ORIGINAL ARTICLE

Effectiveness of Hand Massage vs Foot Massage for Pain in Incision Site among Post-cesarean Mothers Admitted in Obstetrical Care Units at Mahatma Gandhi Medical College and Research Institute, Puducherry

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Abstract

Background: Cesarean section is the most frequently performed surgery worldwide. Massage is one of the cheapest and cost-effective methods to reduce pain among post-cesarean mothers.

Materials and methods: In this study, a true experimental research design was used. The population of the study was post-cesarean mothers during first postoperative day. A sample of 90 post-cesarean mothers was selected by using a simple random sampling technique, with 30 mothers in each group: group I received hand massage, group II received foot massage, and group III (control group) received daily routine care. Pre- and posttest pain levels were assessed by using a numerical pain rating scale. The duration of intervention was 20 minutes for two times at an interval of 60 minutes.

Result: Hand massage and foot massage were effective on post-cesarean mothers in both group I and group II. Upon comparing the effectiveness of hand massage and foot massage, it was statistically significant at $p < 0.001$. The study finding reveals that foot massage was effective in reducing pain among post-cesarean mothers.

Conclusion: Thus, the study concludes that foot massage is effective in reducing pain in the incision site among post-cesarean mothers. Therefore, the health professionals must explore alternative approaches to provide better care.

Keywords: Foot massage, Hand massage, Pain in incision site, Post-cesarean mothers.

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Introduction

Childbirth is one of the most wonderful and memorable part in every woman's life.[1] Giving birth to a new life is the most painful experience.[2] There are various ways in which a woman may choose to deliver her baby. Women can choose the method that makes them most comfortable and that makes sense for their personal and medical situation.[3] In that vaginal delivery is one of the most common and safest type of childbirth.[4] Although vaginal delivery is most common, sometimes cesarean delivery is necessary for the safest of mother and baby in order to prevent perinatal morbidity and mortality.[5,6]

As the mother undergone cesarean section, she will have increased pain in the incision site. Several methods are available to decrease the pain and increase the bonding between the mother and the baby.[7]

Cesarean section is a surgical operation in which the abdomen and uterus of a mother is incised to deliver one or more babies, either alive or dead. One of the most important problems and complaints experienced by the mothers undergoing surgery is pain.[8]

Surgery can cause many issues such as discomfort, pain, anxiety, nausea, and vomiting. Among these, the big postoperative concern is pain. Post-cesarean section pain is characterized as acute, i.e., it provides a subtle beginning with a predictable end and is closely related to the tissue damage caused by the inflammatory reactions arising from a traumatic event that causes pain.[9]

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Pain is a dynamic, multifaceted phenomenon in which a specific, unique experience can be difficult to define or explain and sometimes hard to perceive and understand by others. Pain often leads to debilitation, diminished quality of life, and depression.[10]

A combination of complementary and alternative therapy with analgesics can reduce the analgesic use; it minimizes side effects and is cost-effective along with comforting the patient.[11]

A wide variety of pharmacological measures are used to relieve pain during the post-cesarean period, but several studies indicate that the

pharmacological agents create harmful effects on the women's health status. Therefore, the health professional must explore alternative approaches to provide better care and promote healthy atmosphere.[12]

The new emerging measures in pain management are complementary therapy which includes cutaneous stimulation, massage, cold and hot therapies, transcutaneous electrical nerve stimulation (TENS), relaxation techniques, and hypnosis.[10]

Among them, massage therapy has a long history in different cultures around the world.[13] Today, people use different types of massage therapy for a variety of health promotion.[14] Massage is a natural way of light touching, rubbing the entire body gives comfort both physically and psychologically and gives general relaxation in the body, reducing pain perception, good sleep, by affecting the locomotor system and the nervous system as well as cardiovascular system.[15]

In that hand and foot massage is one of the cheapest and cost-effective methods to reduce pain among post-cesarean mothers. Foot and hand massage stimulates the nerve fibers to produce pain-relieving endorphins.[16]

