

'Bikes for Dialysis': A service improvement project introducing intradialytic exercise to a satellite haemodialysis unit

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Introduction

It is widely accepted that exercise is beneficial in patients with end-stage renal disease as in the general population, and meta-analytical evidence supports the benefits of intradialytic exercise (IDE) for the improvement of several health related outcomes including physical performance and mental health¹. Patient adherence to an exercise programme is improved if delivered during haemodialysis (HD)². However, it remains a challenge to incorporate exercise programmes into routine clinical practice. Our service improvement project aimed to demonstrate a safe, tailored IDE service is feasible and acceptable by staff and patients and is life enhancing for partaking patients.

Methods

Charitable funding enabled provision of 2 dialysis bicycles and a senior physiotherapist time one day per week. Consenting patients were recruited based on inclusion and exclusion criteria. An IDE regime used with previous research² consisting of cycling for up to 30 minutes during a dialysis session was administered. Data on Sit to Stand in 60 Seconds (STS 60) (indicator of exercise capacity), Duke Activity Status Index (DASI) (indicator of self-reported level of fitness), Hospital Anxiety and Depression Scores (HADS), Kidney Disease Quality of Life (KD-QoL) and pre-dialysis blood pressure were collected at baseline, 3 and 6 months, or upon cessation of IDE. Patient/staff feedback questionnaires were completed at 6 months, or upon cessation of IDE.

Results

8 patients were initially recruited to exercise on the 2 bicycles. If a patient withdrew from the programme, another patient was recruited in their place. In total 11 patients took part in the IDE programme during the 6-month inclusion period. 3 patients withdrew within 6 weeks due to pain, hypotension and transferring to home haemodialysis. 3 patients took part in IDE for 3 months and 5 patients for 6 months.

Over 1600 miles were cycled in 200 sessions. There were notable improvements in STS 60, DASI, and HADS, indicating increase in exercise capacity, self-reported home physical functioning, and decrease in anxiety/depression levels (Table 1). There was marginal improvement in (3%) in patient reported quality of life measures. Blood pressure was closely monitored during dialysis and emergency saline was required twice due to extreme hypotension. All patients made a full recovery with no harm.

Staff and patient feedback was positive. Patients commented on several benefits of IDE including improved energy levels, weight management and a "welcome distraction" whilst dialysing. Staff noted improved patient morale on the days of IDE on the dialysis unit. Three patients undergoing transplant work-up were exempted from completing cardio pulmonary exercise tests as their IDE data confirmed fitness for surgery, saving both time and money.

Discussion

This successful, safe and feasible trial of IDE was rated positively by patients and staff. The limited sample size showed a trend of increasing physical function, mood and quality of life. This has led to further funding, extending the project to observe longer term effects and compliance in our patient group. Increase in

frequency, equipment and physiotherapy staffing could benefit a wider HD population in our trust. Organisational change is required to enable this.