Risk subgrouping and physical activity in patients with a-specific low back pain

Selina Doomen, Fontys Paramedische Hogeschool, Physiotherapy
s.doomen@student.fontys.nl

Introduction

- Non-specific low back pain (LBP) is one of the most prevailing health problems worldwide, with an estimation that between 5.0% and 10.0% of LBP will develop into chronic low back pain which accounts for high treatment costs(1).
- There are several risk factors for LBP. Reduced physical activity (PA) in LBP patients increases the risk of developing persistent LBP and stimulating PA forms an important base for treatment(2).
- However, reduced PA is not applicable in all LBP patients in general and risk subgrouping appears to be important (2).
- The purpose of this study: to research a correlation between risk subgrouping and PA amongst patients with LBP. Secondly, it provided insight into the level of PA in the different risk groups in this population.

Research questions

- What is the correlation between risk subgrouping and PA in patients with LBP?
- Sub question: What is the difference in PA movement patterns in the low, medium and high risk subgroup of LBP patients in the course of 5 weeks?

Method

- **Cross-sectional study**
- **Data extracted from baseline of e-Exercise Back Pain Trial with n = 57 for demographic analysis and n = 16 for correlational analysis.**
- **Selection criteria**: 1) 18 years old, 2) have applied for physical therapy for LBP, 4) be diagnosed with non-specific LBP, 5) mastery of the Dutch language, 6) no serious comorbidities and 7) no current pregnancy
- **Data collection:** signing of informed consent, baseline assessment for obtaining STarT Back Tool for risk of LBP and demographic variables, instruction for wearing Activ8 accelerometer for PA measuring for 5 consecutive weeks.
- **Data analysis:** demographics will be analysed using descriptive statistics and displayed using central tendency measures. Shapiro Wilk test will be used for testing the distribution of data. Division of PA into 'sufficient' or 'insufficient' (4). No high risk patients for PA analysis. Fisher's exact for correlation between PA and risk subgrouping, paired t-test for difference between sedentary activity, light PA (LPA) and moderate-to-vigorous PA (MVPA) in the course of 3 weeks. Alpha level will be set at 0.05.

Results

	Low risk of LBP	Medium risk of LBP
n (%)	11 (68,8%)	5 (31,3%)
n > 2,5 hours in bouts of 10 minutes**	7	1
n < 2,5 hours in bouts of 10 minutes***	4	4
Mean time in bouts of 10 minutes ± SD (in hours)	4,17 ± 3,18	1,46 ± 1,20
Physical activity correlational significance	p = 0,282	

**** = in minutes, ** = sufficient activity, *** = insufficient activity***
n: number of patients, SD: Standard Deviation

- The sample population consisted of 16 patients with a mean age of 51 ± 14,51. Of all 16 patients, 68,8% were low risk group and 31,3% was in the medium risk group. No patients were divided in the high risk group.
- **Main analysis:** 4 low risk patients and 4 medium risk patients scored 'insufficient' PA; 7 low risk patients and 1 medium risk patient scored 'sufficient'. No significant correlation (p = 0,282).
- **Sub analysis:** There were no statistically significant differences in week 1 vs. week 3 for low and medium risk patients regarding sedentary activity (p = 0,349), LPA (p = 0,379) and MVPA (p = 0,297).

Discussion

Interpretation:
- Literature has shown both significant correlation between PA and risk subgrouping and non-significant correlation (4,5).
- This cross-sectional research has shown no significant correlation, however results prove to be clinically relevant for incorporating PA in LBP treatment.
- More low risk patients met the PA criteria compared to medium risk patients.
- It seems that low risk patients show an increase in MVPA and medium risk group patients show a decrease.

Strengths & weaknesses:
+ First study to use objective measurement of PA using Activ8
+ High external validity because of generalizability patient sample
+ Use of longitudinal data

- Small sample size for correlation (n = 16)
- Cross-sectional study design
- Uneven distribution of patients in risk groups
- Decreased internal validity

Conclusion

It seems that patients with a higher risk of developing LBP tend to have lower MVPA levels and higher sedentary activity levels. Though promising, this did not prove to be statistically significant. Research needs to be conducted in evenly distributed risk groups so a definite answer as to whether LBP patients with a higher risk of developing persistent LBP have lower PA levels.

References

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