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Review Article

Physiotherapy Approach to Breast Engorgement: A Systematic Review

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A B S T R A C T

Introduction: Motherhood is an act of unconditional love and warmth to a baby. Despite this cherished moment, women experience many physiological changes during the lactation period which mainly affect the reproductive organs and the breast. There are many treatments that are advised to patients which range from ayurvedic and allopathic treatments to physical therapy treatments. Physical therapy treatments range from massage, hot compression, ice compression, ultrasound therapy, K-tape, lymphatic drainage, and tecar therapy. The aim of this systematic review is to assess different physical therapy treatments and their efficacy to cure breast engorgement.

Methodology: This systematic review was directed according to PRISMA guidelines. Various electronic databases were used to search relevant articles using different keywords. Articles were collected together and selected, based on the eligibility criteria. The final sets of articles were selected after complete screening.

Result: Different treatment methods such as ultrasound, lymphatic drainage, K-tape, and hot and cold compression show significant results in the treatment of breast engorgement.

Conclusion: It has been concluded that physiotherapy plays a significant role in treating breast engorgement. Different treatment methods and practices for example, ultrasound, lymphatic drainage, K-tape and hot and cold compression should be considered as a choice of treatment for breast engorgement.

Keywords: Breast Engorgement, Physiotherapy, Physical Therapy

Introduction

Motherhood is an act of unconditional love and warmth to a baby. Notwithstanding enormous pain and discomfort, it is a magical event for the mother when a baby is born.[1] Breastfeeding is the most fulfilling feeling cherished by most mothers.[2] Despite this cherished moment, women experience many physiological changes during the lactation period which mainly affect the reproductive organs and the breasts.[3]

Breast engorgement has been defined as swelling and distension of the breasts, majorly in the early days of lactation, caused by vascular dilation as well as the arrival

of the early milk.[4] Breast engorgement can also be termed as the accumulation of milk in the breast. Nevertheless, pain, oedema, and distension in the breast due to fullness prevent breastfeeding in the case of some mothers. This may lead to a sense of failure and cause difficulty in the adaptation process of breastfeeding. If left untreated, it may cause nipple fissure or rupture, mastitis, puerperal fever, and termination of lactation.[5]

As per Newton and Newton, engorgement is initiated by the retention of milk in the alveoli. Alveoli distend and compress the milk ducts. This leads to clogging of the outflow of milk and further obstruction which leads to a decrease in milk production and reabsorption. Another theory of engorgement put forward is the increase in blood and lymph circulation when milk comes in, which leads to swelling and tenderness. Therefore, collecting ducts are filled and not emptied thus milk excretion is reduced and engorgement is increased.[6]

There are many treatments advised to patients which range from massage, cold compression, hot compression, ayurvedic treatment, allopathic treatment, and physical therapy treatment.[7] Physical therapy treatments range from massage, hot compression, ice compression, ultrasound therapy, K-tape, lymphatic drainage, and tecar therapy.

In this review, we will ascertain different physiotherapy approaches to treat breast engorgement. The aim of this systematic review is to assess different physical therapy treatments and their efficacy to cure breast engorgement.

Methodology

Protocol

This systematic review was directed according to Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines.[8] Different medical electronic databases were used to search pertinent articles using different keywords. Articles were collected and selected on the basis of eligibility criteria and the removal of duplicates. The final sets of articles were selected after complete screening.

Search Strategy

Electronic data-based searches were performed under PubMed, Pedro, Web of Science and Cinahl until March 2021.

Apart from this, a basic search strategy was used with the help of succeeding keywords: Breast engorgement OR Physiotherapy OR Physical therapy.

Selection of Studies and Data Extraction

The studies were evaluated on the premise of their eligibility criteria. The inclusion criteria for choosing the study were:

1. Only English language article
2. Studies should be categorised under RCTs.
3. subjects enrolled in the studies were of child wearing age.
4. Samples selected were diagnosed with breast engorgement.
5. Treatments used in the studies should come under physical therapy treatment approaches.

Exclusion criteria were:

1. Unpublished articles
2. Research abstract from a meeting proceeding, PhD thesis

The first step was the identification of the articles through a database search and references list. Abstracts and titles which were fulfilling the eligibility criteria were selected for full-text reading. Articles were screened based on the inclusion and exclusion criteria and articles which satisfied the eligibility criteria were included.

Quality Assessment of Study

Quality assessment of the study was done via PEDro Scale.[9] The scale has 11 items, for which the answer is either 'YES' or 'NO'. If the item is present in the study, then it will be awarded as 1, or 0 if not present. The studies will be classified as having poor, fair, good, or excellent quality on the PEDro scale if the score is < 4, 4-5, 6-8 or more than 9 respectively.

