



Tactile Stimulation During Newborn Resuscitation: The Good, the Bad, and the Ugly

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A family practice physician from a rural primary care hospital contacted us to discuss and seek advice on a situation that he had earlier attended as a 'code' in their emergency room (ER). He was called to resuscitate an apneic newborn following a precipitous delivery. The colleagues in the ER at the referral hospital had panicked seeing an apneic newborn and had continued the initial steps of newborn resuscitation including extensive, vigorous tactile stimulation for prolonged apnea during the initial two minutes of life until the code team arrived. Upon arrival of the code team at around two to three minutes of life, bag-mask ventilation was immediately commenced using a positive-pressure ventilation (PPV) device with the oxygen flow and rate as per neonatal resuscitation program (NRP) recommendations.¹ The neonate's heart rate (HR) was > 60/minute throughout, and there was no need to initiate chest compressions. The newborn's HR and oxygen saturation responded well to the PPV. Later, physical examination revealed extensive bruises and scratch marks on the newborn's back [Figure 1]. There were no concerns from a neurological standpoint. Blood investigations including cord gases, complete blood counts, 1-hour post-natal arterial gas, and coagulation profile were within normal limits. There was no history suggestive of any familial bleeding disorder. The most likely cause of the bruising was iatrogenic due to vigorous rubbing of the baby, and this was explained to the anxious parents. The bruises improved over the next few days.

Initiation of breathing soon after birth is critical in the physiologic transition from intra- to extra-uterine life. Drying the skin and suctioning of the mouth-then-nose stimulate most newborns. If these

steps do not induce effective breathing, additional tactile stimulation could help a newborn start crying within the first 30–60 seconds of life.¹ The NRP recommends gentle and brief rubbing of a newborn's back, trunk or extremities using pre-warmed soft absorbent towels and flicking the soles of the feet as safe and appropriate methods of providing tactile stimulation.² It is vital for the resuscitation provider to recognize the importance of differentiating between primary and secondary apnea, and the respiratory response to stimulation may help to quickly estimate how recently the event began.^{2,3}

The good: when a newborn is in primary apnea, any form of stimulation (e.g., drying, suctioning, or tactile stimulation) will induce breathing. The bad: if the newborn continues to remain apneic (as in secondary apnea) and no amount of stimulation works, then the next appropriate step is to initiate PPV immediately to avoid the danger of prolonging



Figure 1: Extensive bruises and scratch marks on a newborn's back as a result of vigorous and prolonged rubbing in a desperate attempt to stimulate breathing.

anoxia. As a general rule, the longer a baby has been in secondary apnea, the longer it will take for spontaneous breathing to resume. The ugly: if initial attempts fail to reverse apnea, it is vital to remember that prolonged and vigorous stimulation is not helpful and a delay in initiating PPV can cause serious injury to the newborn.^{2,3} It is vital for healthcare professionals and newborn resuscitation providers to be cognizant of these basic principles while resuscitating a compromised apneic newborn and implement appropriate actions during the first 60 seconds after birth ("The Golden Minute[®]").

Disclosure

The authors declared no conflicts of interest.

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