Abstract Title: Physiotherapist-led exercise prehabilitation embedded within the multiple myeloma autologous stem cell transplantation pathway: a feasibility randomised controlled trial

ABSTRACT PREVIEW: PHYSIOTHERAPIST-LED EXERCISE PREHABILITATION EMBEDDED WITHIN THE MULTIPLE MYELOMA AUTOLOGOUS STEM CELL TRANSPLANTATION PATHWAY: A FEASIBILITY RANDOMISED CONTROLLED TRIAL

Physiotherapist-led exercise prehabilitation embedded within the multiple myeloma autologous stem cell transplantation pathway: a feasibility randomised controlled trial
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Abstract

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Introduction
Autologous stem cell transplant (ASCT) is first line treatment for newly diagnosed myeloma patients considered 'fit' enough but often results in loss of function. It is known that patients with myeloma who are more physically active have better quality of life (QOL), less fatigue and reduced morbidity. This pilot trial aimed to investigate the feasibility of a physiotherapist-led exercise intervention delivered across the continuum of the myeloma ASCT pathway at a UK centre. Initially designed and delivered as a face-to-face trial, the study protocol was adapted in response to the COVID-19 pandemic and delivered virtually.

Methods
A pilot randomised controlled trial of partly supervised exercise with incorporated behaviour change techniques delivered before, during and for 3 months following admission for ASCT compared to usual care. Face to face delivery of the pre-ASCT intervention was adapted to virtual supervised group classes via video conferencing. The intervention was delivered by a physiotherapist. Primary outcomes related to feasibility; recruitment rate, attrition and adherence. Secondary outcomes included measures of functional capacity (six minute walk test (6MWT), timed sit to stand (TSTS), self-report and objective physical activity (PA), QOL (EORTC C30, FACT-BMT, EQ5D), and fatigue (FACT-F).

Results
Over 11 months 50 participants were enrolled and randomised (Intervention n=23; Control n=27). Overall, uptake to the study was 46%. The attrition rate was 34%, with the main cause being failure to undergo ASCT (20%). Loss of follow up for other reasons was low with 85% of participants who underwent ASCT completing the final study assessment (n=33/39). Between baseline and admission for ASCT, improvement beyond minimally important differences (MID) were evident in intervention group outcomes for fatigue and QOL. Significant effects in favour of the intervention were evident in the pre-ASCT phase for TSTS (Intervention: +5.9, 95% CI 2.5, 9.3; Control: +0.2, 95% CI -3.1, 2.8). Overall, between baseline and 3 months post-ASCT intervention group scores in lower limb strength improved by 40% compared to 3% in the control group. The intervention group improved 6MWT beyond MID whereas the control group deteriorated between pre-ASCT baseline and three months post-ASCT (intervention: +57.1m; control: -33.1m). There were also promising indications of increased objective and self-reported PA pre- and post-ASCT in intervention participants but reduced levels of PA among controls.

Conclusions
This trial demonstrates acceptability and feasibility of delivering exercise prehabilitation, in person and virtually, within the ASCT pathway in myeloma. Promising results were evident for the benefit of exercise prior to, during and after ASCT with improvements in functional capacity, PA, QOL and fatigue evident on admission for ASCT and 3 months post-ASCT. The effects of prehabilitation and rehabilitation provision as a component of the ASCT pathway warrants further investigation.