Hand massage is a type of reflexology in which parts of the hands are rubbed with the fingertips, knuckles, and blunt with the purpose of stimulating nerve endings for various organs believed to be present in the hands.[17]

Foot massage is a technique which is used for relaxation and to alleviate the sore soles and arches.[18]

Comparing with all the nonpharmacological methods of pain relief for post-cesarean mothers, foot and hand massage has the potential benefits in relief of pain, and it is effective, inexpensive, low risk, and easily applied massage technique for post-cesarean pain management.[19]

Statement of the Problem

Effectiveness of hand massage vs foot massage on pain in incision site among post-cesarean mothers admitted in obstetrical care units at MGMCRI, Puducherry.

Objectives of the Study

- To assess the level of pain in incision site among post-cesarean mothers.
- To evaluate the effectiveness of hand massage on pain in incision site among post-cesarean mothers.
- To evaluate the effectiveness of foot massage on pain in incision site among post-cesarean mothers.
- To compare the effectiveness of hand massage and foot massage on pain in incision site among post-cesarean mothers.
- To find out the association between level of pain in incision site among post-cesarean mothers and selected demographic variables.

Hypothesis

H1: Level of pain in incision site among post-cesarean mothers differs before and after hand massage.
H2: Level of pain in incision site among post-cesarean mothers differs before and after foot massage.
H3: The effect of hand massage varies from the effect of foot massage on pain in incision site among post-cesarean mothers.
H4: There is a significant association between the level of pain in incision site among post-cesarean mothers and selected demographic variables.

Materials and Methods

A randomized control trial was selected for this study. The study population were the mothers who were admitted in the obstetrical care unit on postoperative day 1 with pain. A total of 90 samples and 30 in each group who fulfills the inclusion criteria were selected from the obstetrical care units by using a simple random sampling technique (lottery method). The proposed study was approved from the Institutional human ethical committee permission and the concerned authority. The content validity of the tool was obtained from the experts. As per the suggestion, the needed changes were included in the tool.

A pilot study was conducted, and the tool was considered reliable for this study. The main study was conducted for a period of 6 weeks. The tool includes two sections: section A consists of demographic variables and section B consists of standardized tool, numerical pain rating scale. An informed sign consent was obtained from the subjects. Pretest was conducted for all the groups. Hand massage was given to group I, foot massage to group II, and no intervention for group III. In the intervention for group I (hand massage) after the assessment of pretest level of pain was, the first time of intervention was performed for 10 minutes in each hand and posttest level of pain was assessed immediately. The second time of intervention was performed at an interval of 60 minutes and posttest level of pain was assessed.

In the intervention for group II (foot massage) after the assessment of pretest level of pain, the first time of intervention was performed for 10 minutes in each foot and posttest level of pain was assessed immediately. The second time of intervention was performed at an interval of 60 minutes and posttest level of pain was assessed.

In group III (control group) after the assessment of pretest level of pain, mothers were under their daily routine, and after 20 minutes, posttest level of pain was assessed. After 60 minutes of interval, again posttest level of pain was assessed.

The data analyzes were done by using SPSS software 16 EpiData version 2.2.2.186 for descriptive statistics [mean, median, and standard deviation (SD)] and inferential statistics (Friedman test and Mann–Whitney test).

Results

Table 1 indicates the pre- and posttest median levels of pain for three groups. In the hand massage group, the pre- and posttest median values were 6 and 5, respectively. In the foot massage group, the pre- and posttest median values were 5.5 and 4, respectively, and in the control group, the pre- and posttest median values were 5 and 5, respectively. The obtained Wilcoxon signed-rank test values were −4.939, −4.880, and 0.000, respectively. It was highly statistically significant at $p < 0.001$ level in the hand massage and foot massage groups. There is a significant difference between pre- and posttest values of pain level in both group I and group II.

Table 2 indicates the pre- and posttest median levels of pain for three groups. In group I, the pre- and posttest 1 median values were 6 and 3, respectively. In group II, the pre- and posttest 1 median values were 5.5 and 2, respectively, and in group III, the pre- and posttest 1 median values were 5 and 5, respectively. The obtained Wilcoxon signed-rank test values were −4.858, −4.880, and 0.000, respectively. It was highly statistically significant at $p < 0.001$ level in group I and group II. There is a significant difference between pre- and posttest 1 values of pain level in both group I and group II.

