

# The Effect of Upper Limb Massage on Infants' Venipuncture Pain

■ ■ ■ *Yuen-Man Chik, RN, BSN, MSc,\*  
Wan-Yim Ip, RN, RM, BN, MPhil, PhD,<sup>†</sup>  
and Kai-Chow Choi, BSc, PhD<sup>†</sup>*

## ■ ABSTRACT:

The purpose of the study was to investigate the effect of upper limb massage on relieving pain among infants undergoing venipuncture in Hong Kong. This study was a crossover, double-blind, randomized controlled trial. Eighty infants at the neonatal intensive care unit were randomly assigned to 2 groups in different order to receive interventions. The massage first group (N = 40) received 2-minute massage before venipuncture on the first occasion then received usual care (control) on the second occasion, and vice versa in the massage second group (N = 40). The infants' behavior and physiological responses were recorded on two occasions: (1) right after the intervention and (2) during the first 30 seconds of venipuncture procedure. The mean pain scores (Premature Infant Pain Profile) were significantly lower in infants who received massage (massage first: 6.0 [standard deviation = 3.3]; massage second: 7.30 [standard deviation = 4.4]) versus control (massage first: 12.0 [standard deviation = 4.3]; massage second: 12.7 [standard deviation = 3.1]). The crude and adjusted generalized estimating equations model showed that the infants had significantly lower pain score when receiving massage as compared to receiving the control treatment, and there were no significant time and carryover effects: -6.03 (95% confidence interval: -7.67 to -4.38),  $p < .001$  and -5.96 (95% confidence interval: -7.56 to -4.36),  $p < .001$ , respectively. Upper limb massage may be effective in decreasing infants' venipuncture pain perception.

© 2016 by the American Society for Pain Management Nursing

Infants appear to be particularly vulnerable to the negative effects of pain (Ahn, 2006; Anand & Scalzo, 2000; Evans, McCartney, Lawhon, & Galloway, 2005; Grunau, Holsti, & Peters, 2006; Smith, 2012), and they may undergo many invasive and painful procedures during hospitalization for various medical reasons (Carbajal et al, 2008; Johnston, Barrington, Taddio, Carbajal, & Filion, 2011; Porter, Wolf, & Miller, 1999; Simons et al., 2003). Blood sampling is one of the procedures often required in treating infants in clinical units, predominantly in screening tests for sepsis or other congenital illnesses.

In considering infant pain, venipuncture is believed to cause less pain than heel stick (Lago et al., 2009; Larsson, Tannfeldt, Lagercrantz, & Olsson, 1998;

From the \*Paediatrics and Adolescent Medicine, United Christian Hospital, Kwun Tong, Kowloon, Hong Kong; <sup>†</sup>The Nethersole School of Nursing, Faculty of Medicine, The Chinese University of Hong Kong, Sbatin, N.T., Hong Kong.

Address correspondence to Wan-Yim Ip, RN, RM, BN, MPhil, PhD, The Nethersole School of Nursing, Faculty of Medicine, The Chinese University of Hong Kong, Sbatin, N.T., Hong Kong. E-mail: [ip2013@cubk.edu.hk](mailto:ip2013@cubk.edu.hk)

Received December 13, 2014;  
Revised July 7, 2016;  
Accepted October 4, 2016.

This manuscript has not been published before. Ms. Yuen-Man Chik, Ms. Wan-Yim Ip, and Mr. Kai-Chow Choi have no conflicts of interest to disclose.

1524-9042/\$36.00  
© 2016 by the American Society for Pain Management Nursing  
<http://dx.doi.org/10.1016/j.pmn.2016.10.001>

Mainous, 1999; Meek, 2012; Ogawa et al., 2005; Rao, 1998; Shah & Ohlsson, 2012; Shah, Taddio, Bennett, & Speidel, 1997). However, it is still a painful event for infants if they are not given appropriate analgesia or comfort measures (Byrd, Gonzales, & Parsons, 2009; Gibbins et al., 2002; Halimaa, 2003; Ismail & Gandhi, 2011; Losacco et al., 2011; Porter et al., 1999; Simons et al., 2003).

