

PHYSIOTHERAPY TREATMENTS FOR BREAST CANCER-RELATED LYMPHEDEMA: A LITERATURE REVIEW¹

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Breast cancer is the second most frequent cancer among women. Surgery is part of the therapeutic process to prevent metastases, but it can also cause some complications, including lymphedema. Physiotherapy contributes to its treatment, using different techniques that have been developed over the years. This systematic literature review aims to present physiotherapy modalities applied for lymphedema therapy. The literature review was conducted using textbooks and Lilacs, Pubmed and Scielo databases, from 1951 to 2009. Physiotherapy resources used for lymphedema treatment include complex decongestive therapy (CDT), pneumatic compression (PC), high voltage electrical stimulation (HVES) and laser therapy. The analyzed literature shows that better results are obtained with combined techniques. CDT is the most used protocol, and its association with PC has demonstrated efficacy. The new techniques HVES and laser present satisfactory results.

DESCRIPTORS: lymphedema; physical therapy (speciality); electrical stimulation; laser

TRATAMIENTOS FISIOTERAPÉUTICOS PARA EL LINFEDEMA DESPUÉS DE LA CIRUGÍA DE CÁNCER DE SENO: UNA REVISIÓN DE LITERATURA

El cáncer de seno es el segundo tipo de cáncer más común entre las mujeres. La cirugía es parte del proceso terapéutico en la prevención de la diseminación de la enfermedad, sin embargo, puede ser causa de algunas complicaciones como el linfedema. La fisioterapia contribuye para su tratamiento con diferentes técnicas que vienen siendo desarrolladas a lo largo de los años. El objetivo de esta revisión sistemática de la literatura es presentar las modalidades fisioterapéuticas aplicadas en el tratamiento del linfedema. La revisión bibliográfica fue efectuada en libros textos y en las bases de datos LILACS, PubMed y SciELO, en el período de 1951 a 2009. Entre los recursos fisioterapéuticos utilizados en el tratamiento del linfedema están la terapia compleja descongestiva (TCD), compresión neumática (CN), estimulación eléctrica de alto voltaje (EVA) y láserterapia. Los trabajos analizados muestran que los resultados son mejores con las técnicas combinadas. La TCD es el protocolo más utilizado, y su asociación con la CN se muestra eficaz. Las nuevas técnicas EVA y láser presentan resultados satisfactorios.

DESCRIPTORES: linfedema; terapia física (especialidad); estimulación eléctrica; laser

TRATAMENTOS FISIOTERAPÉUTICOS PARA O LINFEDEMA PÓS-CÂNCER DE MAMA: UMA REVISÃO DE LITERATURA

O câncer de mama é o segundo tipo de câncer mais comum entre as mulheres. A cirurgia é parte do processo terapêutico na prevenção da disseminação da doença, porém, pode ser causa de algumas complicações como o linfedema. A fisioterapia contribui para seu tratamento com diferentes técnicas que vêm sendo desenvolvidas ao longo dos anos. O objetivo desta revisão sistemática da literatura é apresentar as modalidades fisioterapéuticas aplicadas no tratamento do linfedema. A revisão bibliográfica foi efetuada em livros textos e nas bases de dados LILACS, PubMed e SciELO, no período de 1951 a 2009. Entre os recursos fisioterapéuticos utilizados no tratamento do linfedema estão a terapia complexa descongestiva (TCD), compressão pneumática (CP), estimulação elétrica de alta voltagem (EVA) e laserterapia. Os trabalhos analisados mostram que os resultados são melhores com as técnicas combinadas. A TCD é o protocolo mais utilizado, e sua associação com a CP se mostra eficaz. As novas técnicas EVA e laser apresentam resultados satisfatórios.

DESCRIPTORES: linfedema; fisioterapia (especialidade); eletroestimulação; laser

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INTRODUCTION

Breast cancer is one of the most common types among women and can lead to high morbidity and mortality rates. Surgeries performed as part of breast cancer treatment include (radical and modified) mastectomies and conservative surgeries. Independently of what type of surgery is performed, these techniques can be accompanied by axillary lymph node drainage, which may cause upper limb lymphedema⁽¹⁻⁴⁾. As a part of treatment, physiotherapy plays a role in postoperative physical rehabilitation, preventing and treating complications like lymphedema, decrease movement range of upper limb joints, correcting postural misalignment and sensitive alterations and, thus, promoting functional recovery and a better quality of life⁽¹⁾.

