Lesson From the New York City Out-of-Hospital Uncontrolled Donation After Circulatory Determination of Death Program

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Study objective: In 2006, the Institute of Medicine emphasized substantial potential to expand organ donation opportunities through uncontrolled donation after circulatory determination of death (uDCDD). We pilot an out-of-hospital uDCDD kidney program for New York City in partnership with communities that it was intended to benefit. We evaluate protocol process and outcomes while identifying barriers to success and means for improvement.

Methods: We conducted a prospective, participatory action research study in Manhattan from December 2010 to May 2011. Daily from 4 to 12 PM, our organ preservation unit monitored emergency medical services (EMS) frequencies for cardiac arrests occurring in private locations. After EMS providers independently ordered termination of resuscitation, organ preservation unit staff determined clinical eligibility and donor status. Authorized parties, persons authorized to make organ donation decisions, were approached about in vivo preservation. The study population included organ preservation unit staff, authorized parties, passersby, and other New York City agency personnel. Organ preservation unit staff independently documented shift activities with daily operations notes and teleconference summaries that we analyzed with mixed qualitative and quantitative methods.

Results: The organ preservation unit entered 9 private locations; all the deceased lacked previous registration, although 4 met clinical screening eligibility. No kidneys were recovered. We collected 837 notes from 35 organ preservation unit staff. Despite frequently recounting protocol breaches, most responses from passersby including New York City agencies were favorable. No authorized parties were offended by preservation requests, yielding a Bayesian posterior median 98% (95% credible interval 76% to 100%).

Conclusion: In summary, the New York City out-of-hospital uDCDD program was not feasible. There were frequent protocol breaches and confusion in determining clinical eligibility. In the small sample of authorized persons we encountered during the immediate grieving period, negative reactions were infrequent. [Ann Emerg Med. 2016;67:531-537.]

Please see page 532 for the Editor's Capsule Summary of this article.

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INTRODUCTION

Background

More than 124,000 US patients are waiting for organ transplants, and the wait list increases annually despite more than 10,500 individuals dying or becoming too sick for surgery.[1] In 2006, the Institute of Medicine emphasized substantial potential to expand organ donation opportunities with uncontrolled donation after circulatory determination of death (uDCDD), whereby candidates for donation are considered when deaths are unexpected or located outside hospitals, as long as consideration occurs after all life-sustaining efforts have been exhausted.[2]

†All members are listed in the Appendix.

Importance

Our research consortium from Bellevue Hospital, NYU School of Medicine, Fire Department of the City of New York, and LiveOnNY derived an out-of-hospital uDCDD protocol for New York City.[3] Derivation occurred through iterative consultation of all stakeholders, including communities that the protocol was intended to benefit.[3,4] Some government officials feared that public misconception would generate ill will and emotional distress among grieving family. Accommodating these and other concerns led to strict eligibility criteria, limiting potential opportunities; however, all concessions were necessary to achieve universal support for uDCDD piloting.

Editor's Capsule Summary

What is already known on this topic

The number of organ donations is insufficient to meet demand. Uncontrolled donation after circulatory determination of death is a possible opportunity to improve supply.

What question this study addressed

Could a mobile organ preservation unit be dispatched to the site of failed emergency medical services resuscitations to organize the procurement of donor kidneys, and what would be the reaction to such a program?

What this study adds to our knowledge

The program was not feasible and no organs were collected. Negative reactions by participants were infrequent among the small number of participants sampled.

How this is relevant to clinical practice

This study will not change out-of-hospital practice. Improving organ donation in this setting remains challenging.

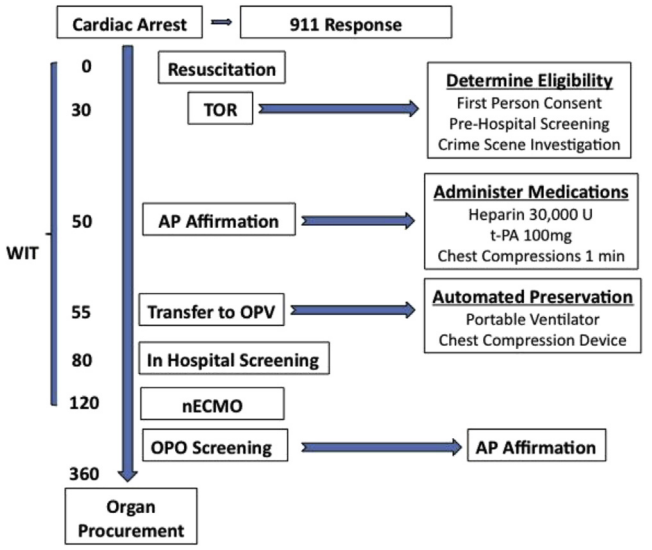

Figure. The New York City uDCDD protocol. Timeline in minutes not drawn to scale. *TOR*, Termination of resuscitation; *AP*, authorized party; *WIT*, warm ischemic time; *OPV*, organ preservation vehicle; *nECMO*, normothermic extracorporeal membrane oxygenation; *OPO*, organ procurement organization. Reprinted with permission of John Wiley and Sons, Inc., from "Derivation of the Uncontrolled Donation After Circulatory Determination of Death Protocol for New York City," Wall et al, *American Journal of Transplantation*, vol. 11, 2011;[3] permission conveyed through Copyright Clearance Center, Inc.

Goals of This Investigation

We evaluated uDCDD protocol process and outcomes while identifying barriers to success and means for improvement.

MATERIALS AND METHODS

Study Design and Setting

A prospective, participatory action research study occurred from December 2010 to May 2011 in Manhattan (New York City), a dense, urban environment with 1.6 million inhabitants.[4,5] Participatory action research empowers communities to share ownership in designing, implementing, and evaluating social reforms. Evaluation is conducted iteratively with mixed qualitative and quantitative methods until success and sustainability are achieved.[4,6] NYU School of Medicine and Bellevue Hospital institutional review boards and attorneys from all stakeholder agencies approved the project.

The New York City uDCDD protocol is described in detail elsewhere (Figure).[3] Briefly, a Fire Department of the City of New York organ preservation unit, staffed with a family services specialist, 2 organ preservation technicians, and an emergency physician, monitored all 911 cardiac arrest calls and traveled to lamppost locations for individuals potentially meeting initial screening criteria. If emergency medical services (EMS)–base physicians ordered termination of resuscitation with standard criteria (Figure E1, available online at http://www.annemergmed.com), organ preservation unit staff entered the residence and confirmed donor registration. To maintain complete separation between treatment decisions and organ preservation, radio contact between organ preservation unit and EMS-base physicians was forbidden, and EMS-base physicians were unaware of organ preservation unit availability or call locations. Treating EMS providers presented the deceased's name, time of death, family dynamics, and clinical screening information to organ preservation unit staff, who wore specialized uniforms with unique insignia (Figures E2 and E3, available online at http://www.annemergmed.com) distinguishing themselves from treating providers. If eligibility criteria were met (Figure E4, available online at http://www.annemergmed.com) and an authorized party affirmed the deceased's wish within 20 minutes of termination of resuscitation, postmortem in vivo kidney preservation would commence (Figure E5, available online at http://www.annemergmed.com). Authorized party discussions and clinical screening required 5 minutes or longer during repeated simulations.

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