Result

Study Selection

The selection of studies was done as shown in Figure 1. Initially, one hundred and three articles were selected for review. After the 1st screening, sixty-five articles were removed due to duplication. Twenty-seven articles were removed after the second screening phase, that is abstract analyses were not related to physiotherapy, sixteen articles used different interventions and three articles were not RCTs. Based on eligibility criteria and availability of full-text articles, five articles were finally selected out of which only three articles were selected for review.

Quality assessment of the study was done via the PEDro Scale. All three studies are considered from 'good' to 'excellent' as scores of the studies range between 7-10/10. The scoring of these studies was summarised in the table below.

Participants

The total numbers of participants included in the selected studies were 187.

Study Characteristics

The characteristics are listed in Table 1.

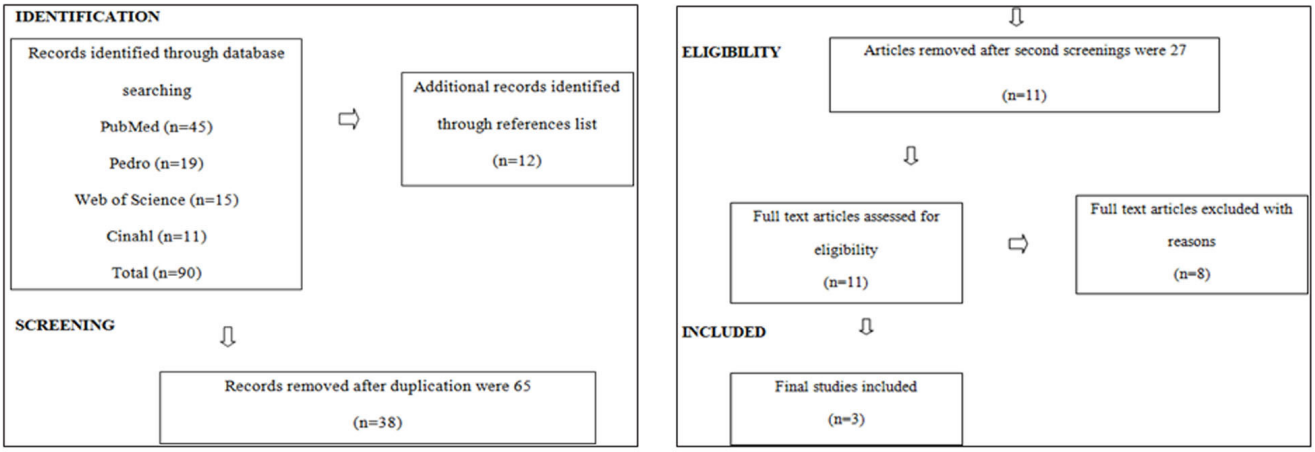

Figure 1.Flowchart of Result

Table 1.Quality Assessment of Study

Study	Year	Population	Intervention	Outcome Measures	Result
Manna et al.[10]	2016	60 postpartum women with breast engorgement were selected and randomly divided into 2 groups with 30 participants in each.	30 participants in group 1 received hot fomentation for 4-5 minutes and 30 participants in group 2 received cold compression for 20 minutes. Treatments were provided twice a day for 3 consecutive days for both groups.	Wong-Baker Facial pain rating scale Six-point breast engorgement scale	Group 2 shows a statistically significant reduction in pain than that of Group 1. Group 1 shows no significant reduction in breast engorgement.
Habibu and Hanif[11]	2017	52 postpartum women with breast engorgement were selected and randomly divided into 2 groups. Experiment group and control group with 26 participants in each.	26 participants in the experimental group received 3 sessions of non-thermal ultrasound with conventional treatment for 2 days whereas the rest of the 26 participants in the control group received only conventional treatment that is massage, proper use of bra and proper latching techniques for two days.	Visual Analog Scale (VAS) Six-point engorgement scale (SPES)	Both groups showed significant improvement in pre and post-intervention ($p < 0.005$) with a greater reduction of symptoms in the experimental group.
Dogan et al.[12]	2020	75 postpartum women with breast engorgement were selected and randomly divided into 3 groups. Kinesio Taping, manual lymphatic drainage and control group with 25 participants in each.	Participants in the KT group received taping along with the breast care treatment, MLD group received manual lymphatic drainage with breast care and the control group received only routine breast care for the 10 days respectively.	Visual Analog Scale (VAS) Six-point engorgement scale (SPES) Volume of milk expression (breast pump)	MLD group shows a significant reduction in pain and breast engorgement in post-intervention compared to the control and KT groups ($p < 0.05$). There was no significant difference in milk volume among KT and control groups in post-intervention ($p > 0.05$)

Table 2 shows the scores obtained as per the PEDro Scale.