After surgery and removal or radiation of regional lymph chains, patients can present, among other complications, upper limb lymphedema^(3,5). Its incidence depends on different variables, including the extent of axillary surgery, presence of obesity, recurrence of cancer in axillary lymph nodes and radiotherapy⁽⁶⁾. It may occur almost subsequently to surgical treatment, during radiotherapy or many months or years after treatment conclusion⁽³⁾. Lymphedema is defined as the excessive and persistent accumulation of fluid and extravascular and extracellular proteins in tissue spaces, due to the inefficiency of the lymphatic system⁽³⁾. Lymphedema-associated signs and symptoms are increased limb diameter, skin tensioning with risk of breakdown and infection, stiffness and decreased range of movement (ROM) of affected limb joints, sensory disorders in the hand and reduced use of the limb for functional tasks⁽³⁾. Consequently, it can result in esthetic deformities, decreased functional ability, physical discomfort, episodes of erysipelas and psychological stress⁽⁶⁾.

Hence, lymphedema is one of the main problems after breast cancer surgery and radiotherapy. It is extremely important to seek alternatives for its reduction and control. Due to the severity of complications resulting from post-surgical lymphedema, this literature review aimed

to present and discuss the results of research that examined the results of different physiotherapy modalities used for treating lymphedema.

METHOD

A systematic literature review was carried out. The following electronic databases were investigated: Latin American and Caribbean Literature (LILACS), PubMed and SciELO, covering the period from 1981 to 2009, 1951 to 2009 and 2001 to 2004, respectively. Also, data from physiotherapy textbooks were surveyed, cited in references 1, 2, 3 and 4.

In LILACS, the following combinations of descriptors were used: *linfedema*, *linfedema x membro superior*, *linfedema x mastectomia*, *linfedema x fisioterapia*, *linfedema x mastectomia x fisioterapia*, *tratamento x linfedema x mastectomia*, *drenagem linfática x linfedema*. No citations were found for *terapia complexa descongestiva* and *terapia fisica descongestiva*.

Next, the key words used in PubMed were verified: *post mastectomy lymphedema*, *physiotherapy upper limb lymphedema*, *complex decongestive physiotherapy*. Manuscripts were found for all of these descriptors. In SciELO, the following key words were investigated: *mastectomy x lymphedema*, *mastectomy x lymphedema x physiotherapy*, *lymphedema x physiotherapy*, *manual lymphatic drainage*. Citations were found for the first combination only.

Manuscripts identified in all electronic databases were included in this review provided that the full version of original articles was available through open access, in Portuguese or English, and provided that they mainly addressed physiotherapy approaches to lymphedema. Eighteen articles were used. The final search in all electronic databases was carried out on March 13th 2009.

RESULTS

The articles selected for this review are presented in Tables 1 and 2.

Table 1 – Articles selected in Portuguese

Author/year journal	Title	Methodological design	Aim	Results
Garcia et al., 2005 Revista Brasileira de Fisioterapia	Efeitos da estimulação de alta voltagem no linfedema pós-mastectomia	Clinical trial with repeated measures N=15	Analyze the effects of HVES on upper limb lymphedema in mastectomized women	Reduction of lymphedema in perimeters, volume and severity
Garcia et al., 2005 Revista Brasileira de Mastologia	Avaliação de diferentes recursos fisioterapêuticos no controle do linfedema pós-mastectomia	Randomized study N=20	Analyze the effects of HVES and lymphatic drainage massage associated with compression on lymphedema	Greater volume reduction with HVES
Meirelles et al., 2006 Revista Brasileira de Fisioterapia	Avaliação de técnicas fisioterapêuticas no tratamento do linfedema pós-cirurgia de mama em mulheres	Cohort study N=36	Assess efficacy of lymphedema treatment for a period of up to two years	Lymphedema reduction and maintenance during studied periods
Garcia et al., 2007 Fisioterapia e Pesquisa	Efeitos da estimulação elétrica de alta voltagem no linfedema pós-mastectomia bilateral: estudo de caso	Case report N=3	Assess the effect of HVES on bilateral lymphedema	Clinically important post-treatment reduction of the lymphedema
Oliveira et al., 2008 Revista Brasileira de Fisioterapia	Influência da fisioterapia complexa descongestiva associada à ingestão de triglicérides de cadeia média no tratamento do linfedema de membro superior	Blind, randomized study N=10	Assess the influence of CDT associated with diet therapy as a form of intervention in upper limb lymphedema	More significant reduction in circumference and volume in the group using medium-chain triglycerides

