The longitudinal association between physical activity and health costs and -utilization during and after rehabilitation: The ReSpAct study

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Introduction

An active lifestyle is beneficial for physically disabled individuals. It may additionally reduce the risk for secondary health problems and could improve mobility and quality of life. Rehabilitation may form an excellent opportunity to stimulate physical activity (PA) since physically disabled individuals learn to reorganize their lives during rehabilitation while getting used to having a physical disability.

The objectives of this study were to examine:

1) the longitudinal association between healthcare costs (i.e. total, primary, secondary and home care costs) and PA levels among physically disabled individuals during and after rehabilitation and,
2) the longitudinal association between healthcare utilization and PA levels

Methods

Design

Longitudinal cohort study among N=1545 individuals who were enrolled in the ReSpAct study.

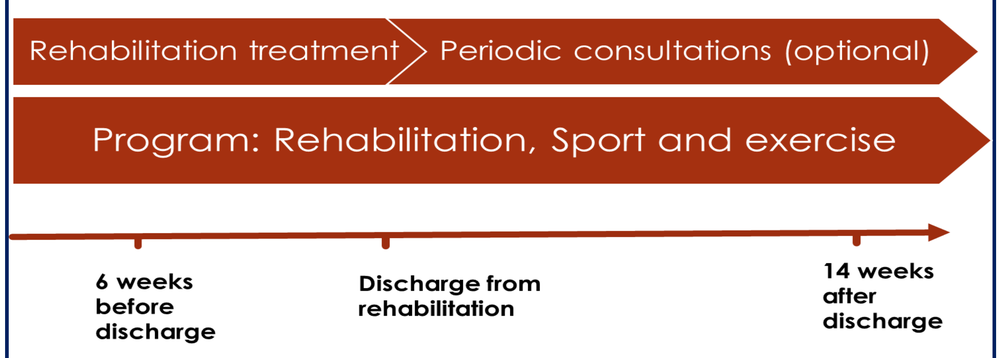

***Fig. 1**: PA Questionnaire data (SQUASH) and healthcare costs and utlization were collected 3-6 weeks prior and 14 weeks after discharge from rehabilitation*

Analyses

Generalized Estimating Equations (GEE) analyses with bootstrapped confidence intervals (CI) were conducted to analyze the longitudinal associations between healthcare costs and utilization with PA.

Missing data

Missing data were estimated by multiple imputation models.

Non-normal distribution

To correct for the non-normal distribution of healthcare costs and healthcare utilization, bias corrected and accelerated (BCA) bootstrapping (5000 replications) was used.

Results

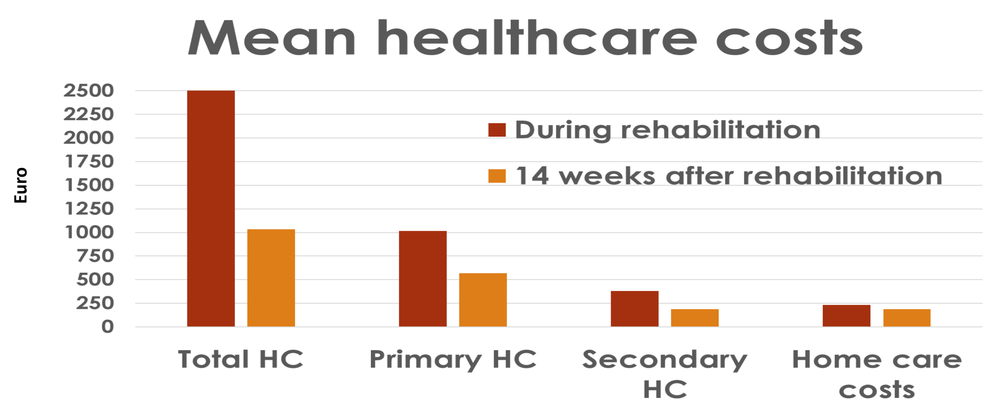

Fig. 2: Mean healthcare costs during and after rehabilitation

Healthcare costs

An increase of 1000 points on the PA score of the SQUASH is associated with:

- An increase of €9.55 in total HC (95%-CI: -36.61 – 22.02)
- An increase of €9.16 in primary HC (95%-CI:2.67 – 14.51)
- An increase of €0.03 in secondary HC (95%-CI:-3.10 – 2.64)
- A decrease in home care costs (RC=€-9.98; 95%-CI:-15.73 – -4.92).

Healthcare utilization

Analyses generally revealed positive associations:

- Association between the number of consults in primary care and PA (RC=0.11; 95%CI:-0.01 – 0.25)
- Association between the number of consults in secondary care and PA (RC=0.00; 95%CI:-0.02 – 0.03)
- But: home care utilization (RC=-0.25; 95%-CI-0.40 – -0.11) was negatively associated with PA

- For adults, 1000 points on the PA score is equal to a biking activity of 45 minutes a day for three days a week
- For elderly, 1000 points is equal to walking everyday for 30 minutes

Conclusion

Increased levels of PA did not result in (significantly) reduced total costs 14 weeks after rehabilitation. However, although it is promising to see a sharp decline in costs and any type of utilisation after rehabilitation, this does not seem to coincide with increased levels of PA. It is expected that PA levels restore back to discharge level on the longer term. The weak positive associations shown here after analyzing the data over a relatively short-term may not be worrisome.

We declare no conflicts of interest

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