# Zbrinjavanje i rehabilitacija pacijenta nakon pothlađivanja: prikaz slučaja

# Medical care and rehabilitation of patient after hypothermia: a case report

**Gorana Spitek*, Danijela Sorić-Noršić, Vesna Vlahek, Maja Šipek**

Klinička bolnica Dubrava, Zagreb, Hrvatska
University Hospital Dubrava, Zagreb, Croatia

**KLJUČNE RIJEČI:** srčani arest, terapijska hipotermija.
**KEYWORDS:** cardiac arrest, therapeutic hypothermia.
**CITATION:** Cardiol Croat. 2016;11(10-11):567. | **DOI:** http://dx.doi.org/10.15836/ccar2016.567
***ADDRESS FOR CORRESPONDENCE:** Gorana Spitek, Klinički bolnički centar Sestre milosrdnice, Vinogradska 29, HR-10000 Zagreb, Croatia. / E-mail: danijela22@windowslive.com
**ORCID:** Gorana Spitek, http://orcid.org/0000-0003-4797-5342 • Danijela Sorić-Noršić, http://orcid.org/0000-0002-2278-7241 Vesna Vlahek, http://orcid.org/0000-0002-5459-2238 • Maja Šipek, http://orcid.org/0000-0003-1449-0250

Srčani arest vodeći je uzrok smrti u razvijenim zemljama. Osobito lošu prognozu imaju bolesnici koji su doživjeli izvanbolnički arest, pri čemu je hipoksično oštećenje mozga ključno u nastanku nepopravljivih neuroloških komplikacija i smrti.[1]

Kod bolesnika koji su doživjeli izvanbolnički arest uzrokovan fibrilacijom ventrikula ili ventrikulskom tahikardijom i reanimacijskim postupcima uspješno im je obnovljena cirkulacija, a po prijemu u bolnicu su u nesvjesnom stanju, Odbor međunarodnog udruženja za resuscitaciju (ILCOR, *International Liaison Committe on Resuscitation*) preporučuje terapijsku primjenu hipotermije. Uloga medicinske sestre u zbrinjavanju bolesnika kod kojeg se provodi terapijska hipotermija od ključnog je značaja. Osim provedbe intervencija iz zdravstvene njege i delegiranih intervencija od drugih članova multidisciplinarnog tima, medicinska sestra mora pratiti pojavnost simptoma i znakova mogućih neželjenih učinaka koje pothlađivanje može izazvati. Mogući neželjeni učinci su: sklonost aritmijama, nastanak plućnog edema, hipotenzija, poremećaji hemostaze (pojačana sklonost krvarenju). Osnovne kontraindikacije za terapijsku primjenu hipotermije su: koma druge etiologije, refraktorna hipotenzija usprkos inotropnoj potpori i nadoknadi volumena, sepsa, hemodinamski nestabilne aritmije, trudnoća i terminalna bolest, poznata koagulopatija i aktivno krvarenje, veliki operacijski zahvat unutar 14 dana. Kod bolesnika kod kojih se provodi terapijska hipotermija primjena fibrinolize i perkutana koronarna intervencija nisu kontraindicirani.

Tjelesna temperatura mjeri se rektalnim toplomjerom ili posebnom sondom u mokraćnom mjehuru, a ciljna temperatura je od 32-34°C. Ciljna temperatura postiže se infuzijama hladne fiziološke otopine ili Ringerovog laktata ohlađene na 4°C, oblaganjem bolesnika ledenim paketima (područje pazušnih jama, prepone, oko vrata,). U posljednje vrijeme dostupni su uređaji za invazivno provođenje terapijske hipotermije. Ciljnu temperaturu postiže se tijekom 6-8 sati i održava iduća 24 sata. Cijelo vrijeme bolesnik mora biti sediran i relaksiran. Nakon 24 sata uz daljnje održavanje sedacije i relaksacije bolesnika se započinje pasivno zagrijavati do tjelesne temperature od 36°C koja se postiže kroz 6 sati.

U ovom radu biti će prikazan tijek oporavka jednog bolesnika s naglaskom na kompleksnost i zahtjevnost zdravstvene njege i uloga sestre u skrbi za bolesnike kod kojih se provodi terapijska hipotermija.

Cardiac arrest is the leading cause of death in developed countries.[1] Particularly poor prognosis are for patients who experience cardiac arrest outside the hospital, where the hypoxic brain damage is crucial in the development of irreversible neurological complications and may lead to death.

In patients who experienced cardiac arrest outside the hospital due to ventricular fibrillation or ventricular tachycardia, and after admission to the hospital were in an unconscious state, *ILCOR* (International Liaison Committe on Resuscitation) recommends therapeutic use of hypothermia. The role of nurses in the care of patients on whom therapeutic hypothermia is performed is crucial. In addition to the implementation of health care interventions and delegated interventions from other members of the multidisciplinary team, the nurse must monitor the incidence of symptoms and signs of possible side effects that hypothermia can cause. Possible side effects are: tendency for arrhythmias, occurrence of pulmonary edema, hypotension, disorders of hemostasis (increased tendency to bleed). Basic contraindications for therapeutic use of hypothermia are: coma of other etiology, refractory hypotension despite inotropic support and volume compensation, sepsis, hemodynamically unstable arrhythmias, pregnancy and terminal illness, known coagulopathy and active bleeding, a major surgery within 14 days. When therapeutic hypothermia is performed, the application of fibrinolysis and percutaneous coronary intervention are not contraindicated.

Body temperature is measured by a rectal thermometer or a special probe in the bladder, and the target temperature is from 32-34° C. The target temperature is achieved by infusion of cold saline solution or Ringer's lactate cooled to 4° C or coating patients with ice packs (armpits, groin, neck,). Recently, devices for invasive implementation of therapeutic hypothermia are available. The target temperature is achieved during 6-8 hours and maintained for the next 24 hours. The whole time the patient must be sedated and relaxed. After 24 hours, with further maintenance of sedation and relaxation of the patient, passive warming begins to raise body temperature to 36° C which is achieved in 6 hours.

This case report will be present the course of recovery of one patient, with an emphasis on the complexity and demands of healthcare for the role of nurses in caring for patients therapeutic hypothermia is performed on.

**RECEIVED:**
**September 27, 2016**
**ACCEPTED:**
**October 11, 2016**

## LITERATURE

1. Patel PV, John S, Garg RK, Temes RE, Bleck TP, Prabhakaran S. Hypothermia After Cardiac Arrest is Underutilized in the United States. Ther Hypothermia Temp Manag. 2011;1(4):199-203. **DOI:** http://dx.doi.org/10.1089/ther.2011.0015