

PHYSICAL TREATMENT OF POST-MASTECTOMY LYMPHEDEMA

COMPARISON BETWEEN APPLYING MANUAL LYMPH DRAINAGE ONLY, APPLYING SEQUENTIAL PRESSOTHERAPY BY LYMPHA-PRESS® ITSELF, AND THE COMBINATION OF USING BOTH APPLICATIONS

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We treated 3 groups of patients suffering from post-mastectomy lymphedema. In the first group of 27 patients, the physical treatment applied was only manual lymph drainage (MLD). In the second group of 14 patients, the physical treatment applied was only sequential pressotherapy via the LYMPHA PRESS® (LP). In the third group of 62 patients the physical treatment applied was a combination of manual lymph drainage and sequential pressotherapy by LYMPHA PRESS® (LP+MLD). The efficiency of the 3 therapeutic modalities were analyzed and recorded.

MEASUREMENT METHOD

We studied the effects of the 3 different kinds of treatment by measuring the volume of the 2 upper limbs of each of the patients, by water displacement, at 55cm of the extremity of the medius, before and after their treatment. The "edema volume" signifies the difference between the swollen and the healthy upper limb. In the study, the edema volumes were measured and calculated, at different stages of the treatment. It should be noted that the margin for error percentage wise for measurement was less than 5%.

MATERIAL AND METHOD

The 3 groups of patients received either manual lymph drainage only, or sequential pressotherapy treatment via LYMPHA PRESS® (only, or a combination of both). As per the studies, the manual lymph drainage was applied at the level of the sub-clavian area, thorax, shoulder, axilla, arm, elbow, forearm and hand. The application was then reversed ending back at its original point, the sub-clavian area. In the said studies, the sequential pressotherapy device used was LYMPHA PRESS®. The pressure selected was 40 mmHg.

Group 1 (MLD)

27 patients took part in the first group. The physical treatment applied was manual lymph drainage only. The duration of each session was 1 hour. The mean duration of the treatment was 43 sessions and took place during a 2 months period.

At the end of the induction treatment, the mean decrease in edema volume was 40%. Long term results were considered somewhat satisfactory.

Group 2 (LP)

14 patients took part in the second group. The physical treatment applied was only sequential pressotherapy by LYMPHA PRESS®. The duration of each session was 6 hours a day, lasting 5 days. The mean duration of the treatment was 28 hours in 5 days. At the end of the induction treatment, the mean decrease in edema volume was 45%. The long term results were unsatisfactory. There was an edema recurrence between 1 week and 3 months after the end of the induction treatment.

Group 3 (LP+MLD)

62 patients took part in the third group. The physical treatment applied was a combination of half an hour period of sequential pressotherapy by LYMPHA PRESS® at 40 mmHg, followed by half an hour period of manual lymph drainage. The mean duration of the treatment was 25 sessions, lasting 5 weeks. At the end of the induction treatment, the mean decrease in edema volume was 45%.

RESULTS AT THE END OF INDUCTION TREATMENT

Decrease in Edema volume

A decrease in edema volume was noted for all patients of each group. 40% for the group treated by manual lymph drainage only. 45% for the group treated only by sequential pressotherapy by LYMPHA PRESS®. And equally 45%, ranging from 5 to 100%, for the group treated by association of sequential pressotherapy by LYMPHA PRESS® and manual lymph drainage, (3 patients presented a decrease in edema volume less than 10%. 13 patients had a decrease ranging between 10% and 25%. 25 patients had a decrease ranging between 25% and 50%. 13 patients had a decrease ranging between 50% and 75%. 2 patients had a decrease ranging between 75% and 100%, and 2 others had a decrease equal or superior to 100%). For the third group (LP+MLD) we also studied the possible influence of the initial edema volume and the radiotherapy site.

Influence of the initial edema volume

Following the rate of the initial edema volume, the 62 patients were then divided into 2 groups. The first, consisting of 22 patients, presented an initial edema volume inferior to 500cc. The second, consisting of 40 patients, presented an initial edema volume superior to 500cc.

The mean decrease in edema volume was 55% for the first group and 30% for the second group.

Influence of the radiotherapy site

Of the 62 patients, 59 received radiotherapy treatment. Studies were conducted on 39 of them, to determine the possible influence of the radiotherapy site. These 39 patients were then divided into 3 other sub-groups.

In the first sub-group, 5 patients received a post operative radiotherapy on the internal mammary chain. The mean rate of the initial edema volume was 434cc. The mean decrease in edema volume obtained at the end of the induction treatment was 46%.

In the second group, 30 patients received a post operative radiotherapy on the internal mammary chain, the half upper part of the thorax, the axilla and the sub-clavian area. The mean rate of the initial edema volume was 680cc. The mean decrease in edema volume obtained at the end of the induction treatment was 39%.

In the last sub-group, 4 patients received a pre-operative radiotherapy. The mean rate of the initial edema volume was 1048cc. The mean decrease in edema volume obtained at the end of the induction treatment was 30%.

FOLLOW - UP

Group 1 (MLD) - 27 cases

Long term results were somewhat satisfactory.

Group 2 (LP) - 14 cases

Long term results were unsatisfactory. There was an edema recurrence between 1 week and 3 months after the end of the induction treatment.

Group 3 (LP+MLD) - 62 cases

Out of 62, 51 of them were supervised during a medical follow-up program.

They were then divided into 3 sub-groups (A, B, C).

Sub-group A consisted of 13 patients, receiving no follow-up treatment.

Sub-group B consisted of 26 patients, receiving follow-up treatment on an infrequent basis.

Sub-group C consisted of 12 patients, receiving regular follow-up treatment.

In sub-group A:

The mean duration of the follow-up was 14.3 months.

The edema volume measured at the end of the follow-up period increased in mean by 33% in reference to the edema volume measured at the end of the induction treatment.

In sub-group B:

the mean duration of the irregular follow-up treatment was 24 months. The edema volume measured at the end of the follow-up period decreased in mean by 22% in reference to the initial edema volume, and increased in mean by 17% in reference to the edema volume measured at the end of the induction treatment.

In sub-group C:

The mean duration of the follow-up treatment in this group was 18 months.

The edema volume measured at the end of the follow-up period decreased in mean by 32% in reference to the initial edema volume, and by 1% in reference to the edema volume measured at the end of induction treatment.

ANALYSIS

By using the combination of sequential pressotherapy by LYMPHA PRESS® and manual lymph drainage, the decrease in edema volume obtained at the end of the induction treatment are superior and more rapid than when these techniques are applied independently. Also, the long term results remain stable.

We noticed that the mean decrease in edema volume measured at the end of the induction treatment was more favorable when the initial edema volume was inferior to 500cc. In this group, it was equal to 55%. In the group of patients presenting initial edema volume superior to 500cc it was equal to 30%. Thus the treatment must begin as soon as possible, upon appearance of the edema.

A large radiotherapy field seems to contribute in highlighting out a more severe edema in contrast to when a radiotherapy field is reduced in size and used.

The follow-up analysis of 51 patients clearly demonstrates that regular follow-up treatment should continue well after the end of the induction treatment, not only to avoid edema recurrence, but to maintain the decrease and improve the rate of the edema.

CONCLUSIONS

The preferred treatment of choice is the sequential pressotherapy by LYMPHA PRESS®, used in combination with manual lymph drainage. Post mastectomy upper limb lymphedema should be treated the moment it appears.