Role of hydrotherapy in post mastectomy lymphedema treatment

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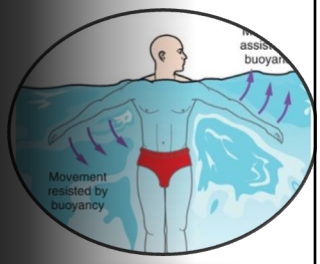
Disclosure

Background

- Breast cancer-related lymphedema (BCRL) is a series of pathological conditions in which the protein-rich lymphatic fluid accumulates in the soft tissues due to lymphatic flow obstruction, leading to an increase in the arm circumference by 2 cm or more

Benefits of Water Exercise for Lymphedema

- Increasing buoyancy of the limbs.
- Resistance - the hydrostatic pressure from the water provides resistance that strengthens muscles and improves cardiac and respiratory conditioning



Objective

- To investigate the effect of aqua therapy resistance exercise on arm volume, pain, and shoulder range of movements in post-mastectomy lymphedema.

MATERIALS & METHODS

- *Study design*
- This was a prospective, single-blinded, parallel-group randomized controlled trial conducted between July 2022 and April 2024.

Fifty eligible breast cancer survivors (median, 10 years after surgery) with lymphedema (median, 21% inter-limb difference) were assigned randomly to group A (n=25) or control group B (n=25).

Aqua Balance- exercises Ai Chi

- An aquatic exercise sequence and slow-paced water-based activity with an objective of relaxation, balance, and pain management

Study Protocol

- The study group underwent 60 minutes of aqua therapy exercise comprising of warm-up for 10 minutes, 40 minutes of strengthening exercises, and 10 minutes of cooling down, three times a week for 8 weeks.
- The control group underwent 60 minutes of land-based exercise three times a week for 8 weeks.
- Arm volume calculated by measuring the arm circumference, shoulder flexion, and abduction range of motion (ROM), and pain using a visual analog scale (VAS) were assessed at baseline and after 8 weeks of treatment.

Aquatic therapy

- The pool measured 8 m×15 m, with access via steps ranging from 1 to 1.5 m in depth.
- The thermoneutral temperature, of the water was maintained at 30°C–32°C.

Group treatment

- The therapeutic alliance and group cohesion among the patients are factors that contribute to effective participation in the activity .

Results

- Age
- Group A) 51.36±9.15 Group B)49.84±8.57 Years
- BMI (kg/m²)
- Group A) 29.97±3.36 Group B) 29.78±4.00

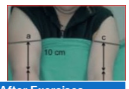
stages of Lymphedema

Lymphedema stage	Group A	Group B
Stage I	10 Patients (40 %)	11 Patients (44 %)
Stage II	14 Patients (56 %)	14 Patients (56 %)
Stage III	One Patient (4%)	Zero

History of Surgery

	Group A	Group B
Time since surgery	2.64±1.37 Years	2.88±1.76 Years
Number of radiation therapy sessions	20.12±4.32	21.92±4.42
Number of chemotherapy sessions	6.76±2.43	6.24±2.58

Limb volume



	Before Exercises	After Exercises
Group A	2,256 ± 186.9 ML.	2,108 ± 200.9 ML. *
Group B	2,452 ± 252.2 ML.	2,440 ± 236.5 ML.

$V=h(C12+C1C2+C22)/12\pi$

Group A

	Before Exercises	After Exercises
Shoulder range of movement (ROM) - Flection - Abduction	 169.68±4.54 CM 150.44±3.92 CM	 147.36±5.32 CM * 131.32±4.38 CM *
Visual Analogue scale (Pain) VAS	8.9 ± 0.07	5.6 ± 0.05 *

Group B

	Before Exercises	After Exercises
Shoulder range of movement (ROM) - Flection - Abduction	 138.88±5.40 CM 121.32 ±4.36 CM	 138.76±6.17 CM 120.64±3.23 CM
Visual Analogue scale (Pain) VAS	8.8 ± 0.06	7.9 ± 0.09

Conclusion

- Adding aqua therapy resistance exercise to routine physical therapy might be more effective in decreasing the limb volume and pain intensity also improving ROM of the shoulder in postmastectomy lymphedema.

Thank you