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Effects of prehabilitation on exercise capacity and patient-reported outcomes in patients with cancer: Results from pooled analysis of individual patient data of nine RCTs

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PURPOSE This study examines the effect of preoperative exercise training (prehabilitation) on exercise capacity and patient-reported outcomes (PROs) (quality of life (QoL), physical function, fatigue, anxiety, and depression) in patients with cancer.

METHODS We pooled individual patient data from nine randomized controlled trials (n=733 patients) available through the POLARIS database, including studies on gastrointestinal, genitourinary, respiratory, or mixed cancers. Linear mixed models were used to assess intervention effects on exercise capacity (VO2peak and 6-minute walk distance) and PROs: general QoL, physical function, fatigue, anxiety and depression (expressed as z-scores). Outcomes were measured at four time points: baseline (T0), after the intervention and before surgery (T1), 4-6 weeks post-surgery (T2) and 3-4 months post-surgery (T3).

RESULTS Patients (mean age 69.2 ±10.6 years) were originally randomized to a prehabilitation intervention (n=369) and control group (n=364). Of the nine studies, six included resistance training and three did not. Seven incorporated supervised exercise, while two were entirely home-based. Intervention duration ranged from 2 to 8 weeks. Compared with controls, the intervention group showed a significantly higher exercise capacity at T1 (β=0.25, 95%CI= 0.16;0.35) and T2 (β=0.19, 95%CI 0.02;0.37) with no significant differences at T3. At T1, fatigue was significantly lower in the intervention group compared to the control group (β=-0.26, 95%CI -0.45;-0.06), but this difference did not persist post-surgery. In the intervention group, symptoms of anxiety (β=-0.27, 95%CI -0.53;-0.02) and depression (β=-0.33, 95%CI -0.57;-0.09) were significantly lower at T2 compared to controls, but not at T1 and T3. No significant differences between groups were observed for general QoL or physical function.

CONCLUSION Prehabilitation improves exercise capacity and psychological well-being, with limited durability of effects after surgery. In further analyses we will explore whether these effects vary by demographic, clinical, and intervention-related characteristics, to guide further tailoring of prehabilitation strategies.

Keywords

Prehabilitation; Exercise; Oncology; Patient Reported Outcomes

Conflict of Interest & Ethical Approval

yes

Abstract submitters declaration

yes

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