

Acceptance of Traditional Chinese Medicine in the Neonatal Intensive Care Unit: A Launching Point

Global Advances in Health and Medicine

Volume 9: 1–6

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DOI: 10.1177/2164956120924644

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Abstract

Background: Because neonatology is a relatively new medical specialty, it is host to on-going, rapid adaptation and evolution of medical treatments and practices. This process has almost exclusively focused on Western, biomedical treatment modalities, without inclusion of potentially beneficial Traditional Chinese Medicine practices. It is unclear how receptive health-care providers in the neonatal intensive care unit (NICU) and families of NICU patients would be to the introduction of adapted Traditional Chinese Medicine treatments into the NICU environment.

Objective: To assess the potential for engagement of patients, families, and staff in the NICU with Traditional Chinese Medicine therapies and to provide targeted education and low-risk Traditional Chinese Medicine treatments to support the health and well-being of those 3 groups.

Methods: A feasibility pilot study including weekly walk-in Traditional Chinese Medicine sessions within the NICU for parents and staff, and neonatal patient consultations, both of which included hands-on therapies and education tailored to each participant's unique needs. Pre- and postsurveys were administered over 3 phases.

Results: Walk-in sessions were attended by 83 adults and participants reported benefits, with no ill effects. There were 5 neonatal consultations with staff expressing an interest in more. Several obstacles to accessing Traditional Chinese Medicine modalities were identified in pre-surveys and were addressed with education and preemptive modifications to the therapies offered.

Conclusion: Acceptance of Traditional Chinese Medicine modalities in the NICU opens the door to future studies implementing integrative health services into the NICU care model.

Keywords

Traditional Chinese Medicine, attitudes, implementation and dissemination, inpatient-medicine, Qigong sensory training, acupoint

Received January 30, 2020; Revised March 6, 2020. Accepted for publication April 7, 2020

Introduction

While optimization of healthcare provided in the neonatal intensive care unit (NICU) has primarily focused on gaining scientific evidence to improve the biomedical treatments used to care for ill neonates, recent literature has included a wider scope of investigation. This includes growing evidence of the positive impact of caregiver psychosocial wellness on patient outcomes^{1,2} and the potential benefits and safety of Traditional Chinese Medicine (TCM) therapies such as acupuncture and

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massage in the peripartum and neonatal populations.^{3–10} Unfortunately, there is little generalizability to take away from the available published data due to variability of patient demographics, adherence to specific Chinese traditional practices, and targeted outcomes among studies. Strengthening our knowledge about all available tools to enhance the health and well-being of neonates, as well as the mother-infant dyad, may further advance the care we can provide to these vulnerable patients.

In an often loud, bright, and busy NICU environment, strategies to calm and comfort neonates are important. Because TCM seeks to provide balance and adaptability for the recipient, techniques such as massage and acupuncture may be helpful to maintain or reestablish homeostasis for NICU patients.^{11–13} Although not necessarily adhering to specific traditional Chinese techniques, massage in particular has been suggested as a therapy to relax neonates, increase their vagal activity and gastric motility, and ultimately lead to improved weight gain, which has been independently correlated with enhanced neurodevelopmental outcomes.^{14–17}

Patients in the NICU, particularly those most critically ill, experience repeated painful stimuli secondary to biomedical interventions imperative to optimizing their health. These interventions may include intubation, mechanical ventilation, heel lances for blood draws, and intravenous and intra-arterial catheter placements.¹⁸ Because neonates can perceive pain and can have undesirable adaptive changes in their developing nervous system as a result of recurrent pain,^{19,20} care providers in the NICU try to avoid inadequate analgesia, often leading to frequent administration of pharmacologic agents such as opioids. Some neonates experience repeated opioid exposure even prior to delivery, through maternal prescribed opioid use or illicit abuse of these substances. Whether pre- or post-natal, chronic opioid exposure can lead to adverse neuromodulation of the developing brain including neuronal apoptosis, as demonstrated in animal models.^{21,22} These infants are at risk for opioid tolerance and dependence, accompanied by the potential for significant withdrawal symptoms if medication is too quickly discontinued. Because TCM therapies such as acupuncture may decrease pain and opioid dependence nonpharmacologically by stimulating endogenous opioid and/or cannabinoid release,^{11,23} implementation of such therapies could reduce opioid medication exposure and the resultant neuromodulation of these agents.^{7,8,10,24,25}

