



CARDIOPULMONARY RESUSCITATION AFTER CARDIAC ARREST

Acute treatment with hypothermia

ATTACHEMENT TO “PROTOCOL AND CHECKLIST ICU”

TREATMENT GOALS / AIMS

- Respiration: Controlled ventilation with PEEP 5 cm H₂O.
“Normal” bloodgases (alfa-stat, no correction for temperature).
- Circulation: MAP: 65-100 mmHg, “normal” CVP. Administer cristalloids and inotropics / vasopressors (dobutamin/noradrenalin) to maintain MAP
- Temperature: Goal temperature is 33±1°C. Bladdertemp. is recommended as “core temp”, but measure temp. in more than one site (tympanon, lower esophagus, blood/PiCCO)
- Nutrition: Enteral nutrition to be started through gastric tube – 10 ml/h, no more. No TPN.
- Fluid balance: Give cristalloid (NaCl/Ringer-ac) and no glucose solutions. Large volumes often needed and a positive balance expected. If colloids are considered, avoid dextrane
- Diuresis: Aim at a diuresis >1 ml/kg/h. Hypothermia leads to a decrease in the reabsorbtion in the distal tubuli with increased urinary output. Iv furosemid (initially small doses) may be given but always start with cristalloids if diuresis is declining.
- Lab: Aim at s-potassium>4.0, assign potassium-infusion liberally. Potassium shifts i.c. during hypothermia and there are increased losses through increased diuresis. Also check *Magnesium* and *ionized Ca²⁺* closely. Allow Hb down to 100 g/l.
- B-Glc: Treat with insulin Actrapid iv and aim at a B-Glc 5-8 mmol/l. Assign insulin-infusion liberally but you rarely need to give Glc-infusion in parallell. Correct B-Glc prior to temperature-drop <34°C, otherwise difficult.



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PROTOCOL FOR BLOODTESTS – A PROPOSAL

The time points mentioned below refer to elapsed time after cardiac arrest!!

Klockslag:														
TID	akuta	2 tim	6 tim	12 t	18 t	24 t	30 t	36 t	42 t	48 t	54 t	60 t	66 t	72 t
Hb	*					*				*				*
Na	*					*				*				*
Potass	*			*		*		*		*				*
B-glc	*		*	*	*	*	*	*	*	*	*	*	*	*
Ca ion	*		*	*	*	*	*	*	*	*	*	*	*	*
Lactate	*		*	*	*	*	*	*	*	*	*	*	*	*
pO ₂	*		*	*	*	*	*	*	*	*	*	*	*	*
pCO ₂	*		*	*	*	*	*	*	*	*	*	*	*	*
pH	*		*	*	*	*	*	*	*	*	*	*	*	*
BE	*		*	*	*	*	*	*	*	*	*	*	*	*
Mg / P	*			*		*		*		*				*
Creat	*					*				*				*
Urea	*					*				*				*
Leukoc	*					*				*				*
CK-Mb	*		*	*	*	*				*				*
Trop t	*		*	*	*	*				*				*
CRP	*					*				*				*
Trc	*					*				*				*
PK	*					*				*				*
APTT	*					*				*				*
Liverst	*					*				*				*
(Prot)	(*)	(*)	(*)	(*)		(*)				(*)				(*)
(S-100)	(*)	(*)				(*)				(*)				(*)
(NSE)	(*)	(*)												(*)

Liverst: ALP, Bilirubin, GT, ASAT, ALAT, Pancrease amylase

Responsible: _____ (mail: _____@_____)



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CLINICAL NEUROLOGICAL EXAMINATION (ICU) - A PROPOSAL

May be done after reversal with iv Narcanti (1µg/kg x 1-2), iv Lanexat (0,2mg + 0,1 mg)

Reversal?

Yes

No

	ARRIVAL		AT 72 HOURS	
	Date:	Time:	Date:	Time:
Temperature (ear)				
Blood pressure / pulse				
Spontaneous breathing?				
RLS (see p.4)				
Glasgow Coma Scale (p.4)				
Pupilles - size & reaction				
Corneal reflex – yes/no				
Swallow reflex – yes/no				
Vestibulo-ocular reflex ¹				
Babinski's sign				
Pareses?				
Signature (ICU-physician)				

- 1) Reflex eye movements after injection of 10 ml cold water into one ear – yes or no.
If yes - describe.

Responsible: _____ (mail: _____@_____)



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Glasgow Coma Scale

RLS 85

Table 5.4: The Glasgow Coma Scale

Best motor response	
Obeys	M6
Localizes	5
Withdraws	4
Abnormal flexion	3
Extensor response	2
Nil	1
Verbal response	
Oriented	V5
Confused conversation	4
Inappropriate words	3
Incomprehensible sounds	2
Nil	1
Eye opening	
Spontaneous	E4
To speech	3
To pain	2
Nil	1

RLS85

REAKTIONSGRADSSKALA

Vaken. Ej fördröjd reaktion. Orienterad ¹⁾ .	1
Slö eller oklar ²⁾ Kontaktbar vid lätt stimulering. Tilltal, enstaka tillrop, beröring.	2
Mycket slö eller oklar. Kontaktbar vid kraftig stimulering. Upprepade tillrop, ruskning, smärtstimulering.	3
En kontaktbar patient kan utföra något av följande: KONTAKTBAR ↑ – Tala enstaka ord – Ge blickkontakt/följa med blicken – Lyda uppmaning ICKE KONTAKTBAR ↓ – Avvärja smärta ³⁾	
Medvetslös. Lokaliserar ³⁾ men avvärjer ej smärta.	4
Medvetslös. Undandragande ³⁾ rörelse vid smärta.	5
Medvetslös. Stereotyp böjrörelse vid smärta.	6
Medvetslös. Stereotyp sträckrörelse vid smärta.	7
Medvetslös. Ingen smärtreaktion	8

Cerebral Performance Category (CPC)

CPC 1 – conscious, no neurologic disability

CPC 2 – conscious, moderate neurologic disability, can work

CPC 3 – conscious, severe neurologic disability, dependent

CPC 4 – coma

(CPC 5 – dead)