Chapter 15

Manual Lymphatic Drainage For The Prevention And Reduction Of Discomfort And Lower Limb Edema In Pregnant And Postpartum Women

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ABSTRACT
Pregnancy is a special moment for women, but the body changes typical of this phase can cause discomfort and edema in the lower limbs. With the objective of investigating the effects of manual lymphatic drainage in the prevention and reduction of discomfort and lower limb edema in pregnant and postpartum women, a descriptive review study was carried out. It can be concluded that manual lymphatic drainage is a safe, practical and efficient method recommended to reduce swelling, pain and discomfort in pregnant and postpartum women.

Keywords: Manual Lymphatic Drainage, Postpartum Perineal Pain, Gestational Edema.

1 INTRODUCTION

The growing uterus during pregnancy causes intermittent compression of the pelvic veins and the inferior vena cava, and associated with the hormonal changes typical of pregnancy (increased progesterone level) can increase water retention, especially in the lower limbs. Although swelling in the lower limbs is considered normal during pregnancy, it can cause discomfort and a feeling of heaviness.

Manual lymphatic drainage is a therapeutic technique that allows lymphatic drainage into the lymphatic vessels and ducts, through maneuvers that mimic physiological pumping, then, the following question arose: Can manual lymphatic drainage prevent and reduce discomfort and edema of the lower limbs in pregnant and postpartum women?

2 METHODOLOGY

The objective of this descriptive review study was to investigate the effects of manual lymphatic drainage in the prevention and reduction of discomfort and edema of the lower limbs at in pregnant and postpartum women. The data collection was obtained through the descriptors manual lymphatic drainage, postpartum perineal pain, gestational edema obtained from PubMed, Scielo and Scholar Google. As inclusion criteria, it was established the selection of articles in Portuguese and English between the years 2018 and 2022 with free access and related to the study objective. Abstracts, monographs, dissertations, theses, and incomplete or paid articles were excluded from the study. During the selection, 52 articles were obtained, of which only 7 met the criteria of this study and were selected for analysis.

3 DEVELOPMENT

The lymphatic system is a system made up of organs and vessels that are responsible for transporting lymph fluid (lymph) to regulate the water balance and filter toxins and pathogens from the body's tissues. Therefore, it is a system that is part of both the circulatory system and the immune system. In case of dysfunction of the lymphatic system, there will be fluid retention in the interstitial tissue resulting in edema and it is in this case that manual lymphatic drainage is necessary.

Manual lymphatic drainage (DLM) is a tissue manipulation technique that mimics the physiological pumping of the lymphatic system. It consists of rhythmic massage maneuvers on the skin that accelerate mobilization and drain the lymphatic fluid into the lymph nodes and stimulate the return to circulation, thereby maintaining the fluid balance of the interstitial spaces.

It can be stated that DLM is considered the gold standard method for the treatment of lymphedema because it provides increased lymphatic circulation, removes waste products from cell metabolism, reduces edema by increasing fluid dynamics, and decreased the activity of the sympathetic nervous system (MARTIN, 2011 apud DE LA CUEVA-REGUERA et al, 2020).

Although the lymphatic system is highly competent, there are health conditions that can allow the accumulation of lymphatic fluid, such as pregnancy. A woman's body undergoes physiological changes during pregnancy to adapt to the development needs of the fetus, and one of the most common consequences is the appearance of edema, especially in the lower limbs (LLLL). It is precisely in conditions of lymph accumulation in some region of the body that the person can benefit most from DLM.

Table 1 presents a summary of the seven studies selected for the preparation of this material. The research was organized in descending chronological order according to the year of publication.

Chart 1 - Comparison between studies

AUTHORS, YEAR	OBJECTIVE	METHODOLOGY	CONCLUDING REMARKS
SOUZA et al., 2022	To analyze the effects of the MTD on the symptoms of heaviness, pain, edema and tingling in the lower limbs of pregnant women, as well as on the reduction of perimetry.	Non-randomized clinical trial.	DLM reduced heaviness, pain, swelling and tingling in the lower limbs, as well as reduced perimetry and maintained BP in pregnant women.
ARNS; SILVEIRA; COSTA, 2021	To verify what the scientific literature has published about the benefits of manual lymphatic drainage for pregnant women.	Integrative review.	DLM is a practical, natural, non-invasive and effective method to reduce edema during pregnancy. It provides comfort and decreases pain and heaviness in the lower limbs.
DE LA CUEVA-REGUERA et al., 2020	To evaluate the efficacy of DLM in second pregnancy women with gestational edema from 25 weeks gestation to the end of the puerperium period.	Prospective, single-blind, randomized, clinical trial.	DLM reduced pain intensity compared to perineal massage in women with gestational edema until the end of the puerperium.