Table 2 - Articles selected in English

Author/year journal	Title	Methodological design	Aim	Results
Dini et al., 1998 Annals of Oncology	The role of pneumatic compression in treatment of postmastectomy lymphedema. A randomized phase III study	Randomized study N=80	Compare the use of pneumatic compression with a control group in postmastectomy lymphedema treatment	No differences in the limb were found between the groups under analysis
Leduc et al., 1998 American Cancer Society	The physical treatment of upper limb edema	Clinical trial with repeated measures N=220	Assess the use of manual lymphatic drainage (MLD), multilayered bandages and PC in lymphedema treatment	Most important limb reduction in the first week of treatment
Ko et al., 1998 Arch Surg	Effective treatment of lymphedema of the extremities	Prospective study N=299	Assess the immediate and long-term volume of limbs with lymphedema after CDT	Reduction of lymphedema in treatment phase 1, with measures maintained in periods under analysis
Andersen et al., 2000 Acta Oncologica	Treatment of breast-cancer-related-lymphedema with or without manual lymphatic drainage. A randomized study	Randomized study N=42	Assess if adding MLD to a standard therapy improves lymphedema	Adding MLD to treatment did not contribute to better results
Szuba et al., 2002 American Cancer Society	Decongestive lymphatic therapy for patients with breast carcinoma-associated lymphedema	Randomized prospective study N=23	Assess the efficacy and safety of PC associated with CDT in women with lymphedema	Obtained results were better when associating CDT and CP
Carati et al., 2003 American Cancer Society	Treatment of postmastectomy lymphedema with low-level laser therapy	Double-blind, randomized, placebo-controlled study N=71	Assess the use of laser in patients with postmastectomy lymphedema	Limb volume reduction after one or three months using 2 cycles of laser therapy
Mckenzie et al., 2003 Journal of Clinical Oncology	Effect of upper extremity exercise on secondary lymphedema in breast cancer patients: a pilot study	Pilot study N=14	Assess the effect of an exercise program on lymphedema after breast cancer	Application of exercises improved quality of life
Rezende et al., 2006 Tumori	Two exercise schemes in postoperative breast cancer: comparison of effects on shoulder movement and lymphatic disturbance tumori	Prospective randomized controlled clinical study N=60	Compare effects of two exercise schemes on shoulder dysfunction and post-mastectomy lymphatic disorder	Better range of movement of affected shoulder with the directed exercise group
Koul et al., 2007 Int. J. Radiation Oncology Biol. Phys	Efficacy of complete decongestive therapy and manual lymphatic drainage on treatment-related lymphedema in breast cancer	Case-control study N=138	Assess the results of a lymphedema treatment program during a two-year period	Reduction of limb volume in all groups assessed
Hammer et al., 2007 Annals of Surgical Oncology	Lymphedema therapy reduces the volume of edema and pain in patients with breast cancer	Clinical trial with repeated measures N=135	Assess the results of CDT for lymphedema after breast cancer	Pain reduction as a result of CDT application
Vignes et al., 2007 Breast Cancer Res Treat	Long-term management of breast cancer-related lymphedema after intensive decongestive physiotherapy	Prospective cohort study N=537	Assess the effect of maintenance therapy on lymphedema volume reduction	Limb volume reduction during intensive phase and increase during maintenance phase
Karadibak et al., 2008	Prospective trial of intensive decongestive physiotherapy for upper extremity lymphedema	Prospective study N=62	Assess the effect of CDT on quality of life and fear of movement in lymphedema patients	Decreased volume and circumference of the affected limb, decreased fear of movement and improved quality of life as a result of CDT
Tsai et al., 2009 Support Care Cancer	Could Kinesio tape replace the bandage in decongestive lymphatic therapy for breast-cancer-related lymphedema? A pilot study	Pilot study N=41	Compare CDT + PC and modified CDT + PC in lymphedema treatment	Kinesio tape can replace traditional bandage during lymphedema treatment

