Leads to Assess Accurate Neonate Heart Rate in the Delivery Room

Published date: Feb. 1, 2018

Technology description

OPPORTUNITY

Ten percent (10%) of births require some form of neonate resuscitation. Heart rate (HR) is the most important clinical indicator to evaluate the status of a newborn, and it is also used to guide resuscitation efforts. Immediately after birth, the infant’s HR must be assessed as accurately and quickly as possible to determine if any interventions are needed. Chest compressions should be used if the HR is less than 60 bpm after 30 seconds of positive-pressure ventilation. Overestimation of HR might result in delayed interventions while underestimations of HR might result in the initiation of resuscitation when it is not required. An increase in the newborn’s HR is considered the most sensitive indicator of a successful response to each intervention. Therefore, it is important to identify a rapid, reliable, continuous, and accurate method to measure the newborn’s HR. Another factor that plays a prominent role in high newborn fatalities is temperature. Currently, electrodes are secured to the newborn with an adhesive that can be damaging to the thin layer of skin, especially that of premature babies. Furthermore, it takes some time to individually attach each electrode in the appropriate place, which is important when every second counts for a newborn. In order to help babies maintain body temperature and limit cold stress after birth, strategies such as altering the ambient temperature of the delivery room, use of blankets and polyethylene bags and wraps are used. The challenge with blankets is that they can be rough and damaging to the newborns sensitive skin, and polyethylene wraps and bags make it difficult to have access ports for various leads and monitors while also maintaining body temperature. Thus, there is a need for a solution that addresses the aforementioned problems in a manner that is robust and flexible so as to accommodate a full spectrum of life threatening events in the delivery room and thereafter.

BREAKTHROUGH IN NEONATE HEART RATE MONITORING

Inventors at the University of South Alabama have developed a solution to enable prewired heart rate monitoring electrodes and temperature probes to be rapidly placed in the correct position and orientation on the newborn in combination with a wrap that substantially covers the baby to facilitate temperature maintenance. Furthermore, the data driven unique placement of the prewired electrodes allows for the leads to be out of the way when the baby is being observed or other procedures are being done. The packaging of the device allows for this wrap and prewired electrode system to be

disposable, sterile, and rapidly deployable. According to our recent study in over 300 infants, when using this device heart rate was detected consistently and reliably in less than 30 seconds after birth.

Advantages

• Device has already been used on more than 300 newborns
• Quickly place prewired heart rate electrodes and body temperature probe
• Unique placement of leads minimizes the volume of visible electrodes
• Wrap is self-adhesive and does not damage fragile newborn skin
• Leads are out of the way so other procedures can easily be performed
• Leads are attached to the wrap so they do not get in the way of wrapping the baby

Institution

University of South Alabama

Inventors

Gabriel Eyal
Om Jha

叶先生

电 话：021-65679356

手 机：13414935137

邮 箱：yeyingsheng@zf-ym.com