

Sudden Unexpected Postnatal Collapse of a Neonate During Skin-to-Skin Contact

Lun Chen^{1,3}, Te-Yao Hsu², Mei-Chen Ou-Yang¹, Chih-Cheng Chen¹, Ying-Jui Lin¹ and Hsin-Chun Huang^{1,4*}

¹Department of Pediatrics, Kaohsiung Chang Gung Memorial Hospital, Kaohsiung, Taiwan

²Department of Obstetrics, Kaohsiung Chang Gung Memorial Hospital, Kaohsiung, Taiwan

³Graduate Institute of Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan

⁴School of Traditional Chinese Medicine, College of Medicine, Chang Gung University, Linkou, Taiwan

Abstract

Skin-to-skin contact (SSC) is a well-documented benefits manner for neonates and mothers. Neonates are placed on their mothers' chest after birth immediately which will contribute to the transition from fetal to extra-uterine life such as stabilizing babies' respiration, body temperature and blood sugar. Besides, SSC also helps mothers' recovery after delivery. However, some acute life-threatening events happened during SSC. Herein, we reported the sudden unexpected collapse of a well-appearing full-term baby occurred during SCC and to make health care providers and parents aware of this possible risk.

Keywords: Neonate; Skin-to-skin-contact; Collapse

Abbreviations: SSC: Skin-to-Skin Contact; SIDS: Sudden Infant Death Syndrome; CPR: Cardiorespiratory Resuscitation; SUPC: Sudden Unexpected Postnatal Collapse

Introduction

Early skin-to-skin contact (SSC) is the manner for well-being full-term neonates who were placed on mothers' bare chest immediately after birth. The duration of SSC was suggested to be continuing until the end of first feeding as to enhance early infant self-regulation [1]. The benefits of SSC have been well documented. It is a best way to stabilize the newborns' respiration, increase blood glucose level and decrease crying [2]. Besides, it helps the mothers' recovery from delivery, such as reducing postpartum hemorrhage, shortening time of placenta expulsion, and decreasing maternal oxidative stress [3-5]. Cochrane meta-analyses revealed early SSC as the gold standard in the initiation of breast feeding and has no adverse effects [2,6]. Nevertheless, devastating events occurred during SCC and had been reported [7]. To provide more information about SSC, we reported the sudden unexpected collapse of a well-appearing full-term baby occurred during SCC.

Discussion

Routine separating the newborn from its mother shortly after birth has become common practice in many industrialized societies but was unique to the 20th century. The rationale for SSC came from animal studies which showed that the innate behaviors of neonates necessary for survival were habitat dependent [8]. Separation may affect mothering behaviors 1 year later and decrease the potential for successful breastfeeding [2,9]. The World Health Organization advised SSC could provide a good thermoregulation to babies, and the American academy of pediatrics also recommended that healthy infants should be remained in direct SSC with their mothers immediately after delivery until the first feeding being accomplished [10]. We, like others, practicing routine separating newborn from its mother shortly after birth in the past, started to introduce SSC ten more years ago and have been practicing it smoothly. This catastrophic event, sudden unexpected postnatal collapse (SUPC), is rare [11] and has never been happened before in our hospital. The impact on the neonate, parents, nurses and clinicians are devastating [12].

SUPC refers specifically to unexpected collapse of the neonate. Its definition has overlap with apparent life-threatening event, severe

apparent life-threatening event, and SIDS. It is presented as neonatal apnea, bradycardia, cyanosis, limpness, pallor, collapse, and cardiac or respiratory failure, and often occurs in the first 2 hours after birth, frequently during the first breastfeed [11,13]. It has a poor outcome that half of the infant died, and many of the survivors had serious neurological sequelae [14]. The possible risk factors are primiparous mother, first breastfeeding, newborn in prone position, mother in supine position during SSC, maternal opiate analgesia or regional or general anesthesia within 8 hours of event, magnesium sulfate administration during labor, maternal overweight status (body mass index >25 kg/m²), maternal and/or [11,13,15]. Our patient had some of the above risk factors such as primiparous mother and first breastfeeding. The mother was sitting in semi-reclined position with the baby side-lying on her arm, who was not in prone position. Whether there was fatigue was not sure, but the mother was not sleeping. She neither had received general/epidural anesthesia, opiate nor magnesium sulfate, and her BMI was <25 kg/m². The father was recording the process of the delivery from the beginning by video. The baby exhibited good sucking and started to have breastfeeding. All of a sudden, he didn't move anymore and the father tried to stimulate his son. Meanwhile the nurse had notice the limpness, cyanotic appearance of the baby and initiated the CPR immediately.

The transition from fetal to extra-uterine life could make the newborn more vulnerable during the first hours of life. The physiologic changes taking place in the first 2 hours after birth are dominated by an initial wave of sympathetic activity after the stimuli came upon the delivery process, which disappears rapidly and is followed by a period of diminished responsiveness to external stimuli [16]. The rapid decrease of the adenosine and increase of the prostaglandin occur in

***Corresponding author:** Hsin-Chun Huang, Department of Pediatrics, Division of Neonatology, Department of Pediatrics, Kaohsiung Chang Gung Memorial Hospital, 123, Ta Pei Rd, Niasung District, Kaohsiung 833, Taiwan, Tel: 886-7-7317123; Fax: 88677338009; E-mail: nbhhuang@icloud.com

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the microenvironment of the newborns' brain during and after the delivery process [17,18]. This is encounter as the initial arousal of the newly born babies followed by a period of diminished responsiveness to external stimuli [19]. Besides, decreased oxygen saturation of these babies during SSC was noted in their physiological variety [20]. Given these specific physiologic condition of a vulnerable newborn during the transition to the extrauterine life, thus, reduce the risks and maintain the safety of them during SSC and breastfeeding are mandatory.

In view of documented benefits, professional consensuses continue to promote SSC. However, great caution should be taken in cases of maternal sedation, sepsis, extreme fatigue, primiparous and lack of continuous professional supervision. In addition, the babies should not be placed at prone position with their mothers during SSC, as prone position is a potentially asphyxiating position that could be associated to SUPC and ensuring the angle of maternal recline to facilitate eye-to-eye contact [21,22]. We also discourage the use of mobile phones and texting during birth and the first postnatal hours as this may distracting parental attention on the newly born babies. Besides, transcutaneously monitoring device which could reflect the heart rate and oxygen saturation change within seconds may assists health care providers and parents to notify and possibly prevent the SUPC.

Even though SUPC is a rare entity, minimizing avoidable risk factors and increasing protective countermeasures, especially during their first hours of life, may enable us to reduce the harm to the neonate and heartache to the parents, in addition to prevent the occurrence of further cases.

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