The analyzed articles revealed that, once installed, the lymphedema could be controlled but not cured⁽⁷⁾. It can be significantly reduced during the first week of treatment and less significantly after the third week⁽⁸⁾. As from this moment, treatment should be continued to maintain the earlier achieved reduction, collaborating to reduce the incidence of infections and improve quality of life⁽⁹⁾. The most satisfactory results are obtained when treatment is started as soon as the first signs of lymphedema appear. No fibrosis exists in this phase yet and elastic tissue is functional^(7,10-11). Independently of the treatment phase, skin care is recommended, which includes keeping the skin clean, hydrated and elastic; care with nail cutting and depilating; avoiding any type of injury and infections; using rubber gloves for kitchen, sewing and gardening work; avoiding contact with abrasive chemical products and hot baths⁽³⁻⁴⁾. This care is valid for the patient's lifetime. Literature indicates the following physiotherapy resources as a form of lymphedema treatment: complex decongestive therapy (CDT), pneumatic compression (CP), high voltage electrical stimulation (HVES) and laser therapy.

Complex decongestive therapy

Complex decongestive therapy (CDT) is a method that combines manual lymphatic drainage (MLD), compression bandages, myolymphokinetic exercises, skin care and precautions during daily activities. One important technique used in MLD, which comprises a set of slow, rhythmic and light maneuvers that follow the sense of physiological drainage, and aims to clear the lymph vessels and improve fluid absorption and transportation^(2,8,12). The effects of this technique include dilating tissue channels, favoring the formation of new lymphatic anastomoses, stimulating the lymph vessels and mobility of lymphangions with increase of the filtered flow and renewal of defense cells^(1-2,4). Compression bandages act by modifying the capillary dynamics of veins, lymph vessels and tissues. It can be applied through functional compressive bandaging (FCB) or elastic containment (sleeve). It promotes increased interstitial pressure and increased efficacy of muscle and joint pumping⁽²⁾.

The therapeutic exercises included in CDT can help to move and drain lymphatic fluid to reduce the edema and improve the functional use of the involved member. Their effects, which favor lymphedema reduction, are based on the compression of collecting vessels during muscle contraction, on the reduction

of soft tissue hypomobility and lymphatic stagnation and on strengthening and the prevention of muscle atrophy⁽³⁾.

The analyzed studies appoint CDT as the main lymphedema treatment. Studies used all of its components^(8-9,13-14) or part of them^(6,15-17). Applied to 36 women with post-surgical upper limb lymphedema, the CDT led to a mean reduction of 30.5% in the limb volume after the intensive phase, which was maintained during the studied periods⁽⁸⁾. In another study, concluded with 356 women, the limb volume was reduced after the intensive phase with CDT, but measures increased during the maintenance phase. The authors appointed the lack of adherence to sleeve use as the probable cause of this increase, as this is the standard treatment to maintain the results obtained in the intensive phase⁽⁹⁾.

The application of CDT reportedly contributed to reduce chronic pain in women with lymphedema, assessed by the numerical scale and the number of administered analgesics. This was the case in 56 out of 76 women who reported pain in this research⁽¹¹⁾. A study carried out with 44 women compared CDT associated with PC and modified CDT (replacement of compression bandage by Kinesio tape) associated with PC. Its results suggest that Kinesio tape can replace traditional bandages during lymphedema treatment⁽¹³⁾.

CDT applied to 62 lymphedema patients effectively reduced the volume and circumference of the affected limb, decreased the fear of movement and improved quality of life⁽¹⁴⁾. Another study associated physiotherapy treatment with diet therapy as a form of lymphedema intervention. The assessment involved circumference and volume measurement, bioimpedance, cutaneous folds and visual analogue scale for feeling of discomfort. It was concluded that physiotherapy, together with the intake of medium-chain triglycerides (MCT), effectively acted on the involution of the disease, particularly in terms of circumference, volume and feeling of heaviness⁽¹⁵⁾.

Studies have also looked at exercise modalities for lymphedema treatment. Comparing a group of women who exercised (resistance + aerobic + stretching) with a control group (without any specific exercise instruction), it was concluded that the exercise technique did not cause any change in the perimeters and volume of the affected limb. Quality of life in this group improved according to the SF-36⁽¹⁶⁾. In another research involving 60 women, a directed and a free exercise protocol were compared.

The conclusion was that shoulder ROM became more functional in the directed exercise group, but that no difference appeared between the groups in terms of the lymphatic disorder⁽¹⁷⁾.

