Response to Letter Regarding Article, “Endovascular Versus External Targeted Temperature Management for Patients With Out-of-Hospital Cardiac Arrest: A Randomized, Controlled Study”

We thank Dr Yan Kang and colleagues for their comments assuming that endovascular cooling may theoretically present more advantages than surface cooling. We agree with this assertion as we consider that automated devices control like endovascular cooling allow significant shortening in time-to-target temperature, better controlled maintenance and rewarming phases, and improvement in intensive care unit nurses’ workload as described in our trial. However, as reported in several studies, it is not clear whether reaching the targeted temperature more quickly may result in a better prognosis in post–cardiac arrest patients. Although demonstrated by most of animal studies, several clinical studies failed to prove any relationship between time-to-target temperature and final outcome. In contrast, studies even observed that the lower the time-to-target temperature, the worse the prognosis could be, suggesting that the more the brain is damaged, the more the thermoregulation is impaired leading to lower core temperature on admission. This phenomenon could mask the real potential impact of targeting shorter time-to-target temperature. No randomized controlled trial has proven the causality link between better controlled targeted temperature management and better outcome, despite the trend observed in our study. Our findings are in agreement with another large nonrandomized study that used a propensity analysis. Finally, despite a clear theoretical rationale, no randomized clinical study has proven in post–cardiac arrest patients any firm superiority on outcome by using internal versus external cooling methods, integrating automatic feedback control or not.

We also agree with Yan Kang and colleagues that the proportion of patients experiencing survival and favorable outcome was relatively low in our study, in comparison with other recent trials. This could mainly be related to the design of our pragmatic trial and explained by most of our nonselective inclusion criteria resulting in a high proportion of patients with nonwitnessed cardiac arrest, nonshockable initial rhythm, prolonged durations of cardiopulmonary resuscitation, and post–cardiac arrest shock. However in our study, overall survival was 40% on intensive care unit discharge (38.1% in the external versus 41.9% in the endovascular group, P=0.44), 38.5% on day 28 (36.6% versus 40.4%, P=0.43), and 37.5% on day 90 (35.5% versus 39.4%, P=0.42). Similarly, overall occurrence of favorable outcome was 34.2% on intensive care unit discharge (32.0% in the external versus 36.2% in the endovascular group, P=0.40), 32.3% on day 28 (28.4% versus 36.0%, P=0.107), and 30.4% on day 90 (26.0 versus 34.6%, P=0.07). This highlights that favorable outcome in our study was higher than 28% in the endovascular group, whatever the time-frame considered. Finally, as stated in our article and supported by Yan Kang and colleagues, meta-analyses and other randomized controlled trials are required to definitively assess the possible superiority on outcome of advanced cooling devices versus basic ones, and of internal cooling methods versus external ones.

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Disclosures
None.

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