In addition, an infant's care can be affected by their caregivers' health. Parents of NICU patients often report increased stress levels,²⁶ can have significant disruption to their normal eating and sleeping habits,²⁷ and mothers can have difficulty establishing and maintaining

sufficient breast milk supply.²⁸ NICU staff members are at increased risk of occupational musculoskeletal pain/headache^{29,30} as well as fatigue, stress, and burnout.^{31,32} Literature suggests that TCM therapies including acupuncture, herbal supplements, and massage can be helpful in treating mood disorders³³ and increasing breastmilk production,^{34,35} with additional research supporting acupuncture as potentially helpful in regulating sleep^{36–38} and reducing pain and headaches.^{39,40} These therapies may then have a positive impact if integrated into a comprehensive care model in the NICU.

Despite the potential benefits, there is a limited body of published data describing the feasibility, acceptance, and utility of TCM in the NICU setting. To address this gap in knowledge and therapeutic use of TCM, we designed a feasibility pilot study directed primarily at bringing awareness to the integrative care needs and desires of NICU families and staff. Our aims were to first provide targeted education about how these needs can be addressed with low-risk integrative TCM therapies, then deliver these therapies to NICU patients, families, and staff within the physical space of the NICU, and finally to subjectively assess the impact on the health and well-being of recipients.

Methods

The University of Minnesota Institutional Review Board granted exempt status, upon review of the protocol. We then began 3 phases of our study.

Our first phase aimed to gain insight into the current engagement of nurses, nursing management, and lactation consultants with TCM practices. To do this, we gave a brief educational presentation offered to all available staff introducing terms, definitions, and background of TCM integrative modalities and then asked the staff in attendance to complete a brief survey. The questions on the survey addressed knowledge about and interest in receiving integrative health services, the requested frequency of these services as well as health or wellness concerns that respondents would most like addressed by the integrative medicine team. Finally, the survey asked about possible obstacles or concerns that may impede respondents' access, or their patients' access, to integrative health services. We then reviewed the survey results, attempted to address the most common concerns that could limit access to services, and made announcements of the upcoming availability of various TCM modalities.

Phase 2 began in August 2016 and continued through December 2016. During this time, we offered weekly, walk-in TCM sessions to families and staff in the NICU. These sessions took place over a 90-minute period in the afternoon, and the available therapies included acupoint therapy by any combination of the

following techniques: needles, hands, acupressure beads, magnets, and laser (see Figure 1), *tui na* (Chinese medical massage), *qi gong* (movement therapy), breathing exercises, nutritional and herbal suggestions, and adjunctive aromatherapy. All adult family members of hospitalized neonates and all NICU staff were welcome to participate. Each family or staff member who presented was asked to sign a consent form to receive treatment and was asked about any medical conditions which may need to be considered before undergoing TCM treatment. The participant was then offered an individualized therapy session, with treatments specified to their interests and needs. We included education about the therapies and their potential benefits within the session. Following each session, the participant was asked to complete a survey requesting feedback about the treatment effectiveness, the likelihood that these or similar therapies would be sought again in the future, and the likelihood of recommending such therapies to others.

Prior to the establishment of these walk-in sessions, a Pediatric Integrative Medicine (PIM) consult service was in existence. This team of providers included a pediatrician trained in medical acupuncture and a Licensed Acupuncturist pursuing further training in pediatric integrative health. They would respond to requests for incorporation of integrative medicine services into any inpatient child's care. The service was available to all NICU patients at our institution and continued to be



Figure 1. Acupoint Therapy.

so during the second phase of our study period. The data from PIM consults made for NICU patients during this time represent the neonatal patient participation in our study. These neonatal patient sessions included a tailored therapy approach with age-appropriate interventions, primarily *shonishin* (pediatric nonneedle acupuncture completed using small metal tools to stroke or tap the skin), and education about these modalities was shared with each patient's family.

