F-P4.23

Additional Effect of Mechanical Stimulation on Mastectomy Scar Management - A Prospective Randomized Control Trial

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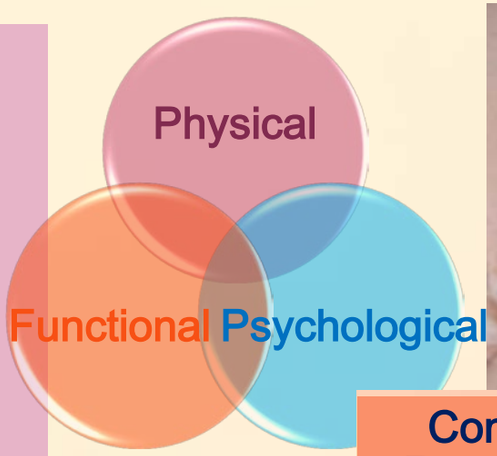
Breast cancer - **most common** type of cancer in women (HK Cancer Registry 2015); **scarce study** on mastectomy scar management

Objective of the Study:

Investigate efficacy of mechanical stimulation (MS) in -

- alleviating scar appearance
- reducing shoulder morbidities
- improving arm functions
- enhancing quality of life (QoL)

in women with breast cancer after mastectomy.



Comprehensive Physiotherapy Program for Breast Clinic at QEH

Holistic & Longitudinal Care

- Education
- Exercise
- Skin / Wound Care
- Lymphoedema Prevention & Management

We are …

… Together in Rehab!

Mechanical Stimulator - non-invasive massage to mastectomy scar

Theoretical Framework

Inclusion Criteria:

- Women with mastectomy performed in recent 6 weeks
- Age >18 years old
- Able to attend physiotherapy

Exclusion Criteria:

- Altered mental state
- Scar infections / inflammation
- Unhealed scar
- Bilateral breast cancers
- Pre-existing arm impairments
- Radiotherapy received
- Sensitivity to MS
- Unstable medical conditions

