

Improve the timeliness of target temperature management for patients after cardiac arrest and resuscitation

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INTRODUCTION

According to the 2020 AHA's CPR and ECC guidelines, it is recommended that targeted temperature management (TTM) should be subject to any heartbeat. When the human heartbeat stops, the blood in the whole body stops flowing, and the organs are damaged. As long as there is a lack of blood flow to transport oxygen for 4 to 6 minutes, the brain function will be damaged. The study found that every 1°C reduction in body temperature can reduce brain oxygen consumption by about 7% and metabolism by 6-8%. Relevant empirical evidence shows that for cases after cardiac arrest and menstrual resuscitation, receiving target temperature management can obtain a good neurological prognosis and reduce mortality (Irisawa et al., 2016; Arrich et al., 2016), and the sooner the target can be reached. The temperature can improve the prognosis of the nervous system (Sendelbach, Hearst, Johnson, 2012).

Through an analysis of patient data, it becomes evident that the achievement rate of initiating TTM within 12 hours of Return of Spontaneous Circulation (ROSC) stands at only 67%. Furthermore, the time taken to reach the median temperature target is prolonged, surpassing 582 minutes. These findings are not in alignment with the 2020 American Heart Association (AHA) guidelines, which recommend achieving the target temperature rapidly within 240 minutes post ROSC.

Additionally, our investigation reveals a lack of standardized operating procedures and insufficient education and training for TTM within the medical team. This knowledge gap is reflected in the limited familiarity with the nursing care associated with TTM. This introduction sets the stage for a comprehensive exploration of the challenges and areas of improvement in our current approach to TTM, with the ultimate goal of enhancing patient outcomes and adhering to best practices outlined by the AHA.

METHOD

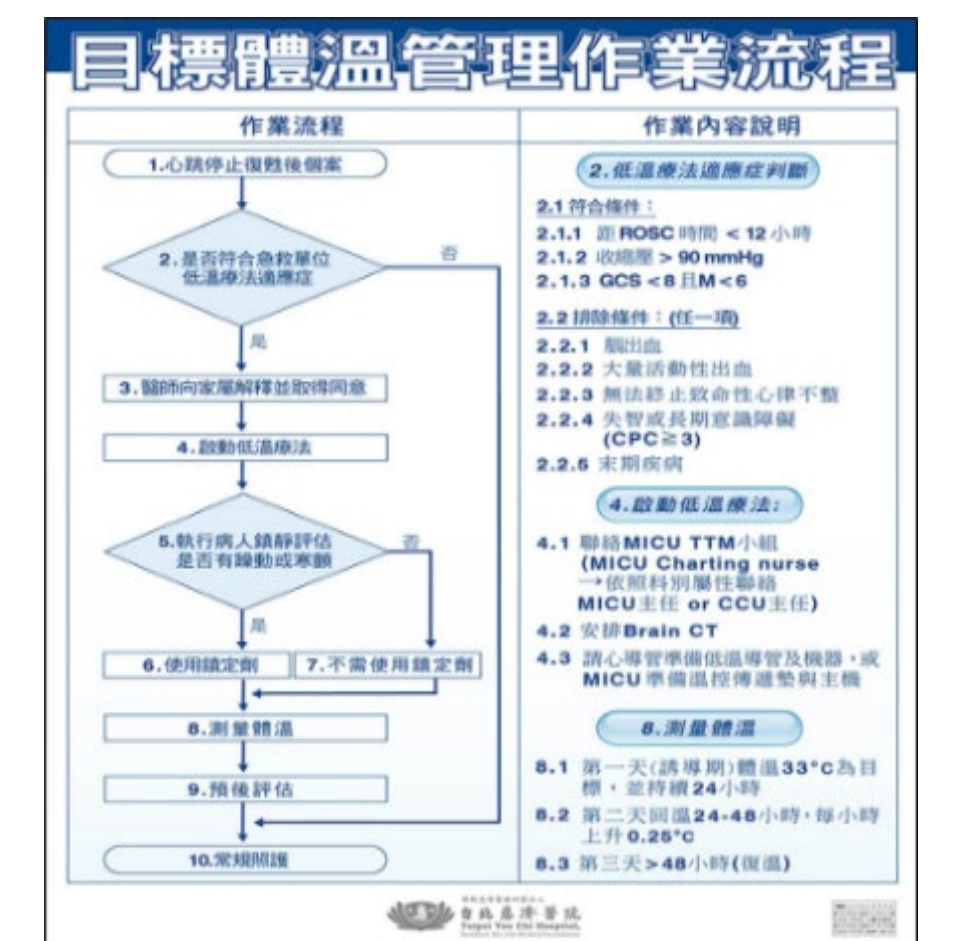
Use the quality control circle project achievement method to formulate standard specifications for the operation process related to target temperature control treatment (initiating low-temperature timeliness, patient survival rate, neurological prognosis and effectiveness).

