**Appropriateness of MRI IAM referrals for investigation of Tinnitus**

**Descriptor:**

Audit of the appropriateness of MRI IAM referrals in patients presenting with tinnitus and the subsequent imaging investigation carried out.

**Background:**

Increased availability and easy access to MRI has led to a steady increase in imaging requests for patients with tinnitus. Clinical data provided does not always specify the type of tinnitus (whether pulsatile or non-pulsatile), and all cases are referred for MRI of the IAM as a screening test for vestibular schwannoma.

Although to date there is no official UK guidance published regarding which imaging modality to choose in such cases, the RCR has cited the ACR Appropriateness criteria and Australian Diagnostic Imaging Pathways in its iRefer guidelines. These both indicate that distinction between types of tinnitus determines the most appropriate imaging study: for pulsatile tinnitus, it is contrast-enhanced CT of the petrous bone, upper neck and posterior fossa, while non-pulsatile tinnitus should be investigated by MRI. There is additional literature in agreement with this, stating that pulsatile and non-pulsatile tinnitus have separate imaging pathways based on the most common underlying pathologies, if any.

Pulsatile tinnitus is usually due to a vascular abnormality or a middle ear tumour and therefore contrast enhanced CT is the study of choice. Non-pulsatile tinnitus is mostly due to systemic causes (such as hyperdynamic circulation) or non-treatable structural causes (such as vascular loops near the internal auditory canal), and very rarely due to vestibular schwannoma, which is best diagnosed by MRI. NICE is in the process of producing guidelines regarding tinnitus, this is to be published in 2020.

## The Cycle

**The standard:**

Imaging requests should clearly state:

   a-Type of tinnitus (whether pulsatile or non-pulsatile),

   b-Type of imaging study based on tinnitus type: either contrast-enhanced CT of the head or MRI of  the internal auditory meatuses.

**Target:**

100%

## Assess local practice

**Indicators:**

Percentage of imaging requests for tinnitus which do not specify its type (pulsatile/non-pulsatile).

Type of imaging study requested and then performed

**Data items to be collected:**

1. list of patients who have been referred for MRI IAM stating ‘tinnitus’ in the clinical information

2. type of imaging study requested.

3. type of imaging study undertaken - including detail of cases where CT was performed rather than MRI as requested as radiologist deemed CT more appropriate, or vice versa.

**Suggested number:**

100 patients

**Suggestions for change if target not met:**

1. Discuss audit results with local radiologists and the referring clinicians.
2. Identify the cases in which the RCR iRefer guidelines were not followed and the outcome of their imaging.
3. Consider further education for the referrers is required and/or modify MRI vetting process to decline requests not meeting distinction criteria that would enable the most appropriate imaging to be selected.
4. Use of rules in electronic requesting or clinical decision support systems.

**Resources:**

RIS access

Data search: 1 hour

Data analysis: 2 - 3 hours

Report writing: 1  hour

**References:**

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