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Physical activity before and after colorectal surgery and its effect on IGF-1, IGFBP-3 and HbA1c: the PHYSSURG-C randomised controlled trial

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Discussion

- In our randomised, controlled trial with physical activity before and after colorectal cancer surgery we found no effect on IGF-1, IGFBP-3, or HbA1c.
- This is the largest study that evaluates the effect of exercise on the IGF axis in cancer patients, and the first study to assess this effect in patients with current cancer.
- The study was not primarily optimized for evaluating the IGF axis. Potentially, the study may lack assay sensitivity due to the intention to treat approach; too short duration or too mild intensity of the intervention; effect on other parts of the IGF-axis than studied in our analysis, such as local production, or effect on signalling downstream from the IGF-1 receptor.

Introduction

- Physical activity improves prognosis after colorectal cancer.
- Insulin-like growth factor I (IGF-1) and IGF-binding protein 3 (IGFBP-3) are possible mediators for this effect.
- The aim of this predefined subgroup analysis within the ongoing PHYSSURG-C trial was to assess the effect of a program with pre- and postoperative physical activity on levels of circulating IGF-1, IGFBP-3 and HbA1c in individuals planned for surgery due to colorectal cancer.

Results

- Data from 122 individuals was analysed (I=51, C=71).
- IGF-1: Trend to be elevated in I compared to C (95% CI 0.88-1.00).
- IGFBP-3: No effect (95% CI 0.92-1.03)
- HbA1c: Increased in I compared to C (95% CI 0.93-1.00). Not statistically significant after Bonferroni correction for multiple comparisons (p=0.24).

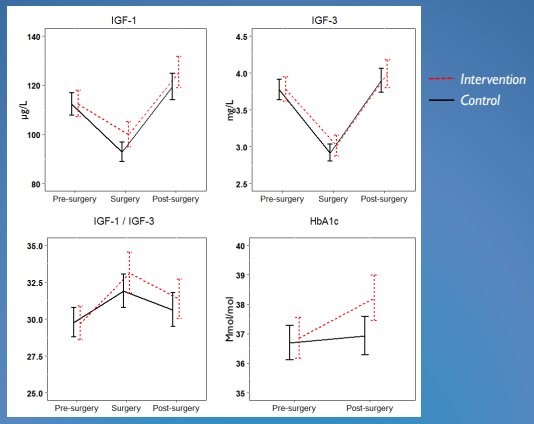

Figure 1. Graphs showing the change in IGF-1, IGFBP-3, IGF-1/IGFBP-3 ratio, and HbA1c for the two study groups.

Methods

- Randomised, controlled, parallel-group, open-label multicentre trial
- Population: ≥20 years old planned for colorectal cancer surgery. Few exclusion criteria.
- Intervention (I): 2 wk. preoperatively and 4 wk. after discharge. 30 min. aerobic physical activity daily and inspiratory muscle training (only preoperatively).
- Control (C): Routine care
- Outcome: Change in IGF-1, IGFBP-3, and HbA1c from baseline until induction of anesthesia (not HbA1c), and 4-6 wk. postoperatively.

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