Available online at www.sciencedirect.com

Resuscitation

journal homepage: www.elsevier.com/locate/resuscitation

Letter to the Editor

Response to Letter to Editor: Gulati et al.'s article "Presetting ECG electrodes for earlier heart rate detection in the delivery room.": Prehospital use of ECG electrodes by nonmedical emergency professionals: An additional source of help during unexpected out-of-hospital births

Sir,

I would like to thank Lemoine et al for their interest in the article "Presetting ECG Electrodes for Earlier Heart Rate Detection in the Delivery Room".[1] I also would like to answer some of their questions.

2015 ILCOR guidelines suggest the use of 3-lead Electrocardiogram (ECG) during the resuscitation of newborns as it is faster than pulse oximeter in detecting heart rate (HR) in the delivery room.[2] Although the conventional application of ECG electrodes on the front of the chest works consistently in neonatal units, the time needed to apply these electrodes in the delivery room[3,4] might delay necessary measures for initiation and escalation of resuscitation. In addition, it may interfere with ECG monitoring during chest compressions. Given these limitations we investigated this immediate application of a preset ECG electrodes in the delivery room.

As mentioned in the article,[1] this study was conducted in a well-controlled settings of delivery room of the University of South Alabama Children's Hospital in the presence of experienced staff. In this study, we prepared the ECG electrodes on the plastic wrap before the infant is born. We experienced a 29% failure rate of this method at 1 min possibly because of interference with the attachment of ECG electrodes especially in more mature and vigorous infants.

The feasibility of this method by a medical emergency response team in places other than hospital settings has not been examined. However, it is a plausible hypothesis that needs to be examined especially in infants who may require chest compressions. For this technique to work in your setting, your emergency personnel will need to prepare the ECG electrodes before arriving to the field sites. As described in the article,[1] this could be done by cutting the top sheet of the plastic bag in order for ECG electrodes to be prearranged on the bottom side of the bag. This bag can then be applied to the back of infant's thorax after arriving at the site. Given the 29% failure rate at 1 min, the team should not rely solely on this method to monitor infants' HR. Therefore we would still recommend auscultation with stethoscope and pulse oximetry to monitor heart rate along with this method as soon as team arrives at their destination site for neonatal resuscitation.

Conflict of interest

None.

Funding source

No external funding for this manuscript.

Financial disclosure

The authors have indicated they have no financial relationships relevant to this article to disclose.

REFERENCES

1. Gulati R, Zayek M, Eyal F. Presetting ECG electrodes for earlier heart rate detection in the delivery room. Resuscitation 2018;128:83–7.
2. Perlman JM, Wyllie J, Kattwinkel J, et al. Neonatal Resuscitation: 2015 International Consensus on Cardiopulmonary resuscitation and emergency cardiovascular care science with treatment recommendations. Pediatrics 2015.
3. Katheria A, Rich W, Finer N. Electrocardiogram Provides a Continuous Heart Rate Faster than Oximetry during Neonatal Resuscitation. Pediatrics 2012;130(5):e1177–81.

4. Iglesias B, Rodriguez MJ, Aleo E, et al. Pulse oximetry versus electrocardiogram for heart rate assessment during resuscitation of the preterm infant. An Pediatr (Barc) 2016;84(5):271–7.

RashmiGulati*
MichaelZayek
FabienEyal
University of South Alabama, Mobile, AL, United States

* Corresponding author at: University of South Alabama, Department of Pediatrics, 1700 Center Street, 36604, Mobile, AL, United States.
E-mail address: rgulati@health.southalabama.edu (RashmiG.).

http://dx.doi.org/10.1016/j.resuscitation.2018.11.023