PEREIRA et al., 2020	To evaluate and compare pain relief in the lower limbs of pregnant women who performed DLM with those who did not.	Analytical, experimental, cross-sectional, prospective research of the trial type randomized clinical trial.	Women who performed DLM had pain relief in the lower limbs compared to those who did not perform DLM.
DELGADO et al., 2019	To evaluate the effects of lymphatic drainage in the prevention and reduction of edema of the lower limbs in pregnant women in the second and third trimester of pregnancy.	Case series study.	The DLM was effective in reducing edema, pain and fatigue in the lower limbs in pregnant women.
FERNANDES et al., 2019	Introducing the benefits of DLM as an alternative non-drug therapy to relieve effects of gestational edema and improvements in blood circulation that may collaborate in the control of BP in women with preeclampsia.	Literature review.	The pregnant women benefited from the effects of DLM, and BP was maintained or even decreased after the session. However, DLM is not recommended for pregnant women diagnosed with pre-eclampsia.
ROZA, 2018	To describe the effects of the lymphatic drainage technique on pregnant women, by means of a literature review.	Literature review.	DLM reduces swelling and discomfort.

Source: Own authorship, 2023.

Fluid retention is quite common during pregnancy and generates edema in the body, especially in the lower limbs. A natural, non-invasive, practical, and effective treatment is DLM. It can improve quality of life during pregnancy, because it promotes the control of edema, reduces pain, fatigue, and the feeling of heaviness in the lower limbs, provides relaxation and a sense of well-being (ARNS; SILVEIRA; COSTA, 2021).

The pregnant woman can receive DLM as of the 3rd month of gestation, but it is also recommended in the post-partum period. The application of the DLM technique requires special care regarding the positioning of the pregnant woman, besides the fact that DLM is not applied to the breasts and abdomen, regions that should only be moisturized. Another fundamental fact is the obstetrician's authorization for the woman to undergo DLM and that the technique be applied by a professional who is competent in assisting pregnant and postpartum women.

There are studies about the DLM and its benefits in pregnant women, among them there is an integrative review study with the objective of verifying what the scientific literature has published about the benefits of DLM for pregnant women. The research was carried out in the Virtual Health Library and in the databases indexed: Nursing Database, LILACS and MEDLINE. Publications from 2010 to 2020, available for free, in full and in Portuguese, were analyzed. The analysis of the studies allowed us to affirm that DLM, besides reducing edema during pregnancy, can minimize other discomforts, such as pain, fatigue

and feeling of heaviness in the lower limbs. Therefore, it is a practical, natural and non-invasive method recommended for pregnant women (ARNS; SILVEIRA; COSTA, 2021).

Another study that praises the DLM for pregnant women was carried out with 23 volunteers. The non-randomized clinical trial study had the objective of analyzing the effects of the DLM on the symptoms of weight, pain, edema, and tingling in the lower limbs of pregnant women. Pregnant women with gestational age above 26 weeks, authorized by their obstetrician, participated in the study. The volunteers should present sensation of heaviness, pain, edema and/or paresthesia in the lower limbs. People with blood pressure higher than 140/100mmHg at the time of the DLM, with epidermal continuity lesion, dermatological, lymphatic and cardiac diseases, infections and large and/or symptomatic varicose veins were excluded (SOUZA et al., 2022).

The volunteers were submitted to anamnesis, perimetry, blood pressure evaluation, Borg's scale, three satisfaction questionnaires: initial, final, and after two hours. The technique used was the Leduc technique, with the pregnant woman in the supine position with the trunk slightly inclined, elevation of the lower limbs with the help of positioning rollers below the knees and ankles during the entire session. Measurement reduction was observed in most of the measurements performed by perimetry. There was a significant statistical difference before, right after the session and after two sessions in relation to improvement of pain (p=0.001*), paresthesia (p=0.01*), weight sensation (p=0.000*) and edema (p=0.000*). Therefore, it is concluded that the DLM provided a decrease in pain, edema, weight sensation and paresthesia in the lower limbs (SOUZA et al., 2022).

DLM is also recommended after childbirth. It is known that perineal trauma can occur during childbirth, whose incidence is estimated between 30% and 85%, and pain can occur in more than 60% of women. (DE LA CUEVA-REGUERA et al., 2020). DLM treatment has been used to reduce discomfort and edema during pregnancy, as well as perineal pain after pregnancy. To determine the effectiveness of DLM in these cases, studies have been developed.

An example of a postpartum study is a randomized, prospective, blinded clinical trial conducted between January 2015 and January 2016. The study aimed to evaluate the effectiveness of DLM in women in their second pregnancy with gestational edema from 25 weeks gestation until the end of the puerperal period. Forty-nine women diagnosed with gestational edema participated in the research (DE LA CUEVA-REGUERA et al., 2020).

The study participants were randomly divided into 2 groups. Group A with 30 women who received conventional treatment plus perineal massage and group B with 19 women who received conventional treatment plus DLM. The conventional treatment that both groups received consisted of pelvic floor muscle training from the 25th week of gestation until delivery. The frequency of training was 5 days per week. All wore compression stockings (Varicel, Spain) for 6 hours daily whose compression range was between 11 and 14 mmHg (DE LA CUEVA-REGUERA et al., 2020).

