Setting up a homecare service for zoledronic acid treatment of osteoporosis

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ABSTRACT

Increasingly, patients are able to receive parenteral medicines at home rather than in the hospital setting. We describe our approach to setting up a new intravenous zoledronic acid homecare service for patients with osteoporosis. Initial evaluation of service feasibility demonstrated a marginal cost saving of approximately 6%, when the drug is administered via homecare compared with hospital day-case unit. Rigorous risk assessment was conducted prior to service initiation. Implementation strategies are outlined. Surveys confirmed that the majority of patients were highly satisfied with the home infusion service.

Homecare medicine services entail the supply and, in some instances, administration of hospital-prescribed medicines directly to patients in their own homes. At the beginning of 2011, a pharmacy homecare team was set up in our Trust¹ to centralise the medicine management support for homecare services, as recently recommended by the Department of Health.² Since then, the team has faced increasing requests from various clinical teams to instigate new homecare services.

One of the earliest requests came from the Department of Elderly Medicine, which involved arranging the delivery and administration of zoledronic acid for the treatment of osteoporosis. The homecare model was an attractive one as the department was employing the rehabilitation unit to administer intravenous infusions to patients on a day-case basis. This unit was at capacity, resulting in a backlog of patients on the waiting list for infusions with a small number incurring significant delay of over 6 months. Delays to treatment were identified as a significant clinical issue, putting patients at risk of potentially preventable fractures. Additionally, it must be borne in mind that the cost of a hip fracture to the NHS has been estimated to be as high as £9000.³ There is a history of zoledronic acid homecare services for treatment of myeloma and bony metastasis, but to our knowledge, zoledronic acid homecare for the treatment of osteoporosis had not been successfully set up anywhere in the UK previously.

The aims of this article are twofold: first, to demonstrate the cost-effectiveness of a homecare service for zoledronic acid, and second, to examine the outcome associated with homecare in terms of patient satisfaction.

EVALUATION OF SERVICE FEASIBILITY

In the absence of relevant national guidelines, regional recommendations were followed from the Nottinghamshire Area Prescribing Committee:

'zoledronic acid infused intravenously over 15 minutes once a year may be used for the primary and secondary prevention of osteoporosis for patients who have unsatisfactory response to, intolerant, contraindications to or are unable to comply with oral bisphosphonates'. Zoledronic acid (Aclasta) is classed as a red drug under Nottinghamshire Joint Formulary, and therefore, must be prescribed by hospital specialists.

Cost analysis was conducted by the homecare pharmacist, commissioner stakeholder and the directorate finance manager to assess whether a homecare service would be financially viable. The reference cost took into account hospital costs of the drug, ancillaries, nursing staff, administrative staff and overheads for each episode of drug administration on the rehabilitation unit, whereas the homecare cost had to consider costs of the drug, ancillaries, nursing administration and service fees.

For each episode of treatment, the directorate receives an activity tariff, but this is not influenced by where the drug is infused. When all factors involved in administering the drug were taken into account, the homecare setting was marginally cheaper than the traditional day-case model, with a saving of 6%. As the drug cost is included in the tariff, it was agreed that the Primary Care Trust would continue to pay the activity tariff, and the directorate would pay the homecare bill (with monies saved from not having to give the drug on the rehabilitation unit). A service-level agreement was sought locally with a nominated homecare provider.

A clinical risk assessment was undertaken and identified some potential issues, which needed to be mitigated through the following controls:

- ▶ all homecare prescriptions to be clinically validated by a pharmacist with an up-to-date blood test result before sending them to the homecare provider;
- ▶ anaphylaxis kit to be prescribed and available for use by the homecare nurse during home administration;
- ▶ patient to be observed by the homecare nurse for at least 30 min post infusion for any reaction;
- ▶ patients to be counselled about treatment and provided with an information leaflet during their clinic visit;
- ▶ regular service review meeting to tackle any unforeseen issues.

IMPLEMENTATION

The homecare service was fully implemented in August 2011. It comprised drug supply and nursing administration support (including cannulation, drug administration, observation monitoring before and after infusion, as well as clinical waste

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collection). An anaphylaxis kit was prescribed by the hospital doctors, and the homecare nurses are authorised to administer treatment if necessary. This service was solely operated by full-time qualified and experienced intravenous therapy specialist nurses employed by the independent homecare provider. Prior to the start of the service, the homecare nursing team visited the rehabilitation unit and verified details of drug administration with the senior nurse at the hospital to ensure that the Trust's intravenous administration protocol would be followed. Initially, the service focused on patients who were waiting to commence treatment. These individuals were offered the homecare option, unless they had particularly difficult venous access. Signed consent was obtained as part of the registration process after explaining the service and giving information about homecare as an alternative option to the usual day-case setting. More recently, the service has begun to sign up new patients who qualify for homecare. During the first visit to the patient's home, the nurse undertakes a risk assessment on the home environment to confirm suitability for home intravenous infusion.