After the 18 weeks of TCM sessions, for phase 3, we once again surveyed staff about their engagement with TCM therapies, including if they had participated in any of our sessions, and if they had an interest in future participation for themselves and/or their patients, if available. The survey also had a section available for anonymous narrative comments.

Results

Our phase 1 surveys identified interest in participating in TCM therapies from all of the staff groups, including bedside nursing, nursing supervisors, and lactation consultants.

Throughout phase 2, we provided TCM therapies in the NICU to 88 participants, including 60 NICU staff members, 23 lactating/breastfeeding mothers of NICU patients, and 5 neonates. No adverse reactions were reported. The most common reasons that NICU staff sought TCM treatment included musculoskeletal pain and tension, stress management, and difficulty maintaining self-care. The lactating mothers most commonly sought TCM for help with milk production and stress management. The neonates were treated for pain and symptoms related to weaning from sedative analgesics, with symptom severity measured by the modified Finnegan Scoring System.

From the 83 adult participants, we received 73 immediate posttreatment surveys (88% completion rate). Participants were asked to rate the helpfulness of TCM therapies they had just received on a Likert Scale from 0 (not helpful) to 10 (very helpful) (Figure 2). The majority (84.5%) of respondents rated helpfulness at 8 or above, with no responses at or below 3. One participant remarked, "As a mom in the NICU who spends her days stressing about her son's health, this was a nice break and great self-care to help me with various health issues." The majority of participants (98.6%) expressed interest in receiving additional therapies in the future and 100% of respondents stated they would recommend services to others.

Upon review of the phase 3 staff surveys, several themes emerged. There was increased familiarity with TCM therapies as compared to the initial survey results, and a strong interest in the future availability of TCM therapies in the NICU, both for respondents and the

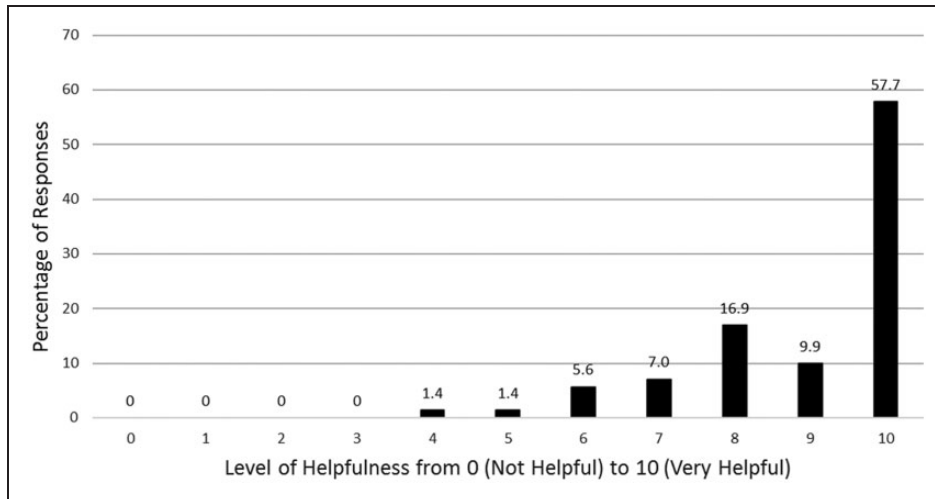


Figure 2. Helpfulness of Traditional Chinese Medical Therapies.

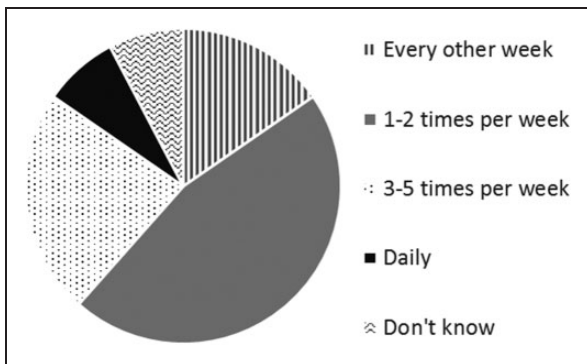


Figure 3. How Often Would You Like TCM Services Available to Your Patients and Their Families?

patients and families for whom they cared (Figure 3). We received anonymous narrative comments on the surveys which further emphasized the appreciation for TCM therapies provided, including, “I was on pain medications before trying the acupoint and it did not help as much as this has.” Another care provider wrote, “It is so nice to be attended to, rather than the one attending. Thanks!”

