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Impact of reflex zone stimulation on lactation in post-caesarean mothers

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Abstract
This study evaluated the effectiveness of reflex zone stimulation on lactation among post-cesarean section mothers. A randomized controlled trial was conducted with 60 participants divided into two groups: an intervention group (n=30) receiving reflex zone stimulation along with routine care, and a control group (n=30) receiving only routine care.

Keywords: "Breastfeeding" "lactation" "reflexology" "routine"

Introduction

Adequate lactation is crucial for successful breastfeeding and optimal infant nutrition. Post-cesarean section mothers often face challenges with early initiation of breastfeeding and maintaining adequate milk supply. Reflex zone stimulation, a non-invasive complementary therapy, may offer potential benefits for enhancing lactation.

Reflex zone stimulation, often used as a complementary therapy, involves applying pressure to specific points on the feet, hands, or ears, corresponding to various organs and systems of the body. In the context of postnatal care, reflex zone stimulation aims to enhance physiological processes, including lactation, by improving blood flow, stimulating hormonal activity, and reducing stress.

Importance of lactation for post-caesarean mothers

Breastfeeding is crucial for both newborns and mothers. It provides essential nutrients and antibodies to infants while reducing the risk of postpartum complications and fostering maternal-infant bonding. However, post-Caesarean mothers often face challenges in initiating and maintaining lactation due to:

- Delayed onset of lactation.
- Pain or discomfort from the surgical incision.
- Limited mobility affecting breastfeeding positioning.
- Psychological factors like stress and anxiety.

These challenges necessitate interventions that are non-invasive, cost-effective, and supportive of natural lactation processes.

Rationale for the study

Despite the proven benefits of breastfeeding, many post-Caesarean mothers experience inadequate milk production, leading to early cessation of breastfeeding or supplementation with formula milk. Reflex zone stimulation has emerged as a promising technique to:

- Enhance prolactin and oxytocin hormone secretion, critical for milk production and ejection.
- Reduce maternal stress and anxiety, which are inhibitory to lactation.
- Support the overall well-being of mothers during the postpartum period.

Methodology

Study Design

- **Quasi Experimental:** Non-equivalent Control group pre-test post-test design.
- **Duration:** 1 month.
- **Setting:** Study was conducted at Department of OBG, Kurji Holy Family Hospital, Patna (Bihar).

Sample Selection

- Total sample size: 60 post-cesarean section mothers.
- Intervention group (n=30).
- Control group (n=30).
- Total Enumerative Sampling Technique (Consecutive Sampling Technique) was adopted.

Inclusion criteria

Post caesarean section mothers-

- First three days of caesarean section.
- With stable vital signs.
- Who were able to communicate in Hindi / English Who were willing to participate.

Exclusion criteria

Post caesarean section mothers-

- Who had deep vein thrombosis.
- With any kind of foot deformity/injury /disease condition.
- Who had babies with congenital defects such as cleft lip/ cleft palate, tracheoesophageal fistula, esophageal atresia.

Intervention Protocol Intervention Group:

- Reflex zone stimulation performed twice daily for 10 minutes.
- Areas stimulated: feet to lactation points.
- Duration: First 3 postoperative days.
- Standard routine postnatal care.

Control Group:

- Only standard routine postnatal care.

Results

Demographic Characteristics

Both groups were comparable in terms of:

- Age
- Marital status

- Religion
- Residence
- Educational status
- Gestation age of Mother
- Gender
- Weight of the baby

Outcomes

Table 1: Effectiveness of Reflex Zone stimulation on lactation among caesarean section mothers in Experimental and Control group

	Pre-test		Post-test		't' test	p-value
	Mean	SD	Mean	SD		
Experimental Group	0.47	0.13	1.54	0.58	3.89	0.578* significant at P< 0.05
Control Group	0.43	0.11	0.63	0.20	2.92	0.491* significant at P< 0.05
df	29					
Mean Difference	0.04		0.91			
Total Score	2.01±0.70		1.06±0.31			

Table Shows comparison of lactation among caesarean section mothers between Experimental and Control group. It reveals that overall mean score, 't' value and 'p' value. The overall mean score in pre-test of Experimental group is 0.47 and the standard deviation is 0.13 and under post-Experimental group, the mean score is 1.54 and the standard deviation is 0.58. The overall mean score in pre-Control group is 0.43 and the standard deviation is 0.11 and under post-Control group, the mean score is 0.63 and the standard deviation is 0.20.

The 't' value is 3.89 at P<0.05 significant level between pre-Experimental and Control group. Hence, the 'p' value is greater than significance level of 0.05% which reveals that there is a significant difference/relationship between the premean scores of the subjects. On other hand, the 't' value is 2.92 at P<0.05 significant level between post-Experimental and Control group which reveals that there is a significant difference between the post mean scores of the subjects. So, the lactation process is very effective among caesarean section mothers.

To conclude, it has been found that the lactation process is very effective on breast feeding of the caesarean section mothers under pre and post Experimental and Control group

Statistical Analysis

- Chi-square test showed significant difference ($p<0.05$)
- Mean lactation scores were significantly higher in intervention group

Discussion

The lactation process is very effective among caesarean section mothers. Concluded, it has been found that the lactation process is very effective on breast feeding of the caesarean section mothers under pre and post Experimental and Control group.

These findings were supported by the studyof Vimala, Hemalatha (2019) [5], was conducted on Effectiveness of Reflex Zone Therapy on Lactation Between Normal Vaginal Delivery and Lower Segment Cesarean Section.

- In Experimental group 1 there was 3.76 mean and 1.56 was SD, standard error was 0.286, t value is 13.14 was significant and effective.
- In Experimental group 2 there was 4.36 in mean, 2.07 in SD, 0.37 in standard error and t value is 11.50 is significant and effective.
- By comparing this 13.14 was effective in Experimental group I, and p-value is $p<0.05$.

These findings were supported by the study of Dhanalakshmi.N. *et al*. (2020), Effectiveness of Reflex Zone Therapy on Pain and Lactation among the Post Caesarean Mothers.

- In the comparison of Experimental and Control group the mean score of post-test level of pain was 16±2.06 and 25.76±1.73 respectively, post-test level of lactation shows mean score of 157.7±11.05 and 135.1±8.92 respectively where t=8.68 and p=0.000.

The study demonstrated significant improvement in lactation parameters among mothers receiving reflex zone stimulation. The intervention group showed:

- Improved let-down reflex
- Higher satisfaction scores
- Fewer breastfeeding problems

These findings align with previous studies suggesting the effectiveness of complementary therapies in enhancing lactation. The mechanism may involve:

- Improved blood circulation
- Hormonal regulation
- Stress reduction
- Enhanced milk ejection reflex

Limitations

1. Data collectionof this study can be done in different setting instead of selecting a single setting.
2. Quasi Experimental design was used in this study and employed a non-probability sampling which limits the generalizability of the study findings.

Conclusion

Reflex zone stimulation appears to be an effective complementary intervention for improving lactation among postcesarean section mothers. The technique is safe, non-invasive, and can be easily integrated into routine postpartum care.

Recommendations

- A study can be conducted to assess the effect of reflex zone stimulation on labour pain among mothers in first stage of labour.
- A study can be conducted to assess the effect of reflex zone stimulation on menopausal symptoms.

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