ABSTRACT

Effectiveness of Community Based Rehabilitation Program
For Total Knee Replacement Patients: A Singapore Study

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INTRODUCTION

With the aging population, the number of total knee replacement (TKR) surgery is steadily increasing worldwide. Rehabilitation after surgery is the standard practice of care as it improves pain, muscle strength and physical function. Due to the homogenous rehabilitation profile, majority of TKR patients have good long-term outcomes regardless of rehabilitation setting , duration or protocols. However, in Singapore, TKR patients usually receive individual rehabilitation sessions at an outpatient physiotherapy clinic situated within an Acute Hospital (AH) after they discharge home post surgery, and not at the community Day Rehab Center (DRC) due to the limitation of the referral system. According to the Singapore Ministry Of Health (MOH) One Rehab Framework, DRC is the recommended rehabilitation setting for TKR patients. Hence, there is a need to set up a TKR community rehabilitation program and evaluate its effectiveness.

METHODOLOGIES

This is a controlled prospective study.
All TKR patients who met inclusion criteria and were agreeable, were allocated to either intervention (DRC) or control group (AH) based on the patients' preference. Subjects received 5 rehabilitation sessions, starting from week 2 until 3 months post-operative, based on harmonized rehabilitation protocol and discharge criteria. Subjects were discharge from the rehabilitation service earlier, if they achieved the discharge criteria before the 5 session. Assessments were conducted at the first (baseline) and last session. The primary outcome is Timed up and Go (TUG) test. Secondary outcomes include pain intensity, knee flexion and extension Passive Range Of Motion (PROM), quadriceps strength and 30 seconds chair rise (30CR) test.

CONCLUSION

Both DRC and AH rehabilitation models are effective for TKR patients. Patients who attended rehabilitation at DRC have lesser pain at last session.

Our study found that the new community rehabilitation model was clinically effective for TKR patients, hence, it should be offered to all TKR patients and to be adopted nationwide. This new model dovetails Singapore MOH strategy of "Beyond hospital to community" to ensure accessible, affordable and sustainable healthcare services for fellow Singaporeans.

RESULTS

WALKINC Rehab Programme

Well and **A**ctive **L**iving after **K**nee replacement **IN** the **C**ommunity

	TUG Median (IQR)	P value	30sec Chair Rise Median (IQR)	P value	Pain Intensity Median (IQR)	P value
Between group differences						
Final Assessment						
DRC	12.93 (9.30, 18.72)	0.853[a]	12.00 (9.00, 13.00)	0.347[a]	0 (0, 1)	0.003[a]
AH	14.00 (9.90, 17.35)		10.50 (8.75, 12.00)		3 (0, 3)	
Within group differences						
DRC						
Baseline (ref)	21.41 (14.94, 34.46)	Ref	8.00 (7.00, 10.00)	Ref	3 (2, 5)	Ref
Final assessment	12.93 (9.30, 18.72)	<0.001[c]	12.00 (9.00, 13.00)	0.001[c]	0 (0, 1)	<0.001[c]
AH						
Baseline (ref)	22.52 (17.15, 36.74)	Ref	8.00 (6.00, 10.00)	Ref	3 (3, 4)	Ref
Final assessment	14.00 (9.90, 17.35)	0.006[c]	10.50 (8.75, 12.00)	<0.001[c]	3 (0, 3)	0.034[c]

[a]Mann Whitney U test; [b]Paired sample t test; [c]Wilcoxon signed rank test

	Knee Flexion Median (IQR)	P value	Knee Extension Median (IQR)	P value	Quads Strength Median (IQR)	P value
Between group differences						
Final Session						
DRC	118.0 (105.0, 120.0)	0.933[a]	0.00 (0.00, 1.00)	0.409[a]	4 (3, 5)	0.064[a]
AH	115.0 (110.0, 120.0)		0.00 (0.00, 4.25)			
Within group differences						
DRC						
Baseline	95.0 (90.0, 110.0)	Ref	5.00 (0.00, 5.00)	Ref	3 (2, 4)	Ref
Final assessment	118.0 (105.0, 120.0)	<0.001[c]	0.00 (0.00, 1.00)	0.001[c]	4 (3, 5)	0.055[c]
AH						
Baseline	105.0 (95.0, 115.0)	Ref	3.00 (0.00, 5.00)	Ref	2 (1, 3)	Ref
Final assessment	115.0 (110.0, 120.0)	<0.001[c]	0.00 (0.00, 4.25)	0.012[c]	3 (3, 4)	<0.001[c]

[a]Independent sample t test; [b]Mann Whitney U test; [c]Paired sample t test; [c]Wilcoxon signed rank test

FIGURES/ DIAGRAMS (Optional)

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