discussions enabled patients and their families to reconcile their differences about end-of-life care. The research suggests this could help the family and physician come to agreement if they should need to make decisions on the patient's behalf.

To view a complete list of national, state and local organizations participating in NHDD, please visit www.nationalhealtcaredecisionsday.org. CHA is collecting examples of how members are currently reaching out to their communities to raise awareness of health care decision making. Contact Indu Spugnardi at ispugnardi@chausa.org if you have examples you would like to share with the ministry.

Donation after Cardiac Death and the Administration of Heparin: In Search of a Middle Ground

By Michael Panicola, PhD, Vice President, Ethics, SSM Health Care, St. Louis

At SSM Health Care, like many other Catholic health care systems, we have been struggling with the issue of donation after cardiac death, or DCD, for quite some time. Unlike donation after brain death, DCD occurs after mechanical ventilation is withdrawn from the patient donor, asystole and apnea are observed for a period of time (typically five minutes), and the patient donor is declared dead based on cardiopulmonary criteria or the permanent absence of circulation and respiration. Although DCD predates donation after brain death, a good number of clinicians and ethics committee members across our system were slow to warm to the idea and expressed several concerns, both logistical and ethical, about the practice. Through education and ongoing dialogue we reached consensus on the *general ethical acceptability* of DCD and from there we attempted to develop a template DCD policy that addressed the concerns that were raised. With the help of the organ procurement organizations, or OPOs, that service our hospitals, we succeeded in accomplishing this. Shortly thereafter, DCD policies were in place in most of our facilities that provide transplant services.

This would seem to be the end of the story. However, another concern soon surfaced as one of our OPOs inserted a new feature into its DCD protocol calling for the administration of heparin prior to death, which it had intentionally left out when we first established our template policy. The rationale for doing this was quite straightforward: heparin, given before death, could potentially improve transplant outcomes by allowing the organs to be sufficiently profused and thus preventing blood clots that would render the organs nonviable for transplant. While understandable, the concern among some of our clinicians and ethics committee members centered on two primary issues, namely: 1) heparin is administered in the hopes of improving transplant outcomes and not for the benefit of the patient; and 2) the use of heparin in typical DCD candidates—usually patients with severe head trauma—could cause or exacerbate intracranial bleeding and possibly even hasten death in rare cases.

Through more dialogue we were able to come to an understanding across our system on the first of these two issues. Starting from the premise that acts of charity are often accompanied by personal sacrifices, we agreed that it wasn't out of the question for DCD patient donors to undergo procedures or receive medications that were not directly beneficial to them, *provided that* they did not involve disproportionate risks and explicit informed consent was obtained. With this established, we moved to a discussion of whether the administration of heparin presented a disproportionate risk. This inevitably led us to the dosage question, which ultimately proved too difficult to achieve system-wide consensus. Many of our facilities with policies on DCD accepted the suggested dosage of one of our OPOs, that being, 5,000 units per 70 kg not to exceed 10,000 units (or roughly 71units per 1 kg). Other facilities thought this was too high and instead left it at doses not to exceed normal ranges and at the discretion of the attending and/or treating physician.

This worked for a time until the same OPO that first introduced heparin into the mix increased the amount of its dosage to 400 units per 1 kg, which far exceeded the previous guideline. All sorts of red flags were raised and once again people within our system were questioning whether we should be engaged in DCD at all. The most persistent criticism that I heard from those in the field was that the OPO seemed to be more concerned about transplant outcomes than it was with the welfare of our patient donors. Because of this, we considered placing a moratorium on our DCD policies until we could come to some sort of resolution regarding the

appropriate amount of heparin to be given. Before we did anything rash, though, we asked the OPO to provide evidence validating the safety and efficacy of the increased dose. It could not do this because there is little more than anecdotal evidence in the literature indicating that heparin given at 400 units per 1 kg prior to death in DCD settings is safe or even that it improves transplant outcomes. In fairness, though, there is really nothing in the literature indicating that heparin given in such high doses is unsafe in that it increases the risk of bleeding or possibly even hastens death in rare cases.*

What we were reacting to more was a general feeling of unease among our clinicians and the combined weight of their years of clinical experience. In addition to this, we were also thinking first and foremost about our patients, who ought always to be our primary concern, and we were also operating under the precautionary principle. This principle, which has its roots in environmental ethics, says that the burden of proof is on one who might cause harm through one's action to show that it does not, rather than on another to show that one's action does in fact caus harm. In the present context, this means that OPOs must prove to us that excessive doses of heparin, like 400 units per 1 kg, do not harm patient donors, rather than on us to prove that such doses do in fact cause harm. Since our OPOs could not do this, we simply recommended to our hospitals that they either suspend their DCD policies indefinitely or continue to operate under the previously established policy. Most chose the latter and as we moved forward we kept the lines of communication open with the OPOs.

With all this as background, I'd now like to recount what developed recently at a meeting between representatives of the OPO I mentioned above (which is the OPO that upped the dose of heparin to 400 units per 1 kg) and clinicians and ethics committee members from one of our hospitals. I think we came to an important agreement that other Catholic hospitals struggling with the issue of heparin in DCD settings may find helpful. During the meeting, which was very collegial and candid, we expressed our concerns over the increase in the heparin dose, while they explained the rationale behind it and pointed out how most other OPOs were adopting the same guideline or something close to it. We also pointed out how we felt that they were seemingly more interested in transplant outcomes than patient care, while they assured us that the care of the patient donor was their main focus.

With this behind us, and after having made it clear that we were not going to acquiesce to the 400 units per 1 kg dose of heparin without solid evidence supporting it, we started to look at potential compromise solutions. After a lot of back-and-forth, we ultimately agreed to the administration of heparin *pre-mortem* at a dose not to exceed 40 units per 1 kg, as opposed to 400, and to an increased dose of heparin at the transplant team's discretion *post-mortem*. The distinction between pre- and post-mortem administration of heparin was crucial. Our clinicians felt that this allowed them to give normal-range doses of heparin to the patient donor before death, yet also allow the transplant team to give additional heparin at whatever level necessary to profuse the organs after death has been declared when issues of safety are no longer relevant. Though it was acknowledged that this created logistical concerns for the transplant team in terms of figuring out how to deliver the heparin to organs when circulation has ceased, we all agreed that it was the best solution in light of the precautionary principle, which we established as an ethical baseline.

Since this meeting, we have changed all our hospital DCD policies to reflect this development. Our clinicians and ethics committee members who expressed their concerns throughout the dialogue process are much more comfortable now with the way we are handling DCD. Furthermore, they feel that the compromise we were able to reach strikes the right balance between ensuring the best interests of DCD patient donors and allowing for potentially successful organ donations.

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* For a discussion of the potential risks and ethical issues involved with heparin administration prior to death, see among others: J.L. Bernat et al., "Report of a National Conference on Donation After Cardiac Death," *American Journal of Transplantation* 6 (2006): 281-291; James M. DuBois, Francis L. Delmonico, and Anthony M. D'Alessandro, "When Organ Donors Are Still Patients: Is PreMortem Use of Heparin Ethically Acceptable?" *American Journal of Critical Care* 16 (July 2007): 396-400; and Elizabeth D. Motta, "The Ethics of Heparin Administration to the Potential Non-Heart-Beating Organ Donor," *Journal of Professional Nursing* 21 (March-April 2005): 97-102.