Literature also presents results opposed to the above^(6,18). Examining whether adding MLD to a therapy (exercise, skin care and sleeve use) improves the lymphedema, the conclusion was that no evidence of better effects could be found when adding MLD to the treatment⁽⁶⁾. In another study of 138 women with post-breast cancer surgery lymphedema, the protocols applied in each group were: CDT, MLD and a program to be followed at home (self-massage and exercises). All three techniques effectively reduced the volume of the affected limbs, without and significant difference⁽¹⁸⁾.

Pneumatic compression

PC or pressure therapy is a technique that consists of compressed air pumps, aimed at pressuring the limb with edema⁽²⁾. It is composed of different forms of air chambers (gloves or boots)⁽¹⁾. Basically, two types of compression pump exist: segmental, also called sequential or dynamic, and another called static or non segmental. Static PC involves the affected limb with a single continuous high-pressure chamber, which compresses the entire limb at once. This form of compression is out of use, as it promotes the collapse of lymph vessels and impairs the venous system⁽¹⁻²⁾. Dynamic pressure therapy contains a number of individually regulable compartments or not. Usually, there are at least three compartments that fill up separately, producing a pressure level that goes from distal to proximal, turning fluid drainage more efficient⁽¹⁻²⁾.

PC has been used in lymphedema reduction treatment and it was concluded that no difference in reduction occurred in comparison with a control group⁽¹⁹⁾. Some studies associated components of CDT with pneumatic compression⁽²⁰⁻²¹⁾. A randomized study, involving 23 lymphedema patients without previous treatment, compared two interventions: CDT + CP and CDT alone. In this group, it was concluded that greater limb volume reduction was achieved when applying PC and this result continued on further evaluations. In the same study, PC was combined with self-massage and sleeve use in 27 previously treated chronic lymphedema patients and volume reduction occurred in this group, as opposed to the group that was not submitted to PC⁽²⁰⁾. Another research, involving 220

women during two weeks, associated MLD, bandaging and PC for lymphedema treatment and, as a result, presented decreased limb perimeters, mainly during the first week of treatment⁽²¹⁾.

High voltage electrical stimulation

Electrical stimulation has been used in clinical practice to reduce the edema as, by producing muscle contractions and relaxation, it increases the venous and lymphatic flow⁽¹⁰⁾. Among different electrical current forms, high-voltage stimulation (HVES) is clinically indicated for acute and chronic pain, to increase the speed of tissue regeneration, neuromuscular reeducation, to increase the venous blood flow and absorb the edema⁽²²⁾. Assuming that muscle pumping helps in the edema absorption process, HVES is being used to activate the muscles around an affected body part. A theoretical hypothesis exists that the electrical current creates a potential electrical field that can induce the lymphatic system to absorb excessive fluids⁽²²⁾.

A study used HVES to treat 15 volunteers with unilateral lymphedema after breast cancer surgery and concluded that this technique effectively reduced the perimeters, volume and severity of the lymphedema⁽¹⁰⁾. A case study of 3 volunteers with bilateral lymphedema applied the same treatment (HVES) and also achieved a clinically important reduction of the lymphedema post-treatment⁽⁷⁾. A group receiving HVES was compared with another using MLD + sleeve for lymphedema control in 20 volunteers. That research showed that both techniques reduced lymphedema perimeters and severity, without any significant difference. Volume reduction, on the other hand, was greater with the use of HVES⁽²³⁾.

Laser therapy

Laser refers to the production of a ray of light radiation, characterized by monochromaticity, coherence and collimation. It is produced by emitting a large quantity of identical photons, using appropriate energized material. After its production, the radiation can be reflected on the surface or penetrate the tissues, depending on the wavelength, nature of tissue surface and incidence angle⁽¹⁾.

This resource is used in physiotherapy based on its anti-inflammatory, analgesic and regenerative effects. It can promote the inhibition of prostaglandin,

the formation of new blood vessels, and also normalize cell membrane activity, regenerate nerve fibers and lymph vessels and accelerate the healing process by stimulating fibroblasts. The most used laser types in clinical practice are Helium-Neon (HeNe) and Gallium Arsenate (AsGa)⁽¹⁾. It is believed that, to treat lymphedema, the laser can stimulate lymphangiogenesis, lymph activity, lymphatic movement, macrophages and the immune system and also reduce fibrosis⁽²⁴⁾.

