In-centre nocturnal haemodialysis programme

This Future Hospital case study details how, by responding to an unmet patient need, Dr James Burton and Dr Matthew Graham-Brown and the Leicester General Hospital Outpatient Dialysis Unit set up a pilot in-centre nocturnal haemodialysis (INHD) programme.

Authors: *Dr James Burton, senior lecturer at the University of Leicester and honorary consultant nephrologist, The University Hospitals of Leicester, and Dr Matthew Graham-Brown, specialist registrar, The University Hospitals of Leicester*

Key words: renal medicine, person-centred care, support for self-management, delivery of care, patient involvement

Person-centred care

Key recommendations

- Our project demonstrated that patient outcomes and patients' perceptions of their care are inextricably linked to the amount of choice they are given.
- It is possible to offer patients greater choice in how their dialysis is delivered.
- For some patients, receiving dialysis at night has led to improved patient outcomes and patient experience.
- Too often patients are unable to make a choice about their treatment. This programme further demonstrated the positive health and wellbeing benefits of giving patients alternative care options and involving them in the decision about the best course of dialysis for them.
- INHD should be offered alongside all other traditional dialysis schedules on the basis that, for some, it will enhance the patient experience.

The challenge

In the summer of 2014, in response to patient feedback, we set up a pilot project to explore the possibility of delivering an in-centre nocturnal haemodialysis (INHD) programme at the Leicester General Hospital Outpatient Dialysis Unit. Traditionally in the UK, dialysis patients attend for treatment for 4 hours, 3 days of the week (either on a Monday, Wednesday and Friday or a Tuesday, Thursday and Saturday). Factoring in travel time, this equates to almost three full days per week; time that is lost for work, leisure activities or time with family.

A survey we conducted in 2013 across prevalent dialysis patients within the Leicester Dialysis Network showed a large number were dissatisfied with the way their dialysis treatment impacted on their lives. Out of 348 patients, 229 completed the survey and 37% of these patients wanted to explore ways of making their dialysis more flexible to improve their experience of their care, with the overwhelming majority suggesting overnight dialysis in hospital. At the time no NHS units in the UK offered overnight dialysis despite a number of potential benefits from longer treatment times to improved flexibility and quality of life.

> *'We aimed to set up a service that was cost-effective, deliverable, sustainable and safe, improved patient satisfaction, and acceptable to patients and staff.'*
> Dr James Burton, The University Hospitals of Leicester

Using existing estates, equipment and nursing staff we set up a pilot programme of INHD for 10 prevalent dialysis patients, which also increased daytime dialysis capacity by 10 slots.

The service is staffed by dialysis nurses and healthcare assistants who elect to do night time working rather than a full rostering system for all dialysis staff. The nursing staff are supportive of the initiative.

Person-centred care

If successful, it was hoped that the outcomes from this service evaluation would support the expansion of the programme and inform the need for research into the outcomes of patients who embark on a programme of INHD.

Local context

There are currently >23,000 patients in the UK receiving unit-based haemodialysis. The Leicester Dialysis Network provides unit-based outpatient dialysis for around 850 dialysis patients across three counties.

Our initial survey suggests that there are likely to be around 5,000 patients in the UK who would like to explore the option of INHD; but there are very few centres where this service is available. There is increasing evidence that extended periods of haemodialysis are of medical, social and psychological benefit to patients on haemodialysis, but the opportunity to dialyse for extended periods of time is not available for many.

Our solution

INHD has the potential to fulfil several unmet needs for many dialysis patients and improve dialysis services generally. It:

- allows people to benefits from extended periods of haemodialysis
- gives them more free time during the day
- creates additional daytime slots for new patients.

Our service is also cost-neutral as long as six patients remain on the service (based on the current dialysis tariff versus the cost of staff, consumable and estates).

After developing a successful business plan, we have been offering out-patient dialysis overnight at the Leicester General Hospital for 3 nights a week (Monday, Wednesday, Friday) since the summer of 2014.

Patients arrive at approximately 10.30pm, complete around 7 hours of treatment whilst asleep and either go home when they wake up, or sleep until the morning. Transport arrangements are identical for patients receiving daytime dialysis – those able to drive still drive and hospital or ambulance transport is arranged throughout the night to/from the unit as patients require.

> *'We saw improvements in all quality of life scores, with reduced levels of anxiety and depression and improved physical functioning.'*
>
> Dr James Burton, The University Hospitals of Leicester

Outcomes

To assess the impact of this programme on patient quality of life, physical functioning, and levels of anxiety and depression, patients completed validated questionnaires before starting the programme and again after 4 months of INHD. Biochemical and haematological data, data on dialysis adequacy and ultrafiltration volumes and rates were also collected before and after starting in the programme (again after 4 months).

We gathered information on patient quality of life, physical functioning, and levels of anxiety and depression using validated questionnaires. Patients completed the questionnaires before starting INHD and again after four months on the programme. At each stage we also collected biochemical and haematological data, data on dialysis adequacy and speed of fluid removal. We also saw significant improvements in dialysis adequacy and biochemical control, as well as reductions in the rate at which fluid was removed during dialysis.

