,
• CONTRAST MEDIA REACTION, EEG MONITORING

Disability

CONSCIOUSNESS → GCS or AVPU (Alert, Voice, Pain, Unresponsive)
BLOOD GLUCOSE → BM
PUPILS
LATERALISING SIGNS
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Αίτια:

Ενδογενής

Εξωγενής

Κλινική εικόνα:



Αντιμετώπιση:

Αντικατάσταση υγρών κ ηλεκτρολυτών (500 ml/h)

Εξειδικευμένη υποστήριξη της ζωής σε ειδικές καταστάσεις

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SatO₂ + **HIGH FLOW NON-REBREATHER MASK** **BRONCHOPNEUMONIA**

Circulation




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WOUND ASSES, PINK BLOOD, STOP HEMORRHAGE, REBREATHER, COMPRESSION, PAIN RELIEF, COAGULATION

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Κλινική εικόνα: (heat stroke)

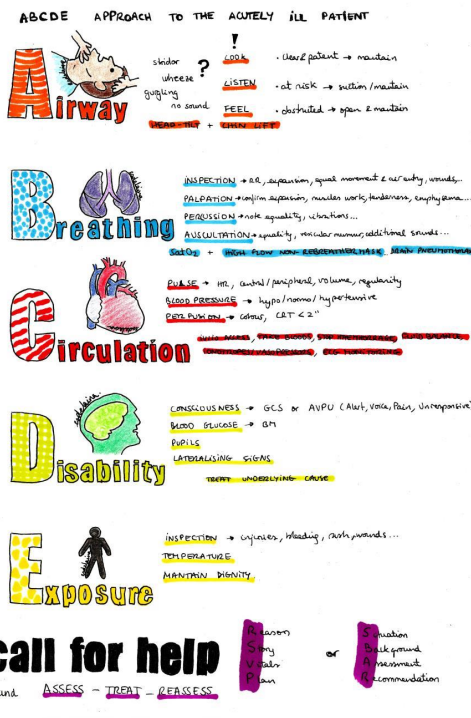
- * core temperature ≥ 40 °C;
- * hot, dry skin (sweating present in about 50% of cases of exertional heat stroke);
- * early signs and symptoms (e.g. extreme fatigue, headache, fainting, facial flushing, vomiting and diarrhoea);
- * cardiovascular dysfunction including arrhythmias and hypotension
- * respiratory dysfunction including acute respiratory distress syndrome (ARDS)
- * central nervous system dysfunction including seizures and coma
- * liver and renal failure
- * coagulopathy
- * rhabdomyolysis

Αντιμετώπιση

✓ ψυχρό περιβάλλον (προσοχή στην αγγειοσύσπαση)

Εξειδικευμένη υποστήριξη της ζωής σε ειδικές καταστάσεις

Υποθερμία



- ▶ **Hypothermia I mild hypothermia**
conscious, shivering, core temperature 35–32
- ▶ **Hypothermia II moderate hypothermia**
impaired consciousness without shivering, core temperature 32–28 °C
- ▶ **Hypothermia III severe hypothermia**
unconscious, vitals signs present, core temperature 28–24 °C
- ▶ **Hypothermia IV cardiac arrest or low flow state**
no or minimal vital signs, core temperature <24 °C
- ▶ **Hypothermia V death due to irreversible hypothermia**
core temperature <13.7 °C»

No one is dead until warm and dead

Do not delay careful tracheal intubation when it is indicated

Check for signs of life for up to 1 min

Hypothermia can cause stiffness of the chest wall

Once CPR is under way, confirm hypothermia with

a low-reading thermometer

The hypothermic heart may be unresponsive to cardioactive

drugs, attempted electrical pacing and defibrillation

**Ευχαριστώ
καλή ανάνσταση
καλό Πάσχα**

