

**TREATMENT OF POST-MASTECTOMY LYMPHEDEMA OF THE UPPER LIMB
BY A COMBINATION OF SEQUENTIAL PRESSOTHERAPY AND
MANUAL LYMPHDRAINAGE**

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We have treated 40 patients presenting a post-mastectomy lymphedema of the upper limb with a combination of sequential pressotherapy by Lympha-Press[®] and manual lymphdrainage.

MEASUREMENT METHOD

We have studied the effect of the combination of Lympha-Press[®] and manual lymphdrainage by measuring the volume of the two upper limbs at 55 cm from the extremity of the medius before, during, and after treatment.

Before treatment, the edema volume, that is, the difference between the swollen and the healthy arm was equal to 100%.

The measurement error was less than 5%.

SEQUENTIAL PRESSOTHERAPY BY LYMPHA-PRESS[®]

The Lympha-Press[®] is an apparatus of sequential pressotherapy. The pressure can be adjusted between 0 and 180 mmHg and is distributed in partially superposed cells. These cells are located in a cuff placed around the swollen arm. The cells are inflated one after the other from the distal extremity to the proximal extremity of the arm. This pushes the interstitial fluid only in the centripetal direction. The partial superposition of the cells prevents the formation of garotting belts between the cells.

The cuff is composed of 10 cells. The pressure is induced in two seconds successively in each cell and remains constant during six seconds. It is then interrupted during four seconds before the beginning of a new cycle.

MANUAL LYMPHDRAINAGE

The manual lymphdrainage is a specific massage technique which increases the resorption at the level of venous capillaries and at the level of the lymphatic vessels. This technique increases the resorption of the interstitial fluids. Contrary to classical massage, this technique is not vasodilatating and does not increase capillary filtration.

The manual lymphdrainage begins at the level of the supraclavicular areas, then at the level of the chest, the back, the axillary area, the shoulder, the arm, the elbow, the forearm, and the hand. The massage is then repeated from the hand to the supraclavicular areas.

MATERIAL AND METHODS

We have treated 40 patients suffering from post-mastectomy lymphedema of the upper arm by a combination of:

one hour of sequential pressotherapy by Lympha-Press[®] at 40 mmHg

followed by half an hour of manual lymphdrainage

The mean age of the 40 patients was 56 years. Age ranged from 31 to 74. There were 18 edemas on the right side and 22 on the left side.

The mean duration of the treatment was 30 courses in six weeks.

The mean age of the edema was 2 years and 10 months, ranging from 1 month to 24 years. The sigma value is

RESULTS

a) Reduction of the edema volume

The mean reduction of the edema volume was 41%, ranging from 10 to 100%.

In 40 patients,

1 showed a 10% reduction of the edema volume

11 showed a 10 to 25% reduction of the edema volume

13 showed a 25 to 50% reduction of the edema volume

13 showed a 50 to 75% reduction of the edema volume

1 showed a 75 to 100% reduction of the edema volume

and 1 had a 100% reduction of the edema volume

b) Influence of the initial edema volume

These 40 patients were divided in two groups, according to the importance of the edema volume before treatment.

In the first group, 16 patients had an initial edema volume inferior to 500 cc. In the second group, 24 patients had an initial edema volume superior to 500 cc.

The mean reduction of edema volume is 61% in the first group and only 28% in the second group.

c) Influence of the site of radiotherapy

For 18 patients out of 40, we investigated the possible influence of the site of radiotherapy on the reduction of the edema volume.

Six patients received radiotherapy only on the internal mammary chain. In this group, the initial edema volume was 433 cc and the mean reduction of the edema volume was 41%.

Nine patients received radiotherapy on the internal mammary chain, on the half upper chest, on the axillary area and on the sub-clavicular area. In this group, the initial edema volume was 659 cc and the mean reduction of edema volume was 39%.

Three patients received radiotherapy before and after surgery. In this group, the initial edema volume was 1120 cc and the mean volume reduction was 27%.

FOLLOW-UP

For 9 out of 40 patients, the mean duration of the follow-up was 9.5 months (ranging from 1 to 36 months).

At the end of the physical therapy treatment, the mean reduction of the edema volume was 49.6% (ranging from 10 to 64%). At the end of the follow-up, the mean reduction of the edema volume was 35% (ranging from 88 to -50%).

At the end of the period of follow-up, 2 patients had a total recurrence, 2 had a partial recurrence, 2 had no change, and 3 had a regression of the edema volume.

CONCLUSIONS

In 40 post-mastectomy lymphedemas, thirty courses of the combination of sequential pressotherapy by Lympha-Press[®] at 40 mmHg and manual lymphdrainage resulted in a mean reduction of the edema volume of 41%.

The combination of both techniques gives better results than these two techniques used separately.

Long-term results

Long-term results were satisfactory. In a population of 9 patients followed-up, the mean reduction of edema volume at the end of the follow-up showed a discreet recurrence (from 49.6% to 35%).

We are currently investigating the efficacy of a maintenance treatment (ten courses per year).

The reduction of the edema volume is better when the initial edema volume is inferior to 500 cc. In this group, it was equal to 61% whereas in the group presenting an initial edema volume superior to 500 cc, the mean reduction was only equal to 28%.

The post-mastectomy lymphedema of the upper limb must be treated as soon as it appears.