Person-centred care

Most importantly, however, the patients that completed the 4 month programme have told us repeatedly how much better they feel and how much better their lives are since starting on the programme. No additional out-of-hours medical cover has been required to support the service with patients very infrequently requiring medical review overnight. Several of the patients have told us how they now have three more days of life and that in the daytime they can get back to doing normal things.

The project was initially set up as a 6 month pilot programme. Thanks to the data we collected to show the effectiveness of the service and the positive way it has impacted on our patients' lives, the INHD programme has now been running uninterrupted for 18 months. We now have a waiting list of patients wanting to start nocturnal dialysis and we have expanded the programme to two of the satellite dialysis units within the Leicester Dialysis Network.

The project has allowed us to successfully win a research grant to prospectively assess the impact of INHD on medical, cardiovascular, quality of life and physical functioning outcomes and will hopefully lead to the development of a multi-centre RCT to properly define any of these benefits for patients.

Staffing

Patients dialyse in hospital beds in the outpatient dialysis unit at the Leicester General Hospital and there has been no problem staffing the service.

Overnight staffing levels were the same as for a daytime shift as per nationally accepted guidelines (UK Renal Association). No additional staff were required to safely staff the service, with the only additional cost being the out-of-hours supplement to nurses and healthcare assistants who worked overnight. The out-of-hours cover is the same as it is in the days. When patients are acutely unwell, they go to A&E and if they need admitting to the renal unit, this is discussed with the on-call renal team. This additional cost is covered by the dialysis tariff as long as six patients remain on the programme.

Outpatient dialysis units often do not have acute medical cover onsite as it is an outpatient service. Medical cover, therefore, remains the same as for daytime patients – patients reviewed in clinic every 3 months, with the multidisciplinary team (MDT) reviews every month and acute medical cover from the on-call renal team.

Barriers and levers

In June 2014, we were the only NHS centre proposing to offer INHD. As such, it required considerable negotiation with managers and commissioners that the service was necessary for patients. There have been a number of INHD programmes in the UK over the last two decades, but these were all instigated to help increase dialysis capacity when services were stretched. When these pressures were relieved, the services terminated as the driving force behind their instigation was no longer present. We were determined to develop the service based on patient choice, not in response to increased need for dialysis capacity.

To convince the trust administrators, managers and commissioners required effort from all members of the MDT. Our dialysis technicians, nursing and medical staff, departmental managers, and support staff all bought into the project and worked together to demonstrate how it could be staffed safely and run using existing estates and skills with no additional capital investment. A financial business case was also assembled based on the current dialysis tariff to show how the service could be cost effective. The single most important lever in getting the project started was the evidence we had gathered showing this was an initiative that was responding to an unmet patient need, driven by patients to improve their care and their experience of their care.

Person-centred care

Patient feedback

Our patients feel stronger, with more energy and are able to live fuller and more active lives as dialysis no longer encroaches on their lives for 3 days a week. Indeed, several patients have been able to return to paid employment. One patient (who is not a candidate for renal transplantation) explained how he felt this was the closest he would ever get to having a renal transplant and a 'normal' life.

The following feedback is taken from extracts of a patient testimony I received:

> *Since starting nocturnal dialysis I am able to relax my diet and fluid intake as my figures are brilliant and the fluid comes off over an extra 2.5-3 hours, making it easier to lose.*
>
> *Before starting nocturnal haemodialysis I found dialysis exhausting because the fluid had to be removed very quickly.*
>
> *I have spoken to others on nocturnal dialysis and everyone says that it works really well for them, particularly those working or with young families or both; it releases them during the week to live a normal life*
>
> *To me nocturnal dialysis has improved my quality of life beyond belief and I cannot bear the thought of returning to days. I have gained three days of my life back every week and I can now enjoy my retirement with no interruptions.*

'We were determined to develop the service based on patient choice, not in response to increased need for dialysis capacity.'

Dr James Burton, The University Hospitals of Leicester

What's next?

This project has shown that INHD is a service that is deliverable within the NHS and budgetary constraints we presently face. It has significantly improved many aspects of our patients' lives and wellbeing and there are likely to be significant medical benefits that we will now be able to investigate, including improvements in cardiovascular health and levels of systemic inflammation.

The expansion of this service is testament to its success and the way in which the project was set up in response to patient demand. Its ongoing success is largely down to the evidence we have gathered from patients about the impact it has had on their lives and our patients' willingness to work as active partners in the service development and delivery. After further pilot projects and research over the coming years we will be in a position to carry out the large scale research projects that could lead to the implementation of INHD on a national scale.

Future Hospital Programme

Royal College of Physicians
11 St Andrews Place
Regent's Park
London NW1 4LE

Tel: +44 (0)20 3075 1585
Email: futurehospital@rcplondon.ac.uk

www.rcplondon.ac.uk