

CORRESPONDENCE

Immediate improvement in patient care: Auditing adherence to the British Society for Haematology guidelines on screening and management of the long-term consequences of multiple myeloma and treatment

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Abstract

Advances in myeloma have resulted in improved prognosis for patients. However complications of the disease and treatment, pose a risk of specific long-term consequences. An audit tool was adapted to assess adherence to the British Society for Haematology guidelines for screening and management of long-term myeloma consequences. Thereafter a screening checklist was developed to prompt the implementation of guideline recommendations, followed by a re-audit evaluating the effectiveness of the checklist. Good baseline practice was identified relating to vaccinations, herpes prophylaxis, dental assessment, bisphosphonates, calcium/ vitamin D supplementation and holistic needs assessments. However gaps in practice included monitoring of lipids, HBA1C, NT-pro-BNP/ BNP, BMI, calcium/ vitamin D and parathyroid hormone in kidney disease, endocrine screening and geriatric assessments. Re-audit demonstrated that geriatric assessment remains a gap in practice, however other standards now scored between 80 to 100% compliance, highlighting the benefits of a screening checklist, to increase adherence to recommendations.

KEYWORDS

late effects, late effects of therapy, myeloma, myeloma therapy

Treatment advances in myeloma have resulted in improved outcomes and prognosis. However, as patients progress through multiple treatments, they are exposed to toxicity from various drugs alongside disease complications, further impacted by increasing frailty, co-morbidities and the psychosocial impact of living with myeloma [1]. As a result, patients living with myeloma may be at risk of developing cardiovascular and pulmonary toxicity; skeletal-related events; renal failure; endocrine abnormalities; increased susceptibility to infections; secondary malignancies; and psychosocial concerns [2–9].

In 2017, the British Society for Haematology (BSH) published guidance entitled 'Guidelines for screening and management of late and long-term consequences of myeloma and its treatment' [1]. These guidelines set out recommendations for identifying and managing a wide range of potential long-term consequences. Whilst such guidelines exist, in practice, adherence to recommendations is often suboptimal [2, 4, 10, 11].

To our knowledge, there are currently no published audit or service evaluations of clinical practice against these guidelines and associated

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TABLE 1 Included standards in the Northern Health and Social Care Trust (NHSCT) audit tool.

Development of audit tool: included standards
Offers of pneumococcal vaccination
<i>BSH recommends a single course of pneumococcal conjugate vaccination (PCV13) followed by pneumococcal polysaccharide vaccination (PPV23)</i>
Offers of annual influenza vaccination
Schedule of re-vaccination offered to patients following autologous stem cell transplant (ASCT)
Provision of herpes prophylaxis for patients receiving proteasome inhibitors
Annual monitoring of calcium, vitamin D and parathyroid hormone (PTH) in patients with \geq stage 4 chronic kidney disease (CKD)
Dental assessment prior to bisphosphonate treatment
Regular bisphosphonate alongside calcium/ vitamin D supplementation
Endocrine screening post ASCT (thyroid, testosterone, menopausal symptoms)
Annual height, weight and body mass index (BMI)
Annual monitoring of HBA1C and lipids
Annual NT-pro-BNP/ BNP
Evidence of holistic needs assessment
Baseline geriatric assessment if \geq 75 years old

standards. A baseline audit was carried out to assess adherence to BSH guidance within a sample of myeloma patients in the Northern Health and Social Care Trust (NHSCT), Northern Ireland (NI). An existing audit tool, published alongside the BSH guidelines [12] was adapted for the audit, to include 13 standards (Table 1).

Chosen standards included recommendations related to increased infection risk including appropriate offers of vaccinations [2, 13] and provision of herpes prophylaxis for patients treated with proteasome inhibitors which pose an increased risk of herpes re-activation [10]. Given the frequency of renal disease in myeloma [14], another included standard is annual monitoring of calcium, parathyroid hormone (PTH) and vitamin D for patients with chronic kidney disease (CKD) stage four or greater to promote renal health through management of any resulting abnormalities [1]. Bisphosphonates are also recommended for patients for their potential to reduce the risk of skeletal-related events, such as fractures [4]. A dental assessment is recommended prior to the commencement of bisphosphonates identifying individuals at risk of osteonecrosis of the jaw, a recognised bisphosphonate complication, and calcium/vitamin D supplementation should be provided to support bone health and maintain serum calcium levels during treatment [1].

Treatment with autologous stem cell transplant (ASCT) has been associated with various endocrine abnormalities [8], and therefore annual endocrine screening post-ASCT is recommended, including at a minimum screening for hypothyroidism, hypogonadism in males and menopausal symptoms in younger females [1]. Annual screening of body mass index (BMI), HBA1C and lipids is thought to help identify and manage cardiovascular risk and sarcopenic obesity, which may

impact frailty in myeloma [1, 8]. Additionally, myeloma patients, particularly those heavily treated are thought to be at risk of developing cardiac abnormalities, and therefore monitoring of NT-pro-BNP/BNP is advocated, for its potential to identify pre-clinical cardiovascular disease [6].