Group A was trained to perform perineal massage. The women themselves, 1 day a week, massaged themselves by inserting their index finger 5 cm into the vagina and sliding it down and side to side using a lubricating jelly for 20 minutes. Group B received DLM from a therapist 1 day a week. DLM was performed intracavity, on the labia majora, suprapubic and inguinal regions for 5 minutes. The study concluded that DLM significantly reduced pain intensity compared to perineal massage (DE LA CUEVA-REGUERA et al., 2020).

There are several studies on the benefits of the MTD for pregnant women. Among them, there is an analytical, experimental, transversal, prospective, randomized clinical trial, which aimed to evaluate and compare the pain relief in the lower limbs in pregnant women submitted and not submitted to the DLM. A total of 28 pregnant women participated in the study, divided into 4 groups of 7 components: G1 in the 2nd gestational trimester experimental group, G2 in the 3rd gestational trimester experimental group, G3 in the 2nd gestational trimester control group, and G4 in the 3rd gestational trimester control group. The groups were evaluated using the visual analog pain scale and lower limb perimetry. The results of the studies were analyzed by the method of analysis of variance, observing significant difference between G1 and G2 ($p = 0.007$) and G3 and G4 (0.0187), therefore, the group that received DLM benefited from the treatment with reduction of edema and pain in the lower limbs (PEREIRA et al., 2020).

Another study on the effects of DLM in reducing lower limb edema in pregnant women was conducted in 2018, in Pernambuco. The case series research aimed to evaluate the effects of lymphatic drainage in the prevention and reduction of lower limb edema in pregnant women in the second and third trimester of pregnancy. Ten singleton pregnant women, between 18 and 35 years old, primiparous and/or multiparous, from the fourteenth week of pregnancy participated in the study. Pregnant women with uncontrolled hypertension, renal failure, and deep vein thrombosis were excluded (DELGADO et al., 2019).

Each pregnant woman was stimulated in the cervical region for 15 minutes and drained for 20 minutes in each lower limb, twice a week. The volunteers were positioned in a supine position at 45° with the help of a support triangle. The vital signs, lower limb perimetry, and visual analog scale were evaluated in all volunteers before and after the sessions. A reduction of edema, pain, and fatigue in the lower limbs could be observed. On average, after the first session (acute effect) the edema decreased by 2 cm, and after the last session (delayed effect) it decreased by up to 5 cm. It is worth noting that all participants were satisfied and would recommend DLM (DELGADO et al., 2019).

In order to present the benefits of DLM as a non-drug therapeutic alternative to mitigate the effects of edema during pregnancy and improve blood circulation for blood pressure control in women with preeclampsia, a literature review study was developed. The search was conducted in the Pubmed, Lilacs, Scielo databases, books and journals whose inclusion criteria were: articles between 1990 and 2017, freely available and online, in the Portuguese language. After the analysis of the material, it was possible to infer that pregnant women without risk and with gestational edema benefit from DLM, because the treatment

stabilizes or decreases blood pressure. However, pregnant women diagnosed with preeclampsia are considered high risk and DLM is not recommended (FERNANDES et al., 2019).

A literature review aimed to describe the effects of the DLM technique in pregnant women. For the development of the study, information was collected in the Google Academic and Scielo databases in scientific articles related to the use of lymphatic drainage and pregnant women. It can be concluded that all the studies analyzed confirmed the benefits of DLM to reduce discomfort and edema in the lower limbs (ROZA, 2018).

Therefore, DLM during pregnancy and postpartum can improve a woman's quality of life. In pregnancy, DLM allows for the reduction of edema, and allows for detoxification, oxygenation, defense, and nutrition of the tissues. In addition, it helps reduce pain, numbness, and heaviness in the lower limbs. In the postpartum period, besides reducing the edema, it helps to control perineal pain.

To apply the DLM technique, the pregnant woman can be positioned in supine or lateral positions. In the supine position, she should have her torso inclined at 45° and with a roller below the knees. The left lateral position with the lower limbs resting on a wedge pillow is pleasant for expectant mothers because it reduces compression of the inferior vena cava.

DLM is a combined technique with gentle, slow, progressive, harmonic, and rhythmic maneuvers performed with the hands toward the superficial lymphatic system. It begins with the opening of the lymph nodes in the lower limbs and then the lymph is directed with light compression movements from proximal to distal and then from distal to proximal, in order to facilitate the displacement of the lymph.

It is emphasized that DLM must be applied from the 3rd month of pregnancy on, with the obstetrician's authorization, for the prevention and/or treatment of gestational edema, pain, tiredness, tingling, heaviness, or other typical pregnancy discomforts.

4 FINAL CONSIDERATIONS

DLM is a treatment technique that can be considered safe, well tolerated, and accepted, and has proven benefits in reducing numbness, fatigue, and heaviness in the lower limbs. All the studies reviewed attest to the efficiency of DLM in reducing the volume of edema in the lower limbs of pregnant women. The technique is also recommended to reduce perineal pain and postpartum edema.

It is recommended that further studies be developed, especially regarding DLM in the puerperium, as there was a dearth of research on the subject.

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