Prior to each infusion, the hospital specialist nurse checks that the patient's blood results (ie, urea and electrolytes, calcium and vitamin D levels) are satisfactory. The homecare nurse checks observations before, during and after each infusion. If a patient appears unwell during the preinfusion observation, the homecare nurse will contact the clinical team immediately for further advice. Patients are made aware that the clinical team at the hospital should be contacted in the event of any suspected adverse effect. A clinical evaluation form, comprising the nursing records, is completed following each visit, and a copy is sent to the Trust.

OUTCOME

Cost effectiveness

As zoledronic acid confers an absolute risk reduction in any clinical fracture of 4.4% over 3 years of treatment, the number needed to treat to prevent one fracture is 23.⁵ Unfortunately, this correlated with our experience, in that one patient refractured while on the waiting list for day-case administration. This might have been prevented if the homecare service had been implemented sooner. This could be translated into a potential cost avoidance of approximately £9000 for hip fracture tariff.³

Nine months following the service implementation, a total of 71 patients have been enrolled on to this service, of which, only one subsequently refused treatment at home. As discussed earlier, treatment for each patient at home is slightly cheaper than in the hospital. Hence, the directorate has saved over £1000 directly, as well as having greater capacity in the rehabilitation unit to deliver other therapies (and gain their associated tariffs).

Patient satisfaction survey

We conducted a telephone survey towards the final quarter of 2011 of the 44 patients who had received zoledronic acid therapy at home at the time, of whom, 40 were interviewed. Nineteen patients had already experienced previous drug infusion at the hospital, and 21 patients had their first infusion at home. Twenty-two patients (55%) found attending hospital for treatment very inconvenient and a further 10 (20%), slightly inconvenient. The most common explanations for this were that patients often had to rely on other people to take them to hospital, or had to catch multiple buses to get there. All patients stated that it was very convenient to have home zoledronic acid infusion. Of the 19 patients who had previously received treatment on the rehabilitation unit at the hospital, only 5 thought that the service was good and none, excellent. Conversely, all 40

respondents rated the home infusion service as excellent. All felt that they had received enough information about the service, and would prefer home infusion when given a choice between hospital and homecare.

The homecare provider conducted a further patient satisfaction survey at the beginning of 2012. Only patients who had received an infusion were asked to complete the survey, and 25 responded. The results are as follows:

- ▶ Hundred per cent strongly agreed or agreed that the nurse discussed common side effects and how to manage these. They also agreed that the nurse acted in a professional and courteous manner.
- ▶ Ninety-two per cent strongly agreed or agreed that the homecare provider's 24 h on-call service was explained.
- ▶ Eighty-eight per cent find treatment at home less stressful than in the hospital.
- ▶ Eighty-eight per cent agreed that treatment at home interferes less with family and social activities than hospital therapy.

FUTURE CHALLENGES

The ever-increasing pressure for improved quality of service presents one of the biggest challenges facing the NHS.⁴ Vulnerable elderly people depend on care visits being made as scheduled, continuity of care and avoidance of service breakdown. The homecare provider is required to maintain the current level of service while potentially treating an expanding population of patients. Whether the homecare service remains financially sustainable is another challenge. The need to provide greater value for money is a perennial challenge to all stakeholders. Zoledronic acid will come off patent in 2013; the cost of treatment will become cheaper both in the hospital and via homecare.

CONCLUSION

While zoledronic acid homecare is extensively used across the country for the treatment of bone metastases and multiple myeloma, to the best of our knowledge, Nottingham University Hospitals NHS Trust remains the only Trust in the country to implement this service for osteoporosis. This report has demonstrated that a homecare service for zoledronic acid is close to cost-neutral when compared with traditional day-case administration. Importantly, our survey demonstrates that the homecare service was very well received by patients. Thus, setting up this new service has cleared our waiting list for treatment, increased capacity and improved the patient experience, at no extra cost. We recommend that other departments consider the homecare model for administration of zoledronic acid for patients with osteoporosis. This model can also be extended to other specialties and indications.

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REFERENCES

- 1 Pacey S. Setting up a hospital pharmacy based homecare team: a case study. *Br J Med Procurement* 2001;3:29.
- 2 Department of Health Hackett's report: Homecare medicines—Towards a vision for the future Nov 2011.
- 3 Department of Health Payment by Results operational guidance and tariffs—2011/2012 tariff information spreadsheet (revised on 23 March 2011) http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_125398.xls#04.BPTs%1G128 (accessed 10 Feb 2012).
- 4 Department of Health White Paper: Equity and excellence: Liberating the NHS July 2010.
- 5 Summary of Product Characteristics for Aclasta <http://www.medicines.org.uk> (accessed 10 Feb 2012).