

Elephantiasis and Maintenance of Results Following Intensive Treatment

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ABSTRACT

Lymphoedema is a chronic clinical condition with no cure. However, novel therapy concepts developed in recent years aim to bring the affected limb within or close to the limits of normality. Elephantiasis is the most advanced stage of this condition, but the results of therapy can be maintained with continued treatment. The aim of the present study was to demonstrate the continual reduction in Lymphoedema, Clinical Stage III, elephantiasis, after intensive treatment with the maintenance of therapy. A 42-year-old female patient reported a history of oedema in the groin region at 12 years of age, for which no cause was defined. At 17 years of age, the patient noticed swelling of the left ankle and sought a physician, who diagnosed lymphoedema. At the time, stage III lymphoedema (elephantiasis) was confirmed, body weight was 66.0 kg and the Body Mass Index (BMI) was 27.1 kg/m². Intensive treatment was performed. Body weight was reduced to 61.3 kg and the BMI was reduced to 25.2 kg/m². Bioimpedance analysis revealed reductions in fluid and volume to 5618 gm, which was a reduction of 2517 gm (47%). After three years, the patient was submitted to another intensive treatment, during which the volume was reduced to 3520 gm (40.2%). She was discharged to continue treatment at home, but with a volumetric difference of 784 gm in comparison to the unaffected limb. Patients with elephantiasis who are submitted to intensive treatment and maintain treatment at home can continue to experience a significant reduction in oedema, with decreases in both intracellular and extracellular water to within patterns of normality.

Keywords: Bioimpedance analysis, Diagnosis, Lymphoedema, Volume displacement

CASE REPORT

A 42-year-old female patient reported a history of oedema in the groin region at 12 years of age, for which no cause was defined. At 17 years of age, the patient noticed swelling of the left ankle and sought a physician, who diagnosed lymphoedema, which was confirmed by 'Lymphoscintigraphy' of the lower limbs. The patient began to use elastic stocking and take Daflon (diosmin+hesperidin), but the oedema increased over time. In this period, the patient had three episodes of Erysipelas, which further aggravated the oedema. Three years ago, the patient sought our service for treatment. At the time, Stage III lymphoedema (elephantiasis) was confirmed by volumetry and bioimpedance, body weight was 66.0 kg and the BMI was 27.1 kg/m². Liquid displacement volumetry of the lower limbs revealed 8135 gm below the knee in the left leg and 2789 gm in the right. The patient was submitted to bioimpedance analysis (InBody S10) [Table/Fig-1].

Intensive treatment was performed: one hour of manual lymphatic drainage (Godoy method), mechanical lymphatic therapy (RAGodoy®) approximately eight hours a day and cervical stimulation lymphatic therapy 15 minutes a day. Body weight was reduced to 61.3 kg and the BMI was reduced to 25.2 kg/m² [1]. Bioimpedance analysis revealed reductions in fluid [Table/Fig-1] and volume to 5618 gm,

which was a reduction of 2517 gm (47%). The patient continued treatment at home with the compression stockings made of grosgrain fabric and RAGodoy® device. In this period, her body weight was maintained (61.6 kg) and the volume of the affected limb was reduced to 4010 gm (corresponding to 46.5% of the volume upon completing intensive treatment). After three years, the patient was submitted to another intensive treatment, during which the volume was reduced to 3520 gm (40.2%). She was discharged to continue treatment at home, but with a volumetric difference of 784 gm in comparison to the unaffected limb.

DISCUSSION

The present study shows that home treatment of lymphoedema leads to the continual reduction in oedema. In the present case, a greater than 50% reduction in volume was achieved in a three-year period in relation to the volume upon completing the first intensive treatment. During this period, the patient used laced compression stockings combined with mechanical lymphatic drainage using the RAGodoy® device [2]. The second intensive treatment led to a further 40% reduction in volume. Currently, approximately 870 gm are needed to normalise. This was <10% of the initial weight, which was more than 11 kg.

Variables	Total 13-7-2015	Total 17-7-2015	Total 10-9-2018	Total 14-9-2018	Normal range	ECW/TBW
ICW	20.3	19.1	21.4	19.2	19.2-23.4	
ECW	14.5	12.6	13.5	11.7	11.8-14.4	
ECW/TBW	0.419	0.398	0.385	0.379	0.36-0.39	
Right Arm	1.40	1.37	1.75	1.52	1.57-1.91	0.377 limit (0.36-0.39)
Left Arm	1.47	1.37	1.71	1.51	1.57-1.91	0.375 limit (0.36-0.39)
Trunk	13.5	13.1	16.2	13.9	14.2-17.4	0.401 limit (0.36-0.39)
Right leg	4.95	4.83	5.88	4.96	4.95-6.05	0.372 limit (0.36-0.39)
Left leg	11.47	8.21	7.44	6.28	4.95-6.0	0.459 limit (0.36-0.39)

[Table/Fig-1]: Intracellular water (ICW), Extracellular water (ECW), ECW/Total body water (TBW) ratio, water in limbs and trunk before and after treatment and normal reference range.

Studies employing the Godoy method demonstrate that it is possible to reduce the volume of the affected limb by approximately 50%, which leads to an improvement in quality of life [3]. This rapid reduction facilitates the placement of the stocking and enhances adherence to treatment. The current goal in cases of elephantiasis with deformation is a 70% reduction in the volume of the limb.

Another interesting aspect to consider is the increase in both intracellular and extracellular water beyond the limits of normality and not extracellular water alone. Intensive treatment led to a significant reduction in both intracellular and extracellular water, with the continual reduction until reaching the normal range. Moreover, the reduction in BMI with the reduction in oedema reveals the influence oedema has on body weight [4].

Electrical bioimpedance analysis enables the evaluation of all limbs and the trunk, which contributes to a better understanding of fluid dynamics and enables adequate monitoring of patients during treatment [5].

Another important aspect was that the patient was thin. Thus, there was no influence of obesity on her condition. In clinical practice, the present authors have identified that obesity can cause changes to the lymphatic system, leading to subclinical systemic lymphoedema, in which an increase in water beyond the limits of normality occurs in all limbs and the trunk. Therefore, patients should be counselled

regarding the fundamental importance of avoiding the aggravation of oedema through weight gain.

CONCLUSION

Patients with elephantiasis who are submitted to intensive treatment and maintain treatment at home can continue to experience a significant reduction in oedema, with decreases in both intracellular and extracellular water to within patterns of normality.

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