Royal College of Physicians | Fracture Liaison Service Database (FLS-DB)

Case study: Improving adherence to treatment

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Summary

- Adherence to treatment is poor internationally
- Nottingham have piloted and now delivery intravenous bisphosphonates in the community.
- Reducing both the need for hospital attendance and secondary fractures due to non-adherence.

Background

Poor long-term persistence with oral bisphosphonates is well recognised across the world. A recent systematic review published in BMJ Open last year, looked at 89 studies, with patients ranging from 53.1 to 80.8 years, and the follow-up varied from 3 months to 14 years. Poor persistence at 6 months, 1 and 2 years was found to be 34.8%, 17.7% and 12.9% respectively.

In Nottingham, as part of an MSc dissertation (Woodward, 2016), we undertook a review of patients presenting both as outpatients and inpatients taking oral bisphosphonates. In addition, we interviewed several nurses on the wards, responsible for medication administration. 164 patients with an average age of 80.4 years and 47 nurses were interviewed. Only 56.1% of the patients were compliant in taking their medication correctly, as per the manufacturers dosing instructions, and 38.2% adherent to treatment over 2 years. 32.7% of the patients interviewed had cognitive impairment and required a carer to administer treatment.

Of the nursing staff interviewed, 70.2% knew oral bisphosphonates were medications taken weekly, 72.3% knew that it had to be administered in the morning but only 41.2% knew that it should be taken fasting, with water in an upright position. One method to improve persistence with bisphosphonate treatment is to give this medication intravenously, but this requires hospital admission.

Solution

Over the last 5 years we have developed an innovative, integrated programme to deliver bisphosphonates intravenously to patients directly in the community, therefore not having to attend hospital. Medication is administered yearly, directly into the vein, therefore for all patients treated, 100% persistence is achieved.

Process

We started in one CCG (Rushcliffe) in 2014, with a 10 patient pilot, targeting high-risk patients, with confirmed osteoporosis, having presenting to the hospital with a fragility fracture. This group was selected since they represent those who at highest risk of subsequent fracture. Following success of the pilot, we were able to secure Vanguard Funding (2016) to extend the service across the whole of the Rushcliffe CCG.

Over 2016-2018 the service was extending to Nottingham North and West CCG (winning the Nursing Times Community Nurse Award 2018) and finally in 2019 the service extended to cover the whole of Nottinghamshire.

Key Players
Stakeholders across the whole service were involved in the discussions, including hospital managers and the community commissioners. Patient representation was ensured by two members from the Nottingham Osteoporosis Patient Support group (LW and CT).

Hospital Managers
A detailed business case was developed looking at the current day hospital activity and potential cost saving by outsourcing treatment delivery to a healthcare at home team. A 10 patient pilot was agreed, with the departmental business manager and head of service.

Community commissioners
Following the pilot, the project was extending into one of the CCGs, Rushcliffe CCG, as part of a Vanguard Funding project. Two community commissioners and a GP lead supported this phase of the project.

Patient Support Group
Pivotal to the development and continued success of the project were our patient support group, members of the Nottingham Osteoporosis patient support group. Our membership highlighted the problem of taking oral Alendronate-upper gastrointestinal side effects, polypharmacy, problems for those with cognitive impairment and administration through a dossett box. Although the intravenous treatment was an option, this required patients to attend the hospital and many therefore un-keen to do so. We collaborated closely with our support group members in designing the project, for which key issues identified, were: 1. medication that could be delivered safely; 2. close to the patients home; 3. medication to help to reduce the risk of fractures longterm.

Benefits

- Innovating and delivering change was an exciting and integral aspect of our remit and required us to develop strong inter-professional relationships across primary and secondary care together with the wider MDT. The 1st phase of the model set up was successfully developed and published: Wong, Pacey, Sahota. Eur J Hosp Pharm.2016;23:364–365.

- Key to any innovate new service is patient experience and as part of the 2nd stage, a telephone survey was undertaken to explore patient preference and satisfaction. Both patient preference and patient satisfaction of this innovative community service was very high.

- Between Jan-Dec 2018, 792 patients were referred for an intravenous infusion as part of the Nottingham Fracture Liaison Service, and 742 patients (93.6%) underwent treatment, in the community.

- As part of the 2019 follow-up, 728 patients underwent a 2nd repeat infusion, which represents a persistence rate of 91.9% at 2 years. No serious noticeable adverse side-effects were reported.

- 2019 hip fracture data for Nottingham showed a 3.5% reduction in hip fracture rate compared to 2017. We also saw a 2.9% reduction in re-fracture rates, in those treated compared to those patients who refused treatment.

Challenges
The vision for our innovative service initially proved challenging for many to accept. The pilot phase alone took 12 months to set up and 103 e-mails. Defining the initially phase of the project as a pilot seemed a more acceptable way to start the project. Continued funding after the initial pilot was the next challenge, however having developed a good relationship with the commissioners, allowed access to Vanguard funding.

Results
Intravenous bisphosphonate treatment is now 1st line treatment for patients with fragility fractures in Nottingham and we are supporting the implementation of pilot sites across the UK. Our project provides a new way of treating osteoporosis in the community to ensure high long-term persistence with treatment. This the project is a combination of providing a new approach to treatment ie using intravenous medication 1st line and applying an existing intervention (intravenous medication delivered in the hospital), but delivering this in a new setting, directly in the community and for some of the more frailer patients, directly in their homes.

The service has already see a reduction in costs within the first 12 months, however we expect the benefits to personal health, healthcare and social care cost to be significant over the next 2-4 years. Hip fracture alone is the most expensive inpatient medical emergency, has significant 30 day mortality and long-term an enormous impact on personal health, health and social care costs. We have already seen a 3.5% reduction in hip fracture rates.

Through appropriate PPE, in 2020 during the Covid-19 lockdown, we have also been able to deliver treatment to patients in their own homes, which had been a great success, with many units across the country reporting a pause in their services.

Next steps
The feedback from patients has been extremely positive. Patients felt that the availability of medication that can be given once a year, rather than a weekly tablet was welcome. In addition, not having to attend hospital for this treatment was important for patients, but more so for frail, housebound patients where transportation issues proved a challenge.

Amongst primary care colleagues, initially, there was much scepticism about whether this model of shared care would work. Consistency, professionalism, credibility and functionality were the four important criteria that ensured the service became a trusted adjunct to existing primary care services.

Additional information:

A. https://www.bma.org.uk/news/2016/august/vanguards-of-an-integrated-carerevolution
B. https://ejhp.bmj.com/content/23/6/364.short
C. https://www.nursingtimes.net/roles/specialist-nurses/creating-a-nurse-ledcommunity-osteoporosis-service-14-10-2019/
D. https://mahealthcareevents.co.uk/media/15695/notts-fls-service-presentation.pdf
E. https://academic.oup.com/ageing/article/43/suppl_1/i10/87660