Cancer patients discharged from hospital sooner following preparation for surgery

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Cancer patients have a reduced length of hospital stay following a novel approach to improve their fitness for surgery.

The approach termed "prehabilitation" includes exercise, nutrition and psychological and social interventions to optimize both physical and mental health before surgery.

Researchers found that prehabilitation interventions of between one and four weeks reduced cancer patients' stay in hospital by 1.8 days compared with standard care.

The study in the *Annals of Surgery* is by Joel Lambert, now a postgraduate student at Lancaster Medical School and a surgeon at East Lancashire Teaching Hospitals NHS Trust, Lawrence Hayes from the University of the West of Scotland, Thomas Keegan and Chris Gaffney from Lancaster University and Daren Subar from East Lancashire Teaching Hospitals NHS Trust.

Dr. Gaffney from Lancaster Medical School said: "Surgery is like a marathon in terms of stressing the body, and you wouldn't run a marathon without training."

The study found that as little as one week can benefit patient outcomes, leading to a recommendation that prehabilitation should be recommended to accelerate recovery from cancer surgery, demonstrated by a reduced hospital length of stay.

Dr. Lambert said: "We think that it may also confer a survival advantage for cancer patients as they can get to follow up treatments like chemotherapy more quickly.

"We think that the patient groups most likely to benefit are the ones with lower levels of fitness at baseline. In the Northwest we have some of the most socioeconomically deprived populations in the UK. This subset tend to have more co-morbid conditions hence less fit."

The patients studied were those with liver, colorectal, and upper gastrointestinal cancer who are often less fit than other cancer patients.

The interventions were grouped into three types:

- multimodal prehabilitation: exercise, which included both nutrition and psychosocial support,
- bimodal prehabilitation: exercise and nutrition or psychosocial support
- unimodal prehabilitation: exercise or nutrition alone

The exercise interventions included aerobic, resistance, and both aerobic and resistance exercises at all levels of intensity. These involved supervision by a kinesiologist or physiotherapist, as well as unsupervised home-based exercise regimes. These ranged from one to four weeks and all interventions were within the current NHS surgery targets for cancer surgery.

The researchers said: "Future studies should focus on identifying patients who would benefit most from prehabilitation and the mechanistic underpinning of any improvement in clinical outcomes. Studies should closely monitor nutrition intake to determine if the response to exercise prehabilitation is dependent upon nutritional status. Lastly, mortality should be monitored for 12 months post surgery to determine if prehabilitation has any affect beyond 30 or 90 days."

The SPECS study, a collaboration between East Lancashire Teaching Hospitals NHS Trust and Lancaster University, is now recruiting patients and aims to better understand the potential benefits from prehabilitation. The study also hopes to shed some light on the changes that occur in the body that lead to certain outcomes after major cancer surgery.

More information: Joel E. Lambert et al, The Impact of

Prehabilitation on Patient Outcomes in Hepatobiliary, Colorectal, and Upper Gastrointestinal Cancer Surgery, *Annals of Surgery* (2020). DOI: 10.1097/SLA.0000000000004527