Only one research on laser therapy to treat post-mastectomy lymphedema was identified in this literature review⁽²⁴⁾. A randomized study compared placebo laser, one-cycle and two-cycle laser therapy. Involving 55 patients, the results indicated a significant reduction in the volume, extracellular fluid and solidity of the affected member, between 2 and 3 months after treatment, using 2 cycles of laser therapy. One-cycle treatment was more significant than the placebo, but less than two-cycle treatment⁽²⁴⁾. Research on this therapeutic mode for lymphedema treatment is in an initial stage.

DISCUSSION AND FINAL CONSIDERATIONS

Lymphedema treatment using CDT, which is widely used, consists of two phases: intensive phase and maintenance phase. In the first phase, which aims to achieve maximum limb volume reduction with esthetic and functional improvement, MLD, functional compression bandaging and exercises are applied. In the second, self-massage, exercises and sleeve use (elastic containment) are applied. Its goal is to maintain the reductions achieved in the intensive phase for the longest time possible^(2,4). Daily skin care is necessary in both phases.

The studies presented in the results appointed that isolated techniques were insufficient to reduce the lymphedema^(16-17,20). Exercise modes and PC without any associations may not be beneficial, as the lymphatic system needs to be unblocked first, which will then be maintained by the action of muscle contraction and the use of compressive bandaging⁽¹⁾ and positive pneumatic pressure⁽⁴⁾. MLD alone is not effective for lymphedema treatment either, and the best results are achieved when associated with compression and exercises⁽¹⁾. Compressive bandaging not only maintains but also increases lymphatic absorption and, together with kinesiotherapy, stimulates lymphatic functioning⁽²⁾.

PC can lead to complications if the upper lymph conduits have not been emptied and stimulated first⁽²⁾. Lymphatic capillaries are small and fragile, with possible injuries and breakdown due to high pneumatic pressure. In case of insufficient deep drainage, the body region above the pneumatic chamber becomes congested, which can cause a new lymphedema area and reduce lymph collection capacity even further⁽²⁾. This may explain the technique's lack of success when used separately.

As mentioned, when applied alone, these techniques may not be efficient for lymphedema reduction, but replacing one mode by another equally effective treatment can produce good results and turn care less repetitive. MLD was compared with HVES and both techniques demonstrated their ability to reduce the lymphedema, but the reduction was larger when HVES was used⁽²³⁾. The studies in this review that used HVES^(7,10,23) applied negative-polarity current with motor-level intensity. The reduced capillary permeability to plasma protein, the effect of muscle pumping and repulsion of loads (negative current and negative proteins) can explain its results^(7,10,22). However, randomized studies with more representative samples are needed, which can truly demonstrate the efficacy and possible advantages of HVES over MLD.

Research that used laser therapy for lymphedema reduction indicated the following hypotheses for its effects: restored axillary lymphatic drainage by the stimulation of new lymph conduits, softening of fibrous tissue and surgical scar, systemic effects related to the extracellular fluid volume and reduction of accumulated tissue fluids by blood flow changes. Laser therapy also exerts analgesic effects⁽²⁴⁻²⁵⁾. Putting it in practice still demands further research though.

Although professionally administered treatment displays high levels of limb volume reduction, treatment performed by patients alone can be useful if they cannot get professional therapy⁽²⁵⁾. Treatment as a whole, including elevation, therapeutic massage, exercises, compression and drugs, is more adequate when performed by an interdisciplinary team, and lymphatic rechanneling surgery is used when conservative treatment is ineffective⁽²⁶⁾. As part of interdisciplinary treatment, diet therapy with medium-chain triglycerides (MCT) is considered beneficial to reduce the lymphedema as, different from long-chain triglycerides, MCT are directly absorbed by the blood stream and do not overload the lymphatic

system. Obesity is another risk factor for lymphedema and diet therapy with a view to weight loss seems to be useful for its treatment⁽¹⁵⁾.

CONCLUSION

Based on this literature review, it can be concluded that, within the therapeutic modalities used

for lymphedema treatment, CDT undoubtedly has the strongest scientific support. Its application together with PC has demonstrated efficacy and new techniques with satisfactory results are being studied, such as HVES and laser therapy. Combined techniques produce the most beneficial effects and, depending on the physiopathology of the lymphedema, the physiotherapist should select the best combination, based on a detailed assessment of individual cases.

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