

Improving community prescribing of post-fracture denosumab after discharge

ABSTRACT

Background: In the UK, denosumab is usually started by hospital clinicians and continued by primary care physicians in the community, but in the authors' region denosumab is a 'green light' drug, only prescribed by the primary care team. The authors suspected that a proportion of patients who were recommended to start the drug after a neck of femur fracture were not receiving this on discharge. They aimed to improve the prescribing of denosumab by implementing a quality improvement project.

Methods: A retrospective review of electronic records and case notes in primary and secondary care was undertaken, focusing on patients who were admitted with a neck of femur fracture and recommended denosumab. Following cycle 1 of the project two interventions were implemented:

1. Denosumab written on the inpatient prescription chart at point of treatment decision, promoting inclusion in the discharge summary
2. A consultant letter recommending denosumab was sent separately to primary care, in addition to inclusion in the discharge summary.

Following these interventions this project cycle was repeated.

Results: A total of 91 patients with a neck of femur fracture were identified during cycle 1 and 22/91 (24%) were recommended denosumab. However, only five of these 22 patients (22%) received the drug. Following the interventions 23/26 eligible patients (88%) were prescribed denosumab (three patients did not have a prescription with no reason given), and 17/23 (74%) had the injection given. Four patients who did not receive the denosumab injection had no obvious reason for not starting treatment. In the other two patients, one discharge summary misleadingly stated that the injection had been given as an inpatient and one patient had recurrent admissions following discharge after their neck of femur fracture so primary care had not had any opportunity to administer the injection.

Conclusions: Prescribing denosumab on the inpatient drug chart and highlighting its use in a consultant-written letter to the primary care team improved prescribing and administering of denosumab in the community.

discharge. Traditionally a discharge summary is the main method for communication between secondary and primary care about medication changes following an inpatient stay. The authors suspected that many patients who had denosumab treatment recommended during their inpatient stay may not have been receiving it in the community on discharge.

Methods

The authors undertook a project to ascertain what proportion of patients did not receive treatment with denosumab when it had recommended and to identify the reasons for this. Once identified the authors could implement a new system for communication and reassess the progress.

Cycle 1

Methods

A retrospective review of electronic and case notes was undertaken in both secondary and primary care between 1 June and 30 August 2014. The authors identified all patients who had been admitted to their hospital with a neck of femur fracture. The authors looked at their bone protection medications, in particular those prescribed denosumab, reviewing how many patients received the injection in the community post-discharge.

The National Institute for Health and Care Excellence (2010) currently recommends opportunistic screening of patients for osteoporosis and subsequent optimization of their therapeutic bone care. To comply with this recommendation and the requirement of the National Hip Fracture Database (www.nhfd.co.uk), in the authors' hospital orthogeriatricians assess each patient admitted with a neck of femur fracture or other fragility fracture and undertake a bone protection medication review as part of their assessment.

Denosumab is currently recommended by the National Institute for Health and Care Excellence (2010) as a second-line drug for the treatment of osteoporosis. Denosumab is a monoclonal antibody given as a 60 mg subcutaneous injection every 6 months. The

FREEDOM extension trial (Papapoulos et al, 2015) has so far found that denosumab can be used for up to 8 years with good effect and a consistent safety profile. A longer duration of treatment than this is still being studied. It is important to remember that the duration of treatment is individual for each patient and will depend upon a patient's fracture risk and side effects. These must therefore be reviewed.

National Institute for Health and Care Excellence (2010) guidelines mandate that denosumab is only recommended for prescription by clinicians with osteoporosis expertise in secondary care. However, in the authors' region the budget for the prescription is held by primary care and there is no funding of this drug for use in secondary care. This requires robust communication between primary and secondary care in order for the patients to receive denosumab on

Dr Helen Wood, ST5, Geriatric Medicine, Care of the Elderly Department, Musgrove Park Hospital, Taunton TA1 5DA

Dr Harriet Lewis, Foundation Year 2, Care of the Elderly Department, Musgrove Park Hospital, Taunton

Dr Rachael Ward, Core Medical Trainee, Care of the Elderly Department, Musgrove Park Hospital, Taunton

Dr Tarun Solanki, Consultant Geriatrician, Care of the Elderly Department, Musgrove Park Hospital, Taunton

Dr Prabhath Fernando, Consultant Geriatrician, Care of the Elderly Department, Musgrove Park Hospital, Taunton

Correspondence to: Dr H Wood (helenwood@doctors.org.uk)

Results

A total of 91 patients had neck of femur fractures, all of whom had been assessed by an orthogeriatrician. Denosumab as bone protection had been recommended to 22/91 (24%) patients, of whom 5/22 (22%) received denosumab in the community on discharge.