1. Establish standard operating specifications: target temperature control purposes, indications, contraindications, instruments and equipment and operation steps, relevant care precautions, etc.
2. Formulate evaluation and disposal process record list: According to the literature and the joint discussion of the medical care team, set the target temperature control treatment evaluation and disposal process record list (Check list)
3. The construction information will be electronicized by the evaluation tool record sheet. Design target temperature management map-based guide e-book: Use Kahoot teaching software and instrument operation video to design "target temperature management map-style guide e-book"
4. Formulate a high-fidelity situation drill

Instrument operation



TTM Flowchart poster



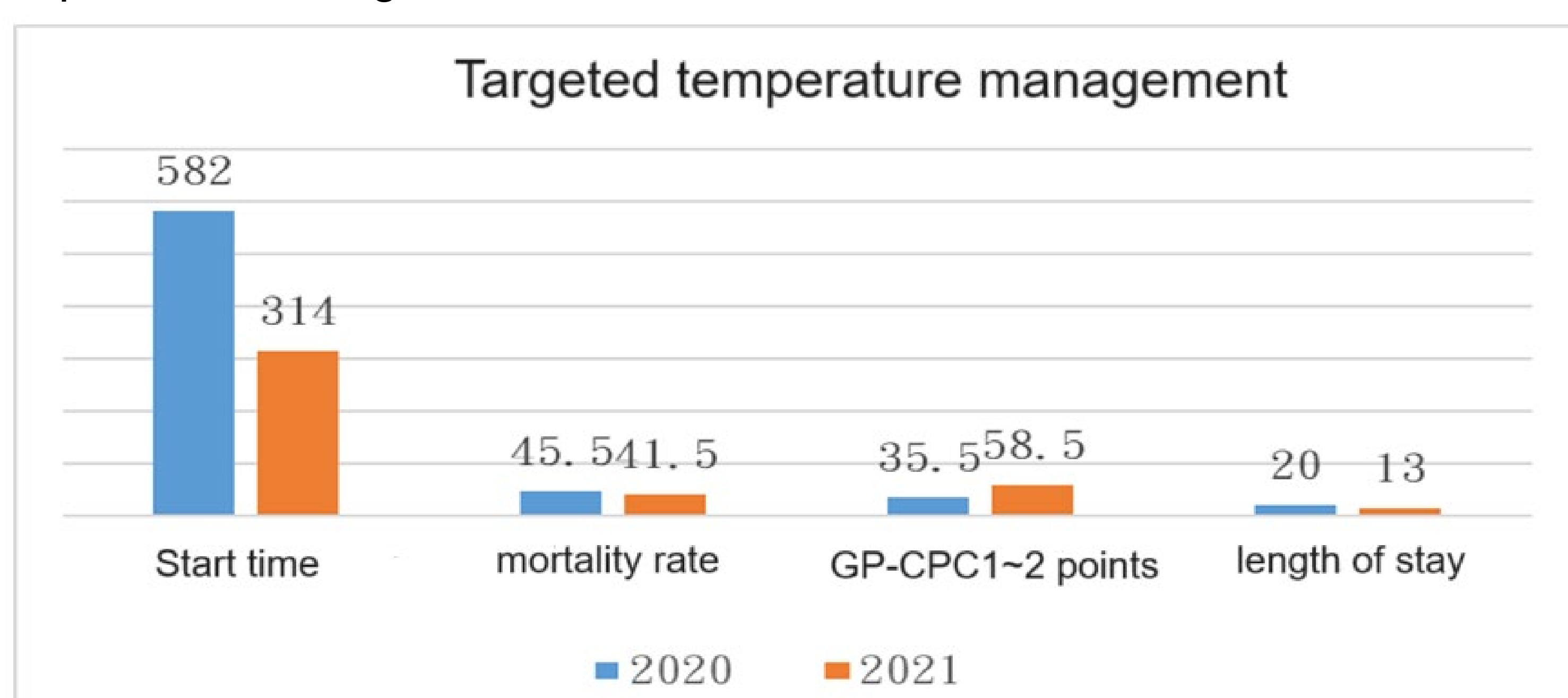
High-fidelity situation drill

AIM

The ultimate goal is to enhance patient outcomes and adhere to the best practices outlined by the AHA.

RESULTS

After intervention in the improvement plan, the achievement Rate of ROSC's target temperature management within 12 hours was increased from 67% before improvement to 100%, the mortality rate was reduced from 45.5% to 41.5%, the number of days of hospitalization was reduced from 20 days to 13 days, and the neurological was better (GPCPC1~2 points) was increased from 35.5% to 58.5%, and the average median time to reach the target temperature of 33°C within 4 hours after activation decreased from 582 minutes to 314 minutes, the time was shortened by 268 minutes, and the progress rate was 61.5%.The cognitive correct answer rate of the target temperature-controlled treatment of the medical team increased from 74.6% to 92.2%. There are noticeable differences in the preparation and operational procedures for the target temperature management.



CONCLUSIONS

The promotion of this quality improvement has made the medical team in the intensive care ward understand the target temperature control treatment and become familiar with the process. Through the spirit of teamwork, improve the efficiency of good communication, and at the same time, successfully shorten the time when the target temperature is reached, improve the treatment awareness, and hope that the level can be expanded to other units in the future to improve the quality of the target temperature control treatment care.

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