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RESEARCH NEWS

Temperature management after VF-OHCA: Getting too hot?

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Article

Changing target temperature from 33°C to 36°C in the ICU management of out-of-hospital cardiac arrest: A before and after study. Published in Resuscitation in January 2017.[1]

Why was this research done?

Based on the results of two pivotal randomised controlled trials cooling comatose survivors of cardiac arrest to 33°C had become standard practice.[2,3] In 2013, a study by Nielsen et al.[4] showed that there was no difference in outcome between cooling ventricle fibrillation out-of-hospital cardiac arrest (VF-OHCA) patients to 33°C vs. 36°C. Many hospitals changed their policy after this study to a target temperature of 36°C in these patients. The effect of this change in target temperature management has not been studied outside a randomised controlled trial.

What was the research question?

To examine the impact of a change in target temperature management in patients after VF-OHCA on measured temperatures, treatment and patient outcome. The study compared two groups of patients after VF-OHCA. One group had a target temperature of 33°C, the other group a target temperature of 36°C. Actual measured temperature, treatment and patient outcome were compared.

How was this investigated?

In a single-centre retrospective cohort study two groups of consecutive VF-OHCA patients, admitted to a quaternary referral hospital between January 2013 and August 2015, were compared. Between September 2012 and October 2013 the hospital used a protocol to cool patients post VF-OHCA to a target temperature of 33°C for 24 hours. In November 2013 the protocol was changed to a target temperature of 36°C for 24 hours post VF-OHCA. Hospital data were obtained by auditing patient medical records using predefined, standardised definitions and data extraction points.

Main findings?

In the first study period 24 VF-OHCA cases were admitted to the ICU, in the second 52 patients were admitted. Patient characteristics and cardiac arrest features were similar between the two groups.
Patients in the 33°C group spent significantly more time at or below target temperature compared with the 36°C group (87% vs. 50% p< 0.001). Patients received less and a shorter duration of sedation in the 36°C group. Patients in the 33 C group had better ICU survival (71% vs. 58%), better hospital survival (71% vs. 58%), a higher chance to be discharged home (58% vs. 40%), and a higher chance of a cerebral performance category score of 1 or 2 (71% vs. 56%), although none were statically significant. The major limitations of this study were its design and small sample size.

Conclusion and consequences for daily practice

A change in target temperature therapy from 33°C to 36°C in patients after VF-OHCA was associated with significant non-compliance to this new target temperature, which led to worse patient outcomes. Although the results are non-significant, probably due to the small sample size, the authors underscore that the trend towards higher mortality and poorer neurological outcome is clinically relevant. The fact that patients in the 36°C group received less and shorter duration of sedation could be a contributing factor.
If hospitals change their protocols based on the TTM trial,[4] they should strive to close adherence to the new target temperature.

Disclosures

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Reference

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