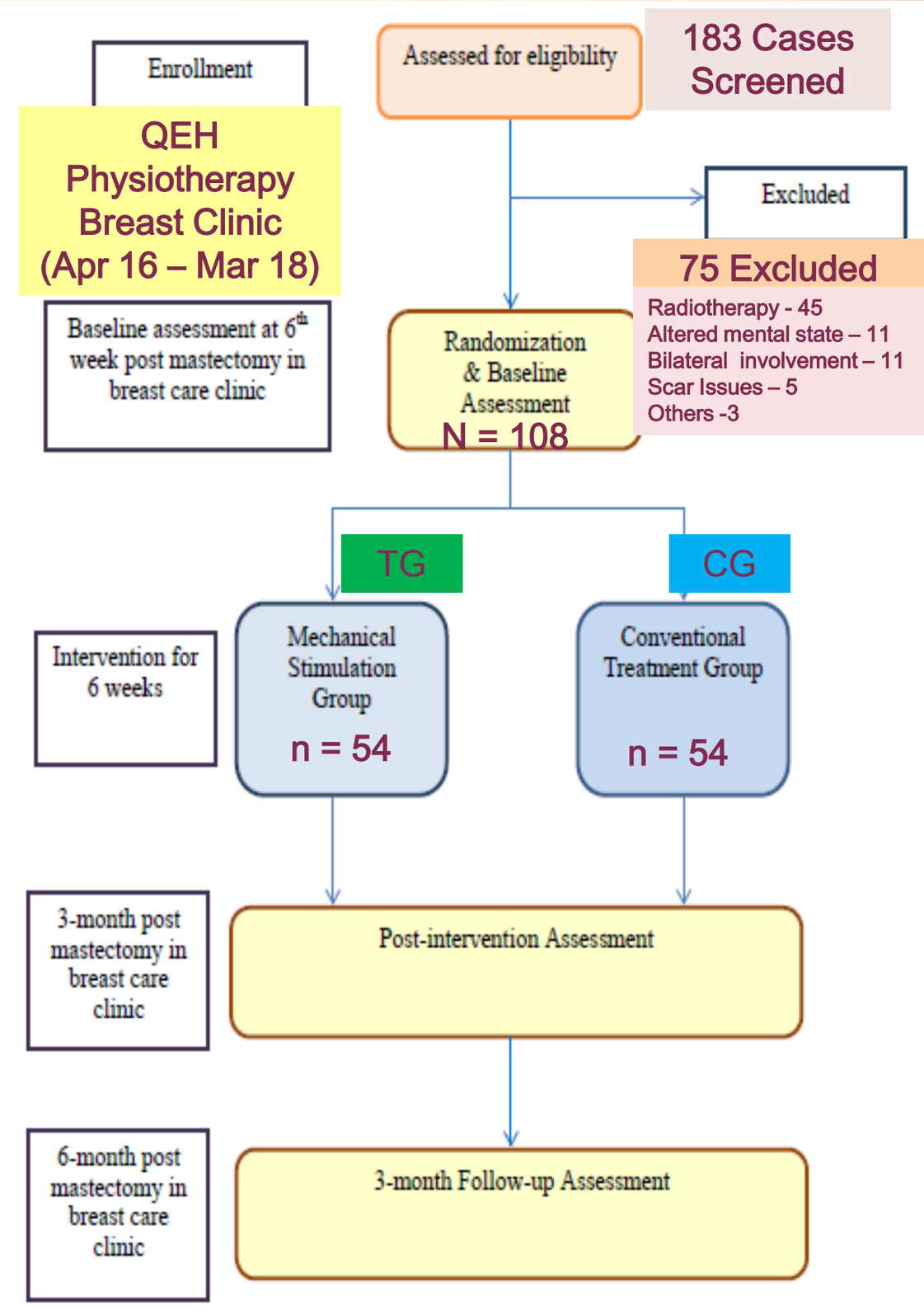


Figure 1: Experiment Design & Patient Flow

Preliminary Results:

As at Dec 2017, **73 subjects** completed the study. At post-op 6-month follow up:

- TG vs CG : **significantly improved scar appearance as reflected by VSS** (2.26±1.69 vs 3.31±1.87, p<0.001)

Pigmentation	
0	Normal color (resembles nearby skin)
1	Hypopigmentation
2	Hyperpigmentation
Vascularity	
0	Normal
1	Pink (slightly increased in local blood supply)
2	Red (significantly increase in the local blood supply)
3	Purple (excessive local blood supply)
Pliability	
0	Normal
1	Supple (flexible with normal resistance)
2	Yielding (giving way to pressure)
3	Firm (solid/inflexible, not easily moved, resistance to normal pressure)
4	Banding (rope-like, blanches with extension of scar, does not limit range of motion)
5	Contracture (permanent shorting of scar producing deformity or distortion, limits range of motion)
Height (mm)	
0	Normal (flat)
1	<2
2	<2 and >5
3	>5

VSS for Scar Evaluation

Spectrophotometry for Color Measurement

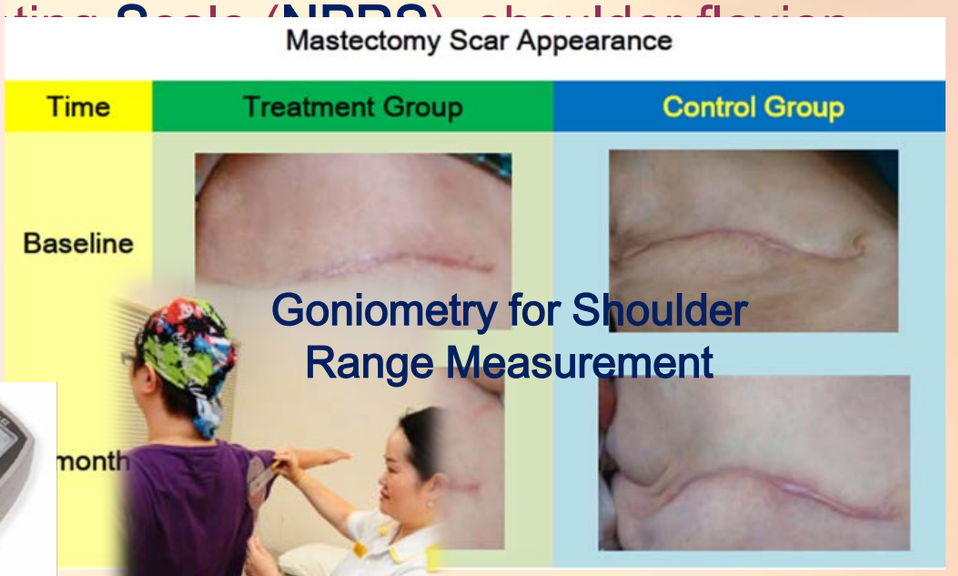
- **QoL (FACT - B)**

  TG (75.78±24.89 vs 53.58±20.08, p<0.001)

  CG (70.34±22.71 vs 60.21±14.03, p=0.05)

(No intergroup difference found, except for VSS)

& Spectrophotometry



Goniometry for Shoulder Range Measurement

DASH & FACT - B

Control Group

cale at different time points for
nt and control group

Conclusions & Bring Home Message

- Physiotherapy reduced shoulder morbidities, improved arm functions, and enhanced QoL, in women with breast cancer after mastectomy.
- Incorporation of Mechanical Stimulation into Conventional Physiotherapy enhanced clinical outcomes in alleviating scar appearance.
- Extended use to different scar over different body parts!

Thank You!