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Exercise training during neoadjuvant treatment for gastroesophageal cancer: a randomized controlled trial

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Background: Perioperative treatment is the standard of care for resectable gastroesophageal cancer; however, physical deterioration during neoadjuvant treatment is common and may ultimately preclude tumor surgery. Here, we compared exercise training with control on the likelihood of not undergoing tumor surgery following neoadjuvant treatment.

Methods: In this parallel-group, two-arm, single-blinded, randomized controlled trial, patients with resectable gastroesophageal cancer undergoing perioperative treatment were randomized 1:1 to exercise training (EX) twice weekly from diagnosis until surgery or control (CON). The primary outcome was not undergoing tumor surgery with curative intent. Secondary outcomes were cardiorespiratory fitness, discontinuation of neoadjuvant treatment, postoperative complications, and overall survival.

Results: In total, 202 participants were included in the modified intention-to-treat analyses. The participants in EX attended a median of 76% of the planned sessions. In EX, 10 patients out of 101 did not undergo tumor surgery with curative intent compared with 8 out of 101 in CON (OR 1.28; 95% CI 0.48-3.38; P = 0.623). Exercise training led to higher cardiorespiratory fitness (+14.5 watt; 95% CI 2.0-26.2). Discontinuation of the neoadjuvant treatment was required for 15% in EX and 18% in CON (OR 0.81; 95% CI 0.38-1.72). Clavien-Dindo grade ≥3 postoperative complications were experienced by 30% in EX and 27% in CON (OR 1.16; 95% CI 0.61-2.20). The overall survival rates at 3-years for EX and CON were 51% (95% CI: 42-62) and 65% (95% CI: 56-75), respectively (HR 1.52 [95% CI: 1.02-2.45]). The 5-year survival rates, included post doc, were 46% (95% CI: 37-58) and 55% (95% CI: 45-67) for the exercise and control group, respectively (HR 1.45, 95% CI: 0.96-2.19].

Conclusion: Preoperative exercise training does not reduce the likelihood of not undergoing surgery following neoadjuvant treatment for gastroesophageal cancer. Our finding that exercise training was associated with an increased mortality rate warrants further investigation.

Keywords

Prehabilitation, Gastroesophageal, Neoadjuvvant treatment, Treatment outcomes

Conflict of Interest & Ethical Approval

yes

Abstract submitters declaration

yes

Author: Dr SIMONSEN, Casper (Center for Physical Activity Research (CFAS), University Hospital Copenhagen - Rigshospitalet)

Co-authors: Dr DE HEER, Pieter (Department of Digestive Diseases, Transplantation and General Surgery, Copenhagen University Hospital –Rigshospitalet, Copenhagen, Denmark); Dr THOMSEN, Simon Nørskov (Centre for Physical Activity Research, Rigshospitalet, University of Copenhagen, Denmark); Ms KRABEK, Rikke (Centre for Physical Activity Research, Rigshospitalet, University of Copenhagen, Denmark); Ms THORSEN-STREIT, Sarah (Centre for Physical Activity Research, Rigshospitalet, University of Copenhagen, Denmark); Dr LYNGBÆK, Mark Preben Printz (Centre for Physical Activity Research, Rigshospitalet, University of Copenhagen, Denmark); Ms SUNDBERG, Anna (Centre for Physical Activity Research, Rigshospitalet, University of Copenhagen, Denmark); Ms HJORT, Anne Sofie (Centre for Physical Activity Research, Rigshospitalet, University of Copenhagen, Denmark); Dr GARBYAL, Rajendra Singh (Department of Pathology, Copenhagen University Hospital –Rigshospitalet, Copenhagen, Denmark); Dr LEHRSKOV, Louise Lang (Centre for Physical Activity Research, Rigshospitalet, University of Copenhagen, Denmark); Dr KRISTENSEN, Thomas Skårup (Department of Radiology, Copenhagen University Hospital –Rigshospitalet, Copenhagen, Denmark); Dr HILLINGSØ, Jens Georg (Department of Digestive Diseases, Transplantation and General Surgery, Copenhagen University Hospital –Rigshospitalet, Copenhagen, Denmark); Dr BJERREGAARD, Jon Kroll (Department of Oncology, University Hospital of Copenhagen –Rigshospitalet, Copenhagen, Denmark); Dr BÆKSGAARD, Lene (Department of Oncology, University Hospital of Copenhagen –Rigshospitalet, Copenhagen, Denmark); Dr TOLVER, Anders (Danish Cancer Society, Copenhagen, Denmark); Dr SVENDSEN, Lars Bo (Department of Digestive Diseases, Transplantation and General Surgery, Copenhagen University Hospital –Rigshospitalet, Copenhagen, Denmark); Dr PEDERSEN, Bente Klarlund (Centre for Physical Activity Research, Rigshospitalet, University of Copenhagen, Denmark); Dr QVORTRUP, Camilla (Department of Oncology, University Hospital of Copenhagen –Rigshospitalet, Copenhagen, Denmark); Dr ACHIAM, Michael Patrick (Department of Digestive Diseases, Transplantation and General Surgery, Copenhagen University Hospital –Rigshospitalet, Copenhagen, Denmark); Dr CHRISTENSEN, Jesper Frank (Centre for Physical Activity Research, Rigshospitalet, University of Copenhagen, Denmark)

Presenter: Dr SIMONSEN, Casper (Center for Physical Activity Research (CFAS), University Hospital Copenhagen - Rigshospitalet)

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