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USE OF RESUSCITATED DONOR HEARTS FOR

TRANSPLANTATION: SAME RESULTS EITHER SIDE OF ATLANTIC OCEAN

To the Editor:

In the era of donor organ shortage, discovering new avenues to increase the number of donor hearts has led to several different strategies including consideration of CPR donor hearts for transplantation. There is a considerable dilemma and reluctance regarding the use for transplant of donor hearts after cardiopulmonary resuscitation (CPR). This dilemma was recently addressed to an extent by 2 independent articles evaluating long-term outcomes of CPR donor hearts, one a single-center study (from Paris, France)¹ and the other based on the United Network of Organ Sharing database (from Louisville, Ky).²

Both the studies included donor data with CPR times as well as peak troponin values and found that presence of CPR, peak troponin values, and duration of CPR did not affect posttransplant graft survival as long as the ejection fraction was preserved or recovered after the resuscitation. Cheng and colleagues¹ showed that the ejection fraction of donor hearts with or without CPR was between 60% and 62% at transplant, which is similar to the results reported by Galeone and colleagues.² Both studies showed that significantly higher peak troponin values in CPR donor hearts did not adversely impact the overall posttransplant survival. Cheng and colleagues¹ have previously demonstrated similar results to the findings of Galeone and colleagues with a national public database, validating the role of preserved ejection fraction CPR donor hearts in post-transplant survival.

Concluding from these articles that all CPR donor hearts have equivalent survival to non-CPR donor hearts may be slightly misleading, because both articles only showed the

use of CPR donor hearts with preserved ejection fraction that were used for transplant and not the donor hearts that were unrecovered after CPR and were not used for transplant. Trivedi and coworkers³ have recently shown that higher ejection fraction (odds ratio, 1.1) and lower troponin (odds ratio, 0.99) are associated with increasing use of donor hearts for transplant, thus appearing to play vital role in the decision-making process of marginal donor heart utilization.³

It is evident from the aforementioned studies that appropriately selected CPR donor hearts with preserved ejection fraction are more likely to be used for transplant and that they are associated with survival equivalent to that seen with non-CPR donor hearts. All the potential donors who have undergone CPR should be carefully evaluated for use of the heart for transplant, but caution should still be used when other potentially adverse factors are present.

Jaimin R. Trivedi, MD, MPH

Michele Gallo, MD

Mark S. Slaughter, MD

Department of Cardiovascular and Thoracic Surgery

University of Louisville School of Medicine

Louisville, Ky

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TO USE OR NOT TO USE POST-

CARDIOPULMONARY RESUSCITATION DONOR HEARTS?

Reply to the Editor:

Galeone and colleagues^{1,2} showed that donor hearts resuscitated from cardiac arrest with normalized left ventricular function at procurement could be used as transplants with acceptable results. Moreover, the mean duration of cardiac arrest was 15 minutes and total donor management time before organ procurement lasted almost 4 days, which allowed enough time for left ventricular recovery in many of these potential organ donors. In their letter, Trivedi and colleagues³ stressed that only donors

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with normalized left ventricular function should be assessed for donation.

Although we strongly agree with their comment, we also emphasize that young donors with or without cardiopulmonary resuscitation must be subjected to hormonal resuscitation and optimal hemodynamic management, as described in the past.⁴ Ejection fraction measured at the time of procurement, 4 days later in the experience of Galeone and colleagues,¹ remains the final deciding factor in deciding whether to use the donor heart.

Louis P. Perrault, MD, PhD
Michel Carrier, MD
Department of Cardiac Surgery
Montreal Heart Institute
Université de Montréal
Montreal, Quebec, Canada

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**OLD EUROPE
CAREFULLY LOOKS AT A
NEW HEART: CARDIAC
ARREST-RESUSCITATED
DONORS SHOULD NOT BE**

**TURNED DOWN FOR HEART TRANSPLANT
AT FIRST GLANCE**

Reply to the Editor:

Expansion of organ donor criteria is an essential strategy to implement the limited organ availability; reluctance exists in accepting organs for transplantation from donors who sustained a cardiac arrest because of the concern that warm ischemic injury could negatively influence graft and patient survival. We showed that history of cardiac arrest resuscitation in donors with a preserved left ventricular function at the time of organ procurement does not affect early and late outcomes of heart recipients.¹ We also found

a significantly better long-term survival in recipients receiving an organ from a cardiac arrest–resuscitated donor (CARD), probably because of the younger age of donors who sustained a cardiac arrest in our series, as well as the ischemic preconditioning effect of cardiac arrest. Donors with a history of cardiac arrest are considered as marginal donors and usually refused as heart donors. Our results demonstrated that donors with a history of cardiac arrest should not be excluded a priori from heart transplantation; however, they need to be carefully evaluated because not all CARs are suitable for heart transplant; in our experience, CARs with poor left ventricular function and higher inotropic support were obviously turned down for heart transplantation.

Previous reports similarly showed that a short period of warm ischemia due to cardiac arrest does not negatively affect recipients' outcome,^{2,3} and recently a case series has been published on 3 successful adult heart transplants from non–heart-beating donors.⁴

Expansion of donor criteria, including the use of CARs, use of non–heart-beating donors, and development of optimal preservation and perfusion techniques to minimize organ injury and improve organ recovery after cardiac arrest, is required to increase the number of organs available for heart transplantation and reduce the unacceptable discrepancy between the growing number of recipients waiting for transplantation and the ongoing shortage of organs.

Antonella Galeone, MD, PhD
Guillaume Lebreton, MD, PhD
Pascal Leprince, MD, PhD
Department of Thoracic and Cardiovascular Surgery
University Pierre et Marie Curie
Paris 6, Assistance Publique des Hôpitaux de Paris
Groupe Hospitalier Pitié-Salpêtrière
Paris, France

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