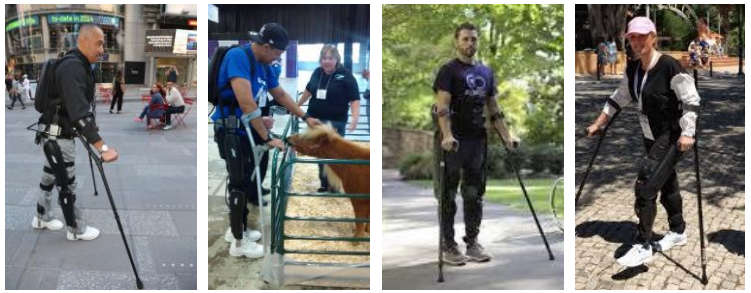
Medical Care Costs of Veterans with Spinal Cord Injury Prescribed a Personal Use Powered Exoskeleton

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Powered exoskeletons for personal use (PEP) in the home and community may be associated with lower health resource utilization costs in Veterans with SCI.



INTRODUCTION

- Veterans Health Administration (VHA) is the largest provider of powered exoskeletons for personal use (PEP) technology worldwide.
- Health resource utilization costs (HRUCs) of Veterans with spinal cord injury (SCI) prescribed PEP compared to those not prescribed PEP are unknown.

METHODS

- Retrospective chart-based review of VHA medical costs for Veterans with SCI prescribed PEP (n=40) for use in their home and communities were identified using the Veterans Affairs Informatics and Computing Infrastructure (VINCI) from 2014-2020 by querying purchases of two Food and Drug Administration-cleared PEP devices "Indego" and "ReWalk" (Exo group).
- A non-Exo comparison group was identified from VINCI database during the same years with 1:2 matching based on gender, age, level of injury (paraplegia, tetraplegia), completeness of injury (motor incomplete, motor complete), and SCI duration (n=80).
- Date of PEP prescription (Exo cases) used as the index date for matched non-Exo cases.
- Average monthly HRUCs were computed for 1 year pre- and 1 year post- PEP prescription.
- Cases with incomplete data for 1 year pre or post were removed from analysis, leaving 31 Exo and 54 non-Exo.
- Between group comparisons were performed using unpaired t-tests and within by paired t-tests.

RESULTS

- Veterans with SCI included in the analysis were 48±14 years old, 12.5% female, 96% paraplegia, and 62% motor complete SCI (**Table 1**).
- Pre- PEP prescription, average monthly HRUCs were similar between Exo and non-Exo groups ($1,927±$1,823 vs. $2,677±$6,443, p=0.5289). Post- PEP prescription, average monthly HRUCs decreased for the Exo group to $1,1512±$1,320 (p=0.0799), but increased for non-Exo group to $3,913±$7,808 (p=0.2615) (**Figure 1**).
- The proportion of Veterans who had lower HRUCs one year post-prescription differed between Exo and non-Exo groups (68% vs. 44%, p=0.0383).

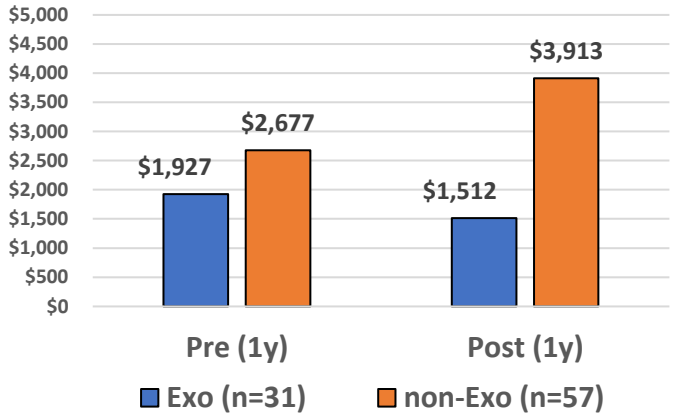
DISCUSSION/CONCLUSIONS

- Preliminary results suggest that PEP may be associated with lower health resource utilization costs in Veterans with SCI.
- A greater proportion of the Exo group had lower health resource utilization costs the year after PEP prescription than the non-Exo group.
- More detailed clinical and demographic data are needed to definitively assess potential cost savings from PEP use.

Table 1. Characteristics

Table 1. Characteristics	Exo (n=40)	non-Exo (n=80)	P Value
Age, mean ± SD	49 ± 14	48 ± 14	0.964
Female, n (%)	5 (12.5%)	10 (12.5%)	
Years of Injury, mean ± SD	11 ± 9	11 ± 9	0.916
Level of injury, n (%)			
Paraplegia	38 (95%)	77 (96%)	>0.999
Tetraplegia	2 (5%)	3 (4%)	
Completeness of Injury, n(%)			
Complete	25 (63%)	49 (61%)	>0.999
Incomplete	15 (38%)	31 (39%)	

Figure 1. Average Monthly Health Resource Utilization Costs



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