While most participants did not voice concerns about having TCM offered in the NICU, some noted a general concern for infection risk from acupuncture treatment and potential pain from use of needles during acupuncture. Others noted a risk of a breach of privacy due to fabric room dividers separating treatment spaces, particularly when staff and patient families were receiving treatments in the same room. Staff also shared the difficulties of being able to attend therapies, which were offered during their work shifts in a busy ICU. The most significant obstacles to referring neonatal patients for TCM treatments included lack of knowledge about

potential benefits and concerns for pain or discomfort in the patient.

Discussion

We have demonstrated the feasibility of incorporating TCM therapies into a hectic NICU environment for patients, families, and staff. These therapies and the method of implementation were well received, with staff demonstrating additional cooperation in patient care to allow their fellow colleagues to attend sessions. We were able to identify and address several concerns which may have otherwise remained obstacles for families and staff. First, to mitigate privacy concerns and to promote a calming, healing environment, we divided the room with *shoji* screens, dimmed lights, spoke quietly, and played soft music. To eliminate any pain and infection risk of needle use for NICU patients, we employed needle-free acupoint therapy modalities which have been used in both term and premature neonates with the limited body of published literature showing no short term adverse effects.^{5,41}

From responses of participants, we found that the TCM therapies themselves were beneficial, and the education around the therapies seemed to be equally valuable. There was appreciation for the hands-on therapies offered, as well as strong interest in dietary and lifestyle counseling, and mind-body exercises. The approach to self-care and use of herbal supplements aligned with established practices of the lactation consultant team, leading to a natural relationship and additional support specifically for lactating mothers.

While NICU families and staff are interested in the multiple potential benefits of TCM for all those in the NICU, there is still a significant need for further implementation of and education about TCM integrative

therapies for this population. To improve the logistics of implementation of TCM therapies for adults in the NICU, having a more customized space with dedicated equipment is likely to be helpful. Specifically, to address adult patient comfort, exploration of alternative treatment spaces that would allow for use of cushioned chairs and/or couches with footstools, or zero-gravity recliner chairs is recommended. Offering future integrative TCM therapies in longer shifts and at different times through the week would increase accessibility for staff and families, perhaps allowing treatments to occur before and after a staff shift change. With respect to education, promoting in-person, emailed, and printed material regarding the benefits of integrative TCM therapies for staff, families, and neonatal patients may increase future participation and patient referrals.

We also have identified several specific areas in which further study is needed to more robustly quantify and qualify the benefits which TCM modalities may offer to these populations. First is the role of TCM to prevent and/or treat occupation-associated musculoskeletal pain, headaches, and stress noted among the NICU staff. Next, the potential addition of TCM therapies to the lactation support in the NICU to augment milk production by mothers of NICU patients. Finally, the use of TCM therapies to help maintain comfort and homeostasis in hospitalized neonates, ideally leading to the reduction in exposure to opioid medication, improved growth, and neurodevelopment. In the growing population of neonates who have been exposed prenatally to opioids, the use of TCM to support them as well as their opioid-exposed mothers may be of particular utility.

Acknowledgments

The authors would like to thank the parents, patients, and staff of the Neonatal Intensive Care Unit at the University of Minnesota Masonic Children's Hospital for their participation in this project. The authors would also like to thank Catherine Bendel, MD, and Brenda Weigel, MD, for their support during this project and for review of the manuscript, as well as Laura Padhye, MD, and Rebecca Pauly, DC, for their technical support.

Declaration of Conflicting Interests


The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This project was funded by a collaboration between the University of Minnesota, Minneapolis, MN; Northwestern

Health Sciences University, Bloomington, MN; and a generous gift from the Blythe Brenden Foundation.

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