Not all discharge summaries included advice about denosumab prescription so primary care were not aware of the recommendation. The wording of ‘consider denosumab’ on some discharge summaries was interpreted as a choice rather than a requirement by primary care.

Recommendations and changes

Denosumab was written on the inpatient prescription chart at the point of treatment decision on the ward round. The wording was changed to state ‘denosumab – GP to prescribe and start on discharge’. This would help to ensure that the drug is more likely to be transcribed on to the discharge summary which includes a discharge medication list sent to primary care.

A consultant letter was also dictated at the bedside recommending denosumab to be started on discharge. This letter was sent directly to primary care separately to the discharge summary.

Cycle 2

Methods

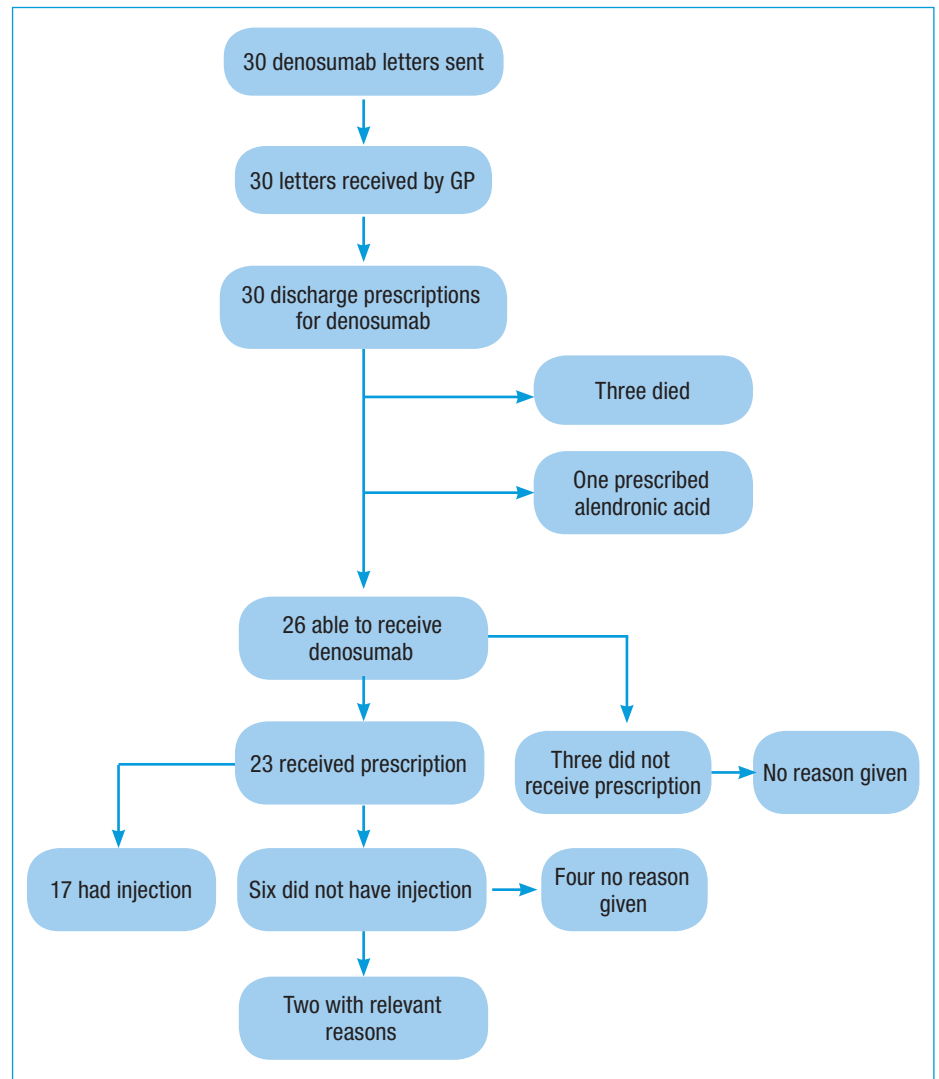
A retrospective electronic notes and case notes review was undertaken between 1 May and September 2015. All patients who had been admitted to their hospital with a neck of femur fracture and recommended denosumab treatment were reviewed. The authors identified 30 patients whose GP had been sent a letter regarding prescription of denosumab following an inpatient stay for neck of femur fracture at Musgrove Park Hospital.

Telephone calls were made to primary care to ascertain the proportion of patients who received denosumab following recommendation on both discharge summary and via a letter. The authors tried to identify reasons for non-prescribing.

