

Unterkühlte Patienten und Lawinenopfer als medizinische Herausforderung

Dr. Monika Brodmann Maeder

Help 1/2019

Referenzen

1. Gilbert M, Busund R, Skagseth A, Nilsen PÅ, Solbø JP. Resuscitation from accidental hypothermia of 13.7°C with circulatory arrest. *The Lancet*. 2000;355(9201):375–6.
2. Hilmo J, Naesheim T, Gilbert M. «Nobody is dead until warm and dead»: Prolonged resuscitation is warranted in arrested hypothermic victims also in remote areas – A retrospective study from northern Norway. *Resuscitation*. 2014;85(9):1204–11.
3. Truhlar A, Deakin CD, Soar J, Khalifa GE, Alfonzo A, Bierens JJ, et al. European Resuscitation Council Guidelines for Resuscitation 2015: Section 4. Cardiac arrest in special circumstances. *Resuscitation*. 2015;95:148–201.
4. Rosomoff HL, Holaday DA. Cerebral blood flow and cerebral oxygen consumption during hypothermia. *American Journal of Physiology-Legacy Content*. 1954;179(1):85–8.
5. Bernard SA, Gray TW, Buist MD, Jones BM, Silvester W, Gutteridge G, et al. Treatment of Comatose Survivors of Out-of-Hospital Cardiac Arrest with Induced Hypothermia. *New England Journal of Medicine*. 2002;346(8):557–63.
6. Group HaCAS. Mild therapeutic hypothermia to improve the neurologic outcome after cardiac arrest. *New England Journal of Medicine*. 2002;346(8):549–56.
7. Nielsen N, Wetterslev J, Cronberg T, Erlinge D, Gasche Y, Hassager C, et al. Targeted temperature management at 33 C versus 36 C after cardiac arrest. *New England Journal of Medicine*. 2013;369(23):2197–206.
8. Callaway CW, Donnino MW, Fink EL, Geocadin RG, Golan E, Kern KB, et al. Part 8: post-cardiac arrest care: 2015 American Heart Association guidelines update for cardiopulmonary resuscitation and emergency cardiovascular care. *Circulation*. 2015;132(18 suppl 2):S465–S82.
9. Danzl DF, Pozos RS. Accidental hypothermia. *New England Journal of Medicine*. 1994;331(26):1756–60.
10. Paal P, Gordon L, Strapazzon G, Brodmann Maeder M, Putzer G, Walpoth B, et al. Accidental hypothermia – an update : The content of this review is endorsed by the International Commission for Mountain Emergency Medicine (ICAR MEDCOM). *Scandinavian journal of trauma, resuscitation and emergency medicine*. 2016;24(1):111.

11. Pasquier M, Moix PA, Delay D, Hugli O. Cooling rate of 9.4 degrees C in an hour in an avalanche victim. Resuscitation. 2015;93:e17–8.
12. Podsiadło P, Darocha T, Kosiński S, Sałapa K, Ziętkiewicz M, Sanak T, et al. Severe Hypothermia Management in Mountain Rescue: A Survey Study. High altitude medicine & biology. 2017;18(4):411–6.
13. van der Ploeg G-J, Goslings JC, Walpoth BH, Bierens JJLM. Accidental hypothermia: Rewarming treatments, complications and outcomes from one university medical centre. Resuscitation. 2010;81(11):1550–5.
14. Mikhail J. The trauma triad of death: hypothermia, acidosis, and coagulopathy. AACN Clin Issues. 1999;10(1):85–94.
15. Martini WZ. Trauma associated coagulation disorders: acidosis, hypothermia and coagulopathy. Wien Klin Wochenschr. 2010;122 Suppl 5:S4–5.
16. Kampouri E, Vaucher J. Electrocardiographic Changes in Hypothermia. New England Journal of Medicine. 2018;378(5):460.
17. Kinzinger R, Risse M, Püschel K. Irrational behavior in exposure to cold. Paradoxical undressing in hypothermia. Archiv fur Kriminologie. 1991;187(2):47–56.
18. Durrer B, Brugger H, Syme D. The medical on-site treatment of hypothermia: ICAR-MEDCOM recommendation. High altitude medicine & biology. 2003;4(1):99–103.
19. Brown DJ, Brugger H, Boyd J, Paal P. Accidental hypothermia. The New England journal of medicine. 2012;367(20):1930–8.
20. Deslarzes T, Rousson V, Yersin B, Durrer B, Pasquier M. An evaluation of the Swiss staging model for hypothermia using case reports from the literature. Scandinavian journal of trauma, resuscitation and emergency medicine. 2016;24(1):16.
21. Pasquier M, Zurrón N, Weith B, Turini P, Dami F, Carron P-N, et al. Deep accidental hypothermia with core temperature below 24 C presenting with vital signs. High altitude medicine & biology. 2014;15(1):58–63.
22. European Resuscitation C. Part 8: advanced challenges in resuscitation. Section 3: special challenges in ECC 3A: hypothermia. Resuscitation. 2000;46(1-3):267–71.
23. Darocha T, Kosinski S, Podsiadlo P, Jarosz A, Drwila R. EMS, HEMS, ECMO Center, ICU Team: Are You Ready for Hypothermic Patients?: Extracorporeal Membrane Oxygenation in Severe Accidental Hypothermia. JACC Heart Fail. 2016;4(10):829–30.
24. Winkler K, Fischer A, Techel F, editors. Avalanche risk in winter backcountry touring: Status and recent trends in Switzerland. Proceedings of the international snow science workshop; 2016.
25. Brugger H, Durrer B, Adler-Kastner L, Falk M, Tschirky F. Field management of avalanche victims. Resuscitation. 2001;51(1):7–15.
26. Maeder MB, Rauch S, Strapazzon G, Brugger H. Medizinische Aspekte bei Lawinenunfällen – ein Update. Flugmedizin – Tropenmedizin – Reisemedizin-FTR. 2017;24(05):221–5.

27. Procter E, Strapazzon G, Dal Cappello T, Zweifel B, Wurtele A, Renner A, et al. Burial duration, depth and air pocket explain avalanche survival patterns in Austria and Switzerland. *Resuscitation*. 2016;105:173–6.
28. Kottmann A, Blancher M, Spichiger T, Elsensohn F, Letang D, Boyd J, et al. The Avalanche Victim Resuscitation Checklist, a new concept for the management of avalanche victims. *Resuscitation*. 2015;91:e7–8.
29. Kottmann A, Blancher M, Pasquier M, Brugger H. Avalanche Victim Resuscitation Checklist adaption to the 2015 ERC Resuscitation guidelines. *Resuscitation*. 2017;113:e3-e4.
30. Brodmann Maeder M, Duenser M, Eberle B, et al. The Bernese Hypothermia Algorithm: a consensus paper on in-hospital decision-making and treatment of patients in hypothermic cardiac arrest at an alpine level 1 trauma centre. *Injury*. 2011;42(5):539–43.
31. Ting DK, Brown DJ. Use of extracorporeal life support for active rewarming in a hypothermic, nonarrested patient with multiple trauma. *Canadian Medical Association Journal*. 2018;190(23):E718–E21.
32. Brodmann Maeder M, Lischke V, Berner A, Reisten O, Pietsch U, Pasquier M. RE: Ting, DK, & Brown, DJ (2018). Use of extracorporeal life support for active rewarming in a hypothermic, nonarrested patient with multiple trauma. *CMAJ*, 190 (23), E718–E721. 2018.