The limitations in infant pain management may result from lack of knowledge of infant pain reactivity (Stevens, Johnston, & Horton, 1994; Stevens, Johnston, Petryshen, & Taddio, 1996). Little attention has been given to the use of massage for pain relief in infants undergoing venipuncture, although massage has been reported to be an effective, nonpharmacological measure for the relief of procedural pain.

Some previous studies showed that massage had a therapeutic effect in relieving pain in infants undergoing heel stick. A trial by Jain, Kumar, and McMillan (2006), involving a two-minute massage of the ipsilateral leg, was carried out with 23 infants before they underwent a heel stick. The pain scores and heart rates were significantly elevated in the control group compared with those in the massage group. Bellieni et al. (2007) performed a study of sensorial saturation, which included massage: two intervention groups (from 66 infants, three groups in total) received sensorial saturation from nurses or their mothers before they underwent a heel stick, and one group received only oral glucose plus sucking. The results showed that infants in the sensorial saturation groups had lower pain levels than infants who received only oral glucose plus sucking. In a study by Abdallah, Badr, and Hawwari (2013), the 32 infants of the intervention group (from 66 stable, preterm infants) received massage therapy by their mothers. Infants who were massaged were shown to have significantly lower pain scores after a heel prick when compared to the control group.

To the best of our knowledge, no previous study has determined the effect of massage on relieving infant pain during venipuncture. The aim of this study, therefore, was to investigate the effects of massage on the relief of pain in infants undergoing venipuncture.

## LITERATURE REVIEW

Few studies have reported the prevalence of invasive procedures experienced by infants during their hospitalization. In determining the magnitude of pain responses to nursing/medical procedures among 135 infants, Porter et al. (1999) found that infants who were born between 33 and 36 weeks of gestation underwent an average of nearly 60 painful procedures during

hospitalization. The situation is even worse in infants whose gestational age is less than 28 weeks, as the average number of procedures they experience is more than 700. Barker and Rutter (1995) asserted that the insertion of a peripheral venous cannula and venous blood sampling were equally the third most common procedures performed in infants within 48 hours of admission to the neonatal intensive care unit (NICU).

The physiological changes associated with procedural pain during treatments that irritate and disturb the infant mainly involve increases in heart rate, respiratory rate, and blood pressure and a reduction in oxygen saturation (Jain et al., 2006; Johnston, Collinge, Henderson, & Anand, 1997; Stevens et al., 1996; Stevens & Franck, 2001). Crying, facial gestures, and body movement are most common among the behavioral responses to pain. However, many of these responses depend on the infant's gestational age and the severity of illness. Some infants may be fragile and lack the energy to cry and move their bodies in response to pain. In several studies, the most frequently observed response to painful procedures was in the facial expressions of the infants, which included brow bulge, eye squeeze, nasolabial furrow, and open lips (Stevens, Johnston, Taddio, Gibbins, & Yamada, 2010; Stevens et al., 1996).

Because disease processes require medical or surgical management, it does not seem possible to prevent or eliminate pain in infants exposed to numerous painful procedures in the NICU. However, health professionals can minimize infant pain by nonpharmacological measures.

Nonpharmacological interventions have been suggested to supplement pharmacological approaches when pain is expected (Czarnecki et al., 2011). Massage, a nonpharmacological intervention, is widely used for neonatal pain management, and it has become a developmental supportive care technique (Als et al., 1994; Bellieni et al., 2007; Dieter, Field, Hernandez-Reif, Emory, & Redzepi, 2003; Field, Diego, & Hernandez-Reif, 2010; Lindrea & Stainton, 2000; Ohgi, Akiyama, Arisawa, & Shigemori, 2004; Vickers, Ohlsson, Lacy, & Horsley, 2004). Numerous studies have demonstrated the positive effects of developmental supportive care on preterm infants, such as increased weight gain, reduced stress levels, and improved behavioral status (Als et al., 1994; Ang et al., 2012; Diego, Field, & Hernandez-Reif, 2009; Dieter et al., 2003; Ho, Lee, Chow, & Pang, 2010; Procianoy, Mendes, & Silveira, 2010). Few studies of neonatal pain management have specifically evaluated the efficacy of massage in reducing pain. It has been found effective in reducing the pain and

Download English Version:

<https://daneshyari.com/en/article/5571391>

Download Persian Version:

<https://daneshyari.com/article/5571391>

[Daneshyari.com](https://daneshyari.com)