It is also recognised that myeloma patients experience a wide range of psychosocial concerns, including fatigue, pain, neuropathy, impact on sexual function, ability to carry out usual activities, impact on family and loved ones, worry regarding disease progression and future uncertainty [5, 7]. BSH, therefore, recommends regular offers of holistic needs assessments (HNA), to identify and address psychosocial concerns [1]. The use of standardised geriatric assessments for those who are frail or aged 75 or over is also recommended, to identify frailty, co-morbidities or disabilities, which may help guide appropriate treatment decisions [1].

A convenience sample of 30 myeloma patients was included in the baseline audit. Individuals were aged 48–91 years, all within 6 years of diagnosis, and had received or were receiving at least their first line of myeloma treatment. Data was collected by screening haematology patient records, prescriptions, results of investigations such as blood tests from NI electronic records, and vaccination records which were provided by General Practitioner practices. As this was a clinical audit of medical records, ethical approval did not need to be sought. Compliance was recognised where the standard had been met, or in the case where there was a documented reason for the omission.

Results from the baseline audit are outlined in Table 2. Areas demonstrating good baseline practice were identified relating to offers of vaccinations, provision of herpes prophylaxis, bisphosphonates and calcium/ vitamin D supplementation, dental assessment prior to bisphosphonate use, and offers of HNAs. However other areas demonstrated gaps in compliance, including annual monitoring of lipids, HBA1C, NT-pro-BNP/ BNP, height, weight and BMI, calcium/ vitamin D levels and PTH in CKD, endocrine screening post ASCT and geriatric assessments.

As a result of the emerging gaps in practice highlighted in the audit, a screening checklist was developed to prompt the implementation of guideline recommendations. Checklists were completed with each of the 30 patients following the baseline audit, providing an opportunity for any outstanding standards to be addressed as well as an opportunity for patient education, which is crucial in helping to empower patients and encourage self-management of individual risk. To evaluate the effectiveness of the screening checklist, a re-audit was undertaken after 3 months on the same group of patients. Results from the re-audit demonstrated that whilst offers of a geriatric assessment for patients remain a gap in practice in the NHSCT with 0% compliance at re-audit, there were significant improvements in other areas, with all other remaining standards now demonstrating high levels of compliance, ranging between 80% and 100%. Geriatric assessment is not standard practice currently within the NHSCT. However, its benefits for clinical care and treatment decisions are being increasingly recognised [1], and therefore ways to introduce this in the future should be explored.

This audit highlights that there is much opportunity to improve the quality of life and outcomes of those living with myeloma,

TABLE 2 Baseline audit results: Compliance with standards.

Compliance results: baseline audit			
Recommendation audited	Total number of patients applicable to	No. of patients demonstrating compliance	Overall percentage % compliant
Areas of good baseline compliance with BSH guidelines:			
Re-vaccination schedule offered following ASCT	5	5	100%
Herpes prophylaxis with proteasome inhibitors	16	16	100%
Dental assessment prior to biphosphonates	30	30	100%
Offers of seasonal influenza vaccination	30	28	93%
Regular biphosphonate/calcium/vitamin D	30	23	77%
Offers of pneumococcal vaccination	30	21	70%
Evidence of previous HNA	30	20	67%
Potential gaps identified in baseline compliance with BSH guidelines:			
Annual check of NT-pro-BNP/BNP	30	13	43%
Annual lipids testing	30	12	40%
Annual HBA1C check	30	8	27%
Annual endocrine screening post-ASCT	5	1	20%
Annual height, weight and BMI	30	4	13%
Screening of calcium, PTH and vitamin D in CKD \geq 4	5	0	0%
Geriatric assessment for patients aged \geq 75	15	0	0%

through the identification and appropriate management of long-term consequences of myeloma. Early recognition of potentially reversible or manageable abnormalities alongside education of patients and professionals regarding this key element of myeloma care is crucial and should be embedded into routine practice when caring for this patient group. Future plans include rolling out the screening checklist to all patients on an annual basis throughout the NHSCT, which is currently being led by the clinical nurse specialists, followed by future re-audit, and exploring ways to introduce geriatric assessment to appropriate patients, as this remains a gap in current practice.

AUTHOR CONTRIBUTIONS

Kerrie Sweeney wrote the manuscript, co-designed the audit/screening checklist, collected and interpreted data, and analyzed the results. Aaron Niblock supervised the audit process, co-designed the audit/screening checklist, discussed results and critically reviewed the manuscript. Diana Greenfield/John Snowden provided advice and expertise during the planning stage of the audit and discussion of results and critically reviewed/commented on the manuscript.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

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The data that support the findings of this audit are available from the corresponding author upon reasonable request.

ETHICS STATEMENT

The authors have confirmed ethical approval statement is not needed for this submission.

PATIENT CONSENT STATEMENT

The authors have confirmed patient consent statement is not needed for this submission.

CLINICAL TRIAL REGISTRATION

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