Podcast transcript – Myeloma Imaging

Q1: "So the new guideline says only consider skeletal survey as first line imaging if whole body MRI and whole body low dose CD are unsuitable or the person declines them. Why does NICE recommend this?"

"We know that skeletal surveys are under-calling bone disease in people with myeloma and NICE looked at the alternatives of whole body imaging with MR, CT and PET-CT in patients with suspected myeloma and newly diagnosed patients.

"NICE particularly looked at the diagnostic yield of those alternative techniques as this informs the need for treatment. But unfortunately the quality of evidence was low due to small sample sizes and lack of a reference standard. Because of this NICE could only make a consider recommendation. Nevertheless, modern imaging with whole body CT and MR and PET-CT outperformed skeletal survey and has the advantage of detecting both bony disease and extramedullary plasmacytomas. There was not enough evidence to be able to clearly show which one was superior clinically.

"NICE also looked at the health economics of this approach considering that upfront whole body imagine would stop a proportion of patients traditionally attending for skeletal survey that would then require additional advanced imaging. And it found that it is more cost effective to go straight to whole body MRI or whole body CT at the current tariffs but not to PET-CT. Therefore, NICE made a consider whole body CT or whole body MR in patients with suspected myeloma."

Q2: "And what would you say are the advantages of imaging over skeletal surveys?"

"Following on from what we have already said, there are three main forms of neuroimaging NICE considered.

"There has been a massive expansion in CT imaging over the last two decades and it is widely available. CT can detect bony and extramedullary disease and can be used to guide biopsy sites for radiotherapy planning and for spinal fracture stability assessment. Improved technology and software have allowed the test to become widely available with a minimised radiation dose using a technique

known as whole body low dose CT. This minimises the radiation, although it remains higher than skeletal survey and is in the order of two years background radiation. It does have a reduced image resolution but it still outperforms skeletal survey. A disadvantage is that bony lesions often appear unchanged after treatment so both CT and low dose CT are not ideal to use for follow-up.

“MRI is generally considered the optimal imaging modality as it is very sensitive for assessing disease in myeloma and can show low burden marrow disease, not reliably distinguished on CT or PET-CT. Again, advancement in technology now allows whole body MRI to be performed in around 45 minutes to give a whole body assessment of both skeletal, bony and extramedullary disease without any radiation. Unfortunately some people cannot tolerate it due to claustrophobia or the presence of pacemakers. Neither CT or MR contrast agents are suitable for those with renal impairment but contrast is not essential to get adequate diagnostic imaging.

“PET-CT is now an established modality for cancer imaging in secondary care and provision has increased across the UK since its introduction after the Millennium. It has the advantage of combining a whole body low dose CT with functional information from the radio tracer. It is a sensitive technique which can be used to follow response and looks at both bony and extramedullary disease. It has the highest radiation dose but can be less reliable in uncontrolled diabetes, steroids and in differentiating from inflammation such as occurs postoperatively.

Q3: “And what does NICE recommend in terms of offering imaging for people with suspected myeloma and those with newly diagnosed myeloma?”

“There are two slightly different recommendations between the two groups of people, those with newly diagnosed myeloma and those with suspected myeloma.

“It is important when reading the guideline to recognise that it has been written for people in secondary care. That is to say, when the guideline refers to people with suspected myeloma that means suspected by haematology, for example because of raised paraproteins. It is not directed towards the exclusion of multiple myeloma in primary care as that question was not evaluated in the development of the guideline.

“Simply put, NICE does foresee a situation where GPs or non-haematologists are referring for advanced imaging to exclude myeloma rather than to make the diagnosis in people with suspected myeloma or to stage those with newly diagnosed myeloma.

“This paradigm shift is in line with recent professional guidance such as from the International Myeloma Working Group. Although it is a relatively rare diagnosis, so patient numbers are quite small, NICE recognises that this will put a pressure on radiology departments to deliver. The main barriers will be access to scanners, in the context of wider care pathways, and radiology and radiographer staffing and training, both of which are professionals with national shortage. This will require short and long term planning in conjunction with the Royal Colleges and bodies for health education.

“For people with suspected myeloma, or people with a plasma cell disorder suspected to be myeloma, should be offered imaging. You should consider whole body MRI as the first line imaging and consider whole body low dose CT as the first line imaging if whole body MRI is unsuitable or the person declines it.

“For people with newly diagnosed myeloma, if they have not had whole body imaging consider imaging with one of the following to assess for myeloma related bone disease and extramedullary plasmacytomas using MRI, CT or PET-CT.

“Consider using baseline whole body imaging with MRI or FDG PET-CT for people who have nonsecretory myeloma or confirmed soft tissue plasmacytomas, if they have not already had these tests.”