Results

The results of this cycle are shown in *Figure 1*. Of the 30 patients identified, three had died and one had been prescribed alendronic acid rather than denosumab. Of the three patients who died, one died as an inpatient during

Figure 1. Results of cycle 2.



the neck of femur fracture admission and two patients died within 7 days of discharge, having both been discharged home for end of life care.

Of the remaining 26 patients, 23 (88%) had denosumab placed on their repeat prescription in primary care. However, six of these 23 (26%) patients did not actually receive the injection following discharge (four of these had no reason given but GP surgeries often said that if an injection had been given by the district nurse they did not have a record of it so it may have been administered). One patient had a discharge summary stating that the injection had been given as an inpatient which would have misled primary care. One patient had had recurrent acute and community hospital admissions since discharge so there may not have been an opportunity for primary care to administer the drug.

Only three of the 26 patients (12%) did not have denosumab put on their repeat prescription with their GP.

Recommendations

All patients who had not had a prescription or had not had their denosumab injection given had this highlighted to their GP for action.

Discussion

The interventions of specifying future prescribing on the drug chart and of dictating a consultant letter at the point of decision were useful actions to ensure community prescribing of denosumab and compliance with medications. This is especially important with this older age group of patients who typically sustain neck of femur fractures and may not remember to inform their GP of their treatment plan themselves.

KEY POINTS

- In the UK, denosumab is usually started by hospital clinicians and continued by primary care physicians in the community. However, in the authors' region denosumab is a 'green light' drug and only prescribed and funded by the primary care team.
- Discharge summaries are an important form of communication between secondary and primary care.
- Prescribing denosumab on the inpatient drug chart and highlighting its use in a consultant-written letter to the primary care team improved prescribing and administration of denosumab in the community.
- The project has highlighted the importance of communication between secondary and primary care.
- The study raises the issue of how many other medical changes made during an inpatient stay are not being adequately communicated to primary care with the significant risk of either under-treatment or adverse drug reactions.

It is also interesting to note that when the orthogeriatricians are choosing which bone protection drug to use, of those patients

recommended denosumab three patients died (only 10% (3/30) of patients) and all within 1 week of discharge. This suggests that the correct population is being selected to have denosumab as it has a shorter duration of action than drugs such as zoledronic acid. The more frail patients at higher risk of mortality are having drugs such as zoledronic acid as a single dose pre-discharge.

The process of re-auditing has hopefully highlighted to colleagues in primary care that despite improved communication from secondary care and an increase in primary care prescriptions not all patients are receiving denosumab injections. This will hopefully encourage the primary care team to look at their internal processes to ensure this happens.

This project has also highlighted the importance of communication between secondary and primary care to ensure continuity of care and prescribing. While this should not be a primary method of communication, older patients may be less likely to tell their GP about medication changes. This study raises the issue of how many other medical changes made during an inpatient stay are not being communicated adequately to primary care with the significant risk of either under-treatment or adverse drug reactions.

Despite this intervention, unfortunately not all of the patients who were recommended denosumab received the injection, despite all letters and discharge summaries being received by primary care. To improve this process, it is therefore important that colleagues in primary care are educated about the importance and need for bone protection medications, including denosumab, to ensure they are prescribed and administered.

The authors encourage other hospitals to look at their communication to primary care regarding drugs which are initiated by secondary care but funded by primary care.

Increasing levels of shared patient care between secondary and primary care shows the importance of clear and safe handovers which need to be undertaken for all medications and treatment plans in the elderly population. **BJHM**

Conflict of interest: none.

National Institute for Health and Care Excellence (2010) Denosumab for the prevention of osteoporotic fractures in postmenopausal women. www.nice.org.uk/guidance/ta204/chapter/1-Guidance (accessed 24 July 2016)
 Papapoulos S, Lippuner K, Roux C et al (2015) The effect of 8 or 5 years of Denosumab treatment in postmenopausal women with osteoporosis: results from the FREEDOM Extension study *Osteoporos Int* **26**(12): 2773–2783. <https://doi.org/10.1007/s00198-015-3234-7>

BRITISH JOURNAL OF HOSPITAL MEDICINE

Quality improvement projects



BJHM is encouraging the publication and dissemination of findings from quality improvement projects undertaken in a hospital setting.

These should follow the Squire guidelines (http://squire-statement.org/assets/pdfs/SQUIRE_guidelines_table.pdf). The article should be no longer than 1800 words with up to two figures or tables and a maximum of 10 references. There should be no more than 4 authors and a statement of contribution for each author should accompany the submission. All submissions should also include ethics form A confirming exemption from ethics submission – this form should be obtained locally from the authors' local research and development or audit office.



Full details for submission are available from the BJHM website at www.magonlinelibrary.com/pb/assets/raw/qip_auth.pdf