



CASE HISTORY

Discovering apparent life-threatening events in the first 24 hours of birth: A case study



Kathleen Thompson, BSN, RNC-LRN*, Mary Matyas, MSN, APN-C, Sami Abate, MS, RN, CCRN, Dawn Goffredo, MSN, RNC-OB

Inspira Health Network, 1505 West Sherman Avenue, Vineland, NJ 08360, USA

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Abstract The benefits of early skin-to-skin contact and its role in the promotion of successful breastfeeding are widely known and well recognized. One rare but potentially devastating consequence is an apparent life-threatening event, or ALTE. A review of current literature reveals that an exact definition for an ALTE is vague, however several common themes emerge including a decrease in the level of consciousness of the neonate, loss of muscle tone, apnea and pallor/cyanosis. ALTEs are thought to occur most commonly in first time mothers and when the mother was not under direct observation by a healthcare provider. This paper examines the prevalence of ALTE's in the first 24 h of life and includes a case study of an ALTE that occurred at 50 min of life in a full-term neonate born to a primiparous mother who was holding her baby skin to skin.

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Background

Immediately after delivery the newly born naked baby is ideally placed prone on the mother's bare chest. This early skin-to-skin contact is critical for

the successful implementation of breastfeeding and has been shown to improve breastfeeding outcomes at one to four months post birth (Moore et al., 2007). In addition, the Cochrane review notes that early skin-to-skin contact has also been shown to improve maternal attachment behavior, regulate the neonates' temperature, and reduce infant crying. As more hospitals across the United

* Corresponding author.

E-mail address: kthompson571@yahoo.com (K. Thompson).

States implement the ten steps to successful breastfeeding from the Baby Friendly Hospital Initiative (with step four stating "Help mothers initiate breastfeeding within 1 h of birth"), more babies will begin life skin-to-skin on their mother's chest ([Baby-Friendly USA, 2012](#)).

One rare but possible devastating effect of early skin-to-skin contact is the potential for an apparent life-threatening event (ALTE). The term ALTE was developed by the 1986 [National Institutes of Health \(NIH\) Consensus Development Conference on Infantile Apnea and Home Monitoring \(1987\)](#) and replaced terms such as "near-miss SIDS" or "aborted crib death". According to the NIH, an ALTE is a description of an infant who has exhibited a combination of the following: apnea, color change (cyanosis or pallor), muscle tone that is limp or rigid, and choking/gagging. Despite this accepted description, little is known about the prevalence of ALTEs in the first 24 h of life.

Literature review

[Poets et al. \(2011\)](#) studied the incidence and possible risk factors of ALTE's occurring within 24 h of birth over the course of 2009 in Germany. Neonates included in this study had to have good postnatal adaptation with ALTE's defined as acute pallor/cyanosis which necessitated bagging, intubation and/or cardiac compression. Seventeen neonates fit these criteria which equated to an incidence of 2.6 per 100,000 births. An additional 3 term neonates who recovered after being given vigorous stimulation only, were not included in the study. Nine ALTE's happened in the first 2 h after birth. In 7 of these cases a health professional found the neonate even though the mother was awake and alert. In 12 of these events the infants were found skin-to-skin prone on their mother's chest or abdomen which could create a potentially asphyxiating position. Of these 17 ALTE's, 7 resulted in death after initial unsuccessful resuscitation or discontinuation of intensive care due to severe hypoxic brain damage. Of note, it was determined that 13 of the 17 women were first-time mothers.

[Dageville et al. \(2008\)](#) investigated neonatal ALTE's during the first 2 h after birth. They conducted a prospective study over a one year period in the French region of Provence, Alps, and Cote d'Azur. They found 2 cases of ALTE's. Both included skin-to-skin contact with each mother being left alone in the delivery room. One of the

cases involved a first-time mother. The authors also reviewed 23 published cases of documented ALTE's in the first 2 h after birth. Most of these cases found a primiparous mother, skin-to-skin contact and mother and baby left unaccompanied in the delivery room.

[Becher et al. \(2012\)](#) examined ALTE's that occurred within the first 12 h of birth over a 13-month period in the United Kingdom, and their results echo the findings and characteristics of previous studies. Their criteria included term neonates with Apgar scores of 8 or greater at 5 min of life who required positive pressure ventilation for an ALTE. A total of 45 cases were reported with an incidence of 1 in 19,000 births. Thirty of the 45 infants were found to have no underlying condition and in this subgroup; 77% of the mothers were primiparous and 73% of the cases occurred within the first 2 h of birth. Only 20% of the mothers recognized the baby as unwell. In most of the cases it was the health professional that found the neonate non-responsive. Of the neonates, 60% were discovered lying prone skin-to-skin on their mother's breast or abdomen at the time of the collapse. Of note is the fact that in 24 of the cases the cause of death was noted to be apparent accidental suffocation while the infant was skin-to-skin and/or breastfeeding.

[Andres et al. \(2011\)](#) examined 6 cases of ALTE's that occurred in a regional area in France over three years with healthy newborns experiencing early skin-to-skin contact. Again, the majority of the mothers in these 6 cases were first time mothers.

Case study

Baby X was a female infant born to a healthy, 29 year old primigravida mother who had a blood type of A+, was rubella immune, Hepatitis B and C negative, HIV negative, RPR non-reactive and group B streptococcus positive. The mother was treated with Penicillin G at 4-h intervals twice before delivery. Baby X was born at 40 weeks gestation via a spontaneous vaginal delivery and weighed 3683 g. Meconium-stained amniotic fluid was noted prior to delivery. At the delivery, a neonatologist and a delivery nurse were present. The baby was apneic at birth and immediately intubated with no meconium found below the vocal cords. The baby was then extubated and received 20 s of positive pressure ventilation via bag/mask before spontaneously crying. The baby's Apgar scores were 8 and 9, respectively. Baby X

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