

Use of imaging in the management of newly diagnosed patients with myeloma at St. George's Hospital

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Background

Cross-sectional imaging techniques have increased sensitivity of detection of myeloma bone lesions compared to skeletal plain radiographs. However there is huge variation in practice as to the choice of modality due to differences in access to the techniques and the subtleties of the information gained from each type of imaging. At present whole body (WB) diffusion weighted (DW) MRI is not yet available at St. George's Hospital.

We aim to review compliance of our current practice with the 2017 British Society for Haematology (BSH) guideline "Use of imaging in the management of patients with myeloma". To review the number of imaging modalities performed in newly diagnosed myeloma patients.

Audit standard criteria range: 100%

1. Patient with suspected myeloma underwent whole body MRI (WB-MRI) or CT.
2. Patient without established myeloma defining event but with bone marrow plasma cells 10–60% and/or M-protein >30g/l underwent WB-MRI, WB-CT or PET/CT.
3. WB/DW-MRI or PET/CT performed in the assessment of oligosecretory myeloma.
4. Whole spine MRI performed and reported within 24 hours of suspected cord compression in myeloma.
5. PET/CT or WB/DW-MRI performed in the diagnostic assessment of possible solitary plasmacytoma.

Methods

Data collection period was between 1 July 2017 and 30 June 2018. We included all adult patients (age at least 18 years) who were newly diagnosed with myeloma or plasmacytoma in our Trust during the data collection period, and had their diagnostic imaging in our Trust. Data were retrospectively collected from patients' records.

Results

Forty patients were included in the audit, which included 31 myeloma patients, eight smouldering myeloma patients and one plasmacytoma patient. There were no non-secretory or oligosecretory myeloma cases and no newly diagnosed myeloma patients presenting with suspected cord compression in our Trust during the data collection period.

All patients (100%) with newly diagnosed myeloma underwent cross-sectional imaging at diagnosis (Table 1). No skeletal surveys were performed. All smouldering myeloma patients underwent LDWB-CT. All solitary plasmacytoma patients had WB-MRI.

Table 1. Diagnostic imaging performed for patients with newly diagnosed myeloma.

Diagnosis	N (%)	Cross-sectional diagnostic imaging requested				MRI spine +/- pelvis N (%)
		LDWBCT N (%)	CT-CAP N (%)	WB-MRI N (%)	PET/CT N (%)	
Myeloma	31 (77%)	20	11		3	13
Smouldering myeloma	8 (20%)	8			1	3
Plasmacytoma	1 (3%)	1		1		
Total Number	40	29 (73%)	11 (27%)	1 (2%)	4 (10%)	16 (40%)

Twenty out of 40 (50%) patients had more than one imaging modality. For the majority of these patients this comprised a CT and MRI whole spine/pelvis (40%) and 10% had a CT and PET-CT. Two patients had three modes of imaging. The main reasons for requesting MRI spine/pelvis were back pain or a CT showing lytic lesion, equivocal lytic lesion, mass or abnormal marrow signal in spine. The main reasons for requesting PET/CT were equivocal lytic lesion on CT, or suspected cancer.

Our Trust has excellent compliance with the BSH guideline as all new myeloma patients underwent cross-sectional imaging with a CT. However, for half of these patients CT alone was inadequate to fully assess their bone disease, requiring an additional modality.

Conclusions

1. Patients with suspected myeloma are referred to the haematology department through different pathways, most commonly suspected myeloma and back pain (73%), and suspected cancer (27%).
2. The route of referral often determines first imaging modality.
3. For many patients more than one modality is required to accurately assess their bone disease, eg presence of focal lesions, active lesions, spinal cord compromise.

These factors may delay diagnosis and increase cost. Access to WB/DW-MRI may address some of these issues.

Reference

Use of imaging in the management of patients with myeloma. *BJH* 2017