The Effect Of Early Rehabilitation Program On Physical Functions In Patients With Lower Extremity Burn Injuries-A Pilot Study

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Objectives

- Impairments in joint range of motion, gait ability and balance cause physical disability in patients with lower limb burns. So that, early rehabilitation program (RP) has becoming increasingly important in acute burn care.
- The purpose of this study was to examine the effect of early RP on physical functions in patients with lower limb burns.

Methods

- Seven adults with lower extremity burns (4F,3M; mean age=33±11 years, mean burn surface area=4.8±3.5%) were included in this study. (Table -1).
- GAITRite system for gait parameters, timed up and go test (TUG) for dynamic balance and six minute walk test (6MWT) for exercise capacity were used. These evaluations were made twice; initial (admission) and final (discharge). RP was applied by physiotherapist during the acute hospitalization. RP included active range of motion exercises, functional mobility, balance activities and gait training.

Results

- ✓ The mean sessions of rehabilitation program were 12 days. When the initial and final evaluations were compared there were significant differences for step length , cadence, velocity, distance of 6 MWT and TUG values. (p<0.05).
- ✓ Although base support was shorter in final measurements, there was no significant differences between the initial and final values (p>0.05). (Table-2)

Sources

- Schneider JC, Qu HD, Lowry J, Walker J, Vitale E, Zona M. Efficacy of inpatient burn rehabilitation: a prospective pilot study examining range of motion, hand function and balance. Burns. 2012 Mar;38(2):164-71.
- Omar MT, Abd El Baky AM, Ebid AA. Lower-Limb Muscular Strength, Balance, and Mobility Levels in Adults Following Severe Thermal Burn Injuries J Burn Care Res. 2017 Jan 10

Table-1-	Mean ± SD
Age (years)	33.28 ± 11.16
Height (cm)	165.71 ± 14.37
Weight (Kg)	73.85 ± 23.69
Burn surface area (%)	4.85 ± 3.53
Cause of burn injury	Scald injury

Table-2-		Mean ± SD	p
Step Lenght (cm)	İnitial (burned)	42.70±9.01	0.01*
	Final (burned)	58.29±4.13	
	İnitial (non-burned)	39.64±10.63	
	Final (non-burned)	59.19±3.97	
Distance 6 MWT (m)	Initial	154.84±47.43	0.01*
	Final	480.14 ±60.56	
Time up & go test (sec)	Initial	18.30±4.73	0.01*
	Final	9.51±0.89	
Cadence (steps/min)	Initial	79.11±21.52	0.01*
	Final	105.11±10.07	
Velocity (cm/sec)	Initial	56.94±24.67	0.01*
	Final	102.91±11.74	
Base Support (cm)	Initial	18.34±8.35	0.06
	Final	12.56±3.07	

Wilcoxon test * p<0.05

Discussion/Conclusion

- This prospective pilot study showed significant improvements in physical functions during early RP.
- Gait parameters, exercise capacity and balance are very important indicators of effectiveness of early RP after burn injuries.
- The limitation of this study was its small sample size. Future studies may compare the effectiveness of different rehabilitation programs in larger burned population.