Table 1: Effectiveness of pre- and posttest median level of pain in incision site among post-cesarean mothers

		Level of pain			Wilcoxon signed-rank	
Groups		*Mean*	*Median*	*SD*	*test*	*p value*
Group I	Pretest	5.86	6	0.776	−4.939	0.001**
	Posttest	4.43	5	1.104		
Group II	Pretest	5.63	5.5	0.718	−4.880	0.001**
	Posttest	3.90	4	0.959		
Group III	Pretest	5.63	5	0.746	0.000	1.000
	Posttest	5.63	5	0.764		

**Highly statistically significant at $p < 0.001$ level

Table 2: Effectiveness of pre- and posttest-1 median level of pain in incision site among post-cesarean mothers

		Level of pain			Wilcoxon signed-rank	
Groups		*Mean*	*Median*	*SD*	*test*	*p value*
Group I	Pretest	5.86	6	0.776	−4.858	0.001**
	Posttest 1	2.96	3	1.129		
Group II	Pretest	5.633	5.5	0.718	−4.880	0.001**
	Posttest 1	1.967	2	1.098		
Group III	Pretest	5.633	5	0.764	0.000	1.000
	Posttest 1	5.633	5	0.764		

**Highly statistically significant at $p < 0.001$ level

Table 3: Comparison of pre-, post-, and posttest 1 levels of pain in incision site among post-cesarean mothers

	Group I		Group II		Group III		One-way ANOVA	
Test	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*	*test "z" value*	*p value*
Pretest	5.867	0.776	5.633	0.718	5.633	0.764	0.959	0.387
Posttest	4.433	1.104	3.9	0.959	5.633	0.764	26.02	0.001
Posttest 1	2.967	1.129	1.967	1.098	5.633	0.764	105.4	0.001

Table 3 shows that the mean score of pretest level of pain in incision site among post-cesarean mothers in group I was 5.867 ± 0.776, group II was 5.633 ± 0.718, and group III was 5.633 ± 0.764, respectively. The calculated one-way analysis of variance (ANOVA) test value of $z = 0.959$ shows statistically not significant between comparison of the level of pain in incision site among post-cesarean mothers in pretest. The mean score of posttest level of pain in incision site among post-cesarean mothers in group I was 4.433 ± 1.104, group II was 3.900 ± 0.959, and group III was 5.633 ± 0.764, respectively. The calculated one-way ANOVA test value of $z = 26.02$ shows statistically highly significant between comparison of the level of pain in incision site among post-cesarean mothers in posttest. The mean score of posttest 1 level of pain in incision site among post-cesarean mothers in group I was 2.967 ± 1.129, group II was 1.967 ± 1.098, and group III was5.633 ± 0.764, respectively. The calculated one-way ANOVA test value of $z = 105.4$ shows statistically highly significant between comparison of the level of pain in incision site among post-cesarean mothers in posttest 1.

Association between the Pretest Level of Pain with Selected Demographic Variables

By using Chi-square it was evidenced that the demographic variables family type is statistically significant and other variables had not shown statistically significant association with the pretest level of pain in incision site among post-cesarean mothers with selected demographic variables in foot massage respectively.

