

Late *Perimortem* Cesarean Delivery: An Ethical Challenge

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To the Editor

Systematic review of the cases describing the management of cardiac arrest during advanced pregnancy enhanced our understanding of Cardiopulmonary Resuscitation (CPR) in these women [1]. The application of effective left lateral uterine displacement and incorporating the 4-minute rule to perform *Perimortem* Cesarean Delivery (PCD) during a CPR has saved the lives of many fetuses and mothers in hospital settings [2]. On the other hand, CPR during out-of-hospital cardiac arrest in advanced-pregnancy still poses a major challenge to Emergency Medical Technicians (EMTs) responding to a call. The maternal and fetal outcome is mostly very poor in such cases [3].

During a recent experience and observation in the early morning hours, a 2-member team of EMTs was alerted of a previously healthy pregnant woman who suddenly collapsed and suffered cardiac arrest at her home [3,4]. She received immediate CPR, as she lost her pulse in the presence of the EMTs, who were present to attend her “collapse”. This full-term pregnant woman was brought to an operating room in 20-minutes time with CPR in place. A multidisciplinary team, which was already waiting, took over further management of the case. CPR was continued, applying the advanced cardiac life support (ACLS) algorithm and adding administration of fluid boluses during the CPR. Ultrasonography was used to establish the presence of fetal cardiac activity and a decision was made to perform a PCD. A severely hypoxic fetus that was delivered at 30-minute of persistent maternal cardiac arrest with a heart rate less than 50 beats per minute, died two days later. The spontaneous circulation of the woman returned with the delivery. Her non-invasive systolic blood pressure fluctuated from 70-80 mmHg. The peripheral arterial oxygen saturation by plethysmography (SpO₂) and continuous end-tidal (ET) carbon dioxide (CO₂) monitoring indicated adequate cardiac output. Post-

cardiac arrest care was instituted, and she was transported to an Intensive Care Unit. She suffered from severe postpartum hemorrhage immediately after her arrival in the ICU, which required a massive blood transfusion. She died 16 hours later.

The treatment of performing a PCD at 4-minute or early in persistent cardiac arrest is currently not available to pregnant women in pre-hospital settings. Performing a late PCD after transporting these women to a hospital will not be sufficient to save their or the lives of their fetuses as it is time consuming and also reduces quality of the CPR [5]. This situation is an ethical challenge for medical personnel and requires a consensus and guideline to build that how much late after a persistent maternal cardiac arrest will be too late to go for a PCD even if some fetal cardiac activity is discovered on ultrasonography [6].

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