Table 2.PEDro Scale

Study	Manna et al.[10]	Habibu and Hanif[11]	Dogan et al.[12]
Eligibility criteria were specified	Yes	yes	Yes
Subjects were randomly allotted to groups	1	1	1
Allocation was concealed		1	0
The groups were similar at the baseline regarding the most important prognostic indicator	1	1	1
There was blinding of all subjects	0	1	0
There was blinding of therapists who administered the 1 therapy	0	0	0
There was blinding of all assessors who measure at least one key outcome	0	0	0
Measures of at least one key outcome were obtained from than 85% of subjects initially allocated to groups	1	1	1
All subjects for whom outcome measures were available received the treatment or control condition as allocated or, where this was not the case, data for at least one key outcome was analysed by "intention to treat''	1	1	1
The results of between-group statistical comparisons are reported for at least one key outcome	1	1	1
The study provides both point measures and measures of variability for at least one key outcome	1	1	1
Score	7	8	6

Intervention

Hot and Cold Fomentation

Manna et al.[10] gave hot fomentation treatment in the form of a damp cotton cloth soaked with hot water for 4-5 minutes.

Cold fomentation was given in the form of a damp pad soaked in cold water for 20 minutes all over the engorged breast.

Treatment was provided twice a day for 3 consecutive days for both groups.

Ultrasound

Habibu and Hanif[11] gave 3 sessions of non-thermal ultrasound with pulsating mode 1 MHz frequency and an intensity of 0.5 w/cm^2 along with conventional treatment for 2 days.

K-Tape

Dogan et al.[12] applied K-tape over the breast every third day for 10 days of treatment, that is on the 1st, 4th, 7th and 10th days. The anchor of the tape wasapplied around the lymph nodes of the breast and strips wereapplied with around 15% of tension.

Lymphatic Drainage

Dogan et al.[12] provided mild lymphaticdrainage to patients in a supine position with both kneesbent. Therapists started the lymphatic drainage from theabdominal lymph drainage followed by the central lymphdrainage. The flow of the axillary lymph node was directed to the axillary lymph node by bilateral axillary lymphatic drainage.

Treatment was given for 10 consecutive days and each session lasted for approximately 45 minutes.

Outcome Measures

Outcome measures used in the selected studies were the Wong-Bakers Facial pain rating scale, Six-Point Engorgement Scale (SPES), VAS and volume of milk expression.[10-12]

Discussion

This systematic review concluded the studies which were published from January 2000 to March 2021 in a systematic review which included different physiotherapy approaches for the treatment of breast engorgement. Although there are fewer studies available for pain reduction and treatment but different physical approaches such as ultrasound, heat andcold compression, lymphatic drainage and K- tapes are found and showed a significantly better option to cure breast engorgement in postnatal women.

Ultrasound treatments accord a theoretical reason that ultrasound removes the milk by easing milk meltdown from an engorged breast which leads to a reduction in pain and

breast hardness.[13] Recommended dosage and parameters of ultrasound should be used to improve milk flow and to relieve symptoms.

Mild lymphatic drainage along with breast care significantly shows a reduction in breast engorgement, pain, body temperature and breast skin heat and it also improves the volume of the inflow of milk. Mild lymphatic drainage removes inflammatory markers by bringing down the lymph nodes which promote reduction in breast engorgement. Lymphatic drainage activates the lymphatic flow and accelerates the protein activation which reduces breast heaviness. According to the literature, it has been noted thatlymphatic drainage rapidly brought down the value of metabolites and cytokines in the blood.[14] Its physiological effects show a contraction of lymphangion which improves the collateral lymphatic drainage and enhanced angiogenesis.[15]

K-tapes actively stimulate the tissue where the tape is placed and it helps abate inflammation by draining it out from the surrounding area.[12] It is also found that K-tape reduces spasm, connective tissue tenderness and promotes lymphatic flow. Both lymphatic drainage and K-tape show analgesic effects in pain management.

Applications of warm compression soften the breast and nipples and permit the infant to feed easily if the cold compression reduces the swelling.[10]

An indistinguishable study performed by McLachlan et al.[13], a randomised controlled trial on 197 women diagnosed with engorged breasts shows that ultrasound has a significant improvement in women with breast engorgement in the age group of 16-42 years old.

Limitation

The only limitation of this study is the low number of randomised control trial studies available. Thus, a greater number of studies are required for further research.

Conclusion

From the current study, it has been concluded that physiotherapy plays a significant role in treating breast engorgement. Different treatment methods and practices like ultrasound, lymphatic drainage, K-tape and hot and cold compression should be considered as a choice of treatment for breast engorgement.

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