Discussion

The present study result reveals to evaluate the effectiveness of hand massage vs foot massage on pain in incision site among post-cesarean mothers. The first objective of the present study was to assess the level of pain in incision site among post-cesarean mothers; it shows that in pretest, out of 30 samples in group I, 23 (76.7%) had moderate pain, 7 (23.3%) had severe pain, and none of them had worst pain. In posttest, out of 30 samples in group I, 9 (30%) had mild pain, 21 (70%) had moderate pain, and none of them had worst pain. In posttest 1, out of 30 samples in group I, 16 (53.3%) had mild pain, 14 (46.7%) had moderate pain, and none of them had severe and worst pain. In pretest, out of 30 samples in group II, 26 (86.7%) had moderate pain, 4 (13.3%) had severe pain, and none of them had worst pain. In posttest, out of 30 samples in group II, 16 (43.3%) had mild pain, 17 (56.7%) had moderate pain, and none of them had worst pain. In posttest I, out of 30 samples in group II, 26 (86.7%) had mild pain, 4 (13.3%) had moderate pain, and none of them had severe and worst pain. In pretest, out of 30 samples in group III, 25 (83.3%) had moderate pain, 5 (16.7%) had severe pain, and none of them had worst pain. In posttest, out of 30 samples in group III, 25 (83.3%) had moderate pain, 5 (16.7%) had

severe pain, and none of them had worst pain. In posttest 1, out of 30 samples in group III, 25 (83.3%) had moderate pain, 5 (16.7%) had severe pain, and none of them had severe and worst pain.

The second objective of the present study was to evaluate the effectiveness of hand massage on pain in incision site among post-cesarean mothers; it indicates that the pre- and posttest median levels of pain for hand massage group. In group I, the pre- and posttest 1 median values were 6 and 3, respectively. The obtained Wilcoxon signed-rank test value was −4.858. The third objective of the present study was to evaluate the effectiveness of foot massage on pain in incision site among post-cesarean mothers; it indicates that the pre- and posttest median levels of pain in group II. In group II, the pre and posttest 1 median values were 5.5 and 2, respectively. The obtained Wilcoxon signed-rank test value was −4.880.

In group III, the pre- and posttest 1 median values were 5 and 5, respectively. The obtained Wilcoxon signed-rank test value was 0.000. It was highly statistically significant at $p < 0.001$ level in group I and group II. There is a significant difference between pre- and posttest 1 value of pain level in both group I and group II.

The fourth objective of the present study was to compare the effectiveness of hand massage and foot massage on pain in incision site among post-cesarean mothers; it indicates that the mean score of pretest level of pain in incision site among post-cesarean mothers in group I was 5.867 ± 0.776, group II was 5.633 ± 0.718, and group III was 5.633 ± 0.764, respectively. The calculated one-way ANOVA test value of $z = 0.959$ shows statistically not significant between comparison of the level of pain in incision site among post-cesarean mothers in pretest. The mean score of posttest level of pain in incision site among post-cesarean mothers in group I was 4.433 ± 1.104, group II was 3.900 ± 0.959, and group III was 5.633 ± 0.764, respectively. The calculated one-way ANOVA test value of $z = 26.02$ shows statistically highly significant between comparison of the level of pain in incision site among post-cesarean mothers in posttest. The mean score of posttest 1 level of pain in incision site among post-cesarean mothers in group I was 2.967 ± 1.129, group II was 1.967 ± 1.098, and group III was 5.633 ± 0.764, respectively. The calculated one-way ANOVA test value of $z = 105.4$ shows statistically highly significant between comparison of the level of pain in incision site among post-cesarean mothers in posttest 1.

The study finding reveals that foot massage was effective in reducing pain among post-cesarean mothers. The important strength of our study was cost-effectiveness, no side effects, easily understandable, and very effective in reducing the pain among post-cesarean mothers. Limitations of our study period were limited to 45 days, sample size limited to 60 samples, and 30 samples in each group. Our study suggested that this can be implemented with a large sample for effective outcome, this technique should follow in all areas of nursing practice, and studies can be used to evaluate the knowledge and practice among nurse midwives on alternative and complementary treatment for post-cesarean mothers. Massage helps to provide support during post-cesarean period in comparison with other effective measures of nursing intervention.

Conclusion

The study findings are clearly pointed out that hand massage and foot massage are useful in reducing the pain among post-cesarean mothers. Further studies may be useful by using many nonpharmacological measures along with different types of massages such as application of hand massage and foot massage used as an alternative management strategy in reducing the pain among post-cesarean mothers which can be followed in health-care settings. From this study, hand massage and foot massage should be followed by the obstetrical care unit nurses as evidence-based practice for reducing pain during post-cesarean period.

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