**Audit of magnetic resonance cholangiopancreatography (MRCP) in the evaluation of pancreaticobiliary disease**

**Descriptor:**

The aim of this audit is to evaluate the accuracy of magnetic resonance cholangiopancreatography (MRCP) in the evaluation of pancreaticobiliary disease.

**Background:**

Magnetic resonance cholangiopancreatography (MRCP) is an established accurate, non-invasive and safe technique for  imaging the biliary tree and pancreatic duct [1]. This audit is to determine whether common and important pathologies are being accurately detected by MRCP.

## The Cycle

**The standard:**

MRCP reports should accurately identify the presence of Obstruction, Calculi and ?Malignancy. The lower confidence intervals (-1.96 SD) for sensitivity and specificity derived from a published meta-analysis of 4711 patients undergoing MRCP are used as standards, ie. Obstruction Sensitivity 91%, Specificity 91%; Calculi Sensitivity 80%, Specificity 90% and MalignancySensitivity 70%, Specificity 82% [2].

Rreference standards are ERCP, endoscopic ultrasonography (EUS), surgical exploration, clinical and imaging follow up, and histopathology.

**Target:**

• Obstruction Presence Sensitivity 91%, Specificity 91%

• Calculi Sensitivity 80%, Specificity 90%

• ?Malignancy Sensitivity 70%, Specificity 82%

## Assess local practice

**Indicators:**

Three imaging end point indicators are chosen:

1. Presence of biliary obstruction

2. Diagnosis of Calculi

3. Diagnosis of malignancy

Sensitivity and specificity calculated for each.

**Data items to be collected:**

MRCP reports over a period (e.g. a year) are collected. These are compared to combined reference standards of ERCP, EUS, surgical exploration, histopathology,  clinical and imaging follow up. Where necessary use data from conventional ultrasound and CT findings if other results such as EUS and surgical exploration are not available, although these are not 'gold standard' comparisons.

Other findings: note ancillary findings demonstrated on MRCP, eg strictures (benign or malignant), biliary hamartomas, pancreatic duct anomalies.

**Suggested number:**

50 minimum

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

• Feedback to reporters with all false positives and negatives to be reviewed by reporters to aid learning

• Reporters revise MRCP pitfalls and artefacts using review articles [1-4]

• Introducing policy of radiographers rescanning patient immediately (e.g with breathing coaching) if they note motion artefact or updating MRI protocol sequences to overcome motion artefact (e.g using a TruFISP sequences rather than radial HASTE acquisitions)

**Resources:**

• Time 20 hours

   - This includes obtaining and reading patient notes and MRCP/ERCP/EUS reports. Also reporting radiologists will need to review the cases if any of the targets are not met

**References:**

1. Fulcher AS, Turner MA, Capps GW, Zfass A, Baker K. Half-Fourier RARE MR cholangiopancreatography: experience in 300 subjects. Radiology 1998;207:21-32.
2. Romagnuolo J, Bardou M, Rahme E, Joseph L, Reinhold C, Barkun AN. Magnetic resonance cholangiopancreatography: a meta-analysis of test performance in suspected biliary disease. Ann Intern Med 2003;139:547-57. <https://www.ncbi.nlm.nih.gov/pubmed/14530225>
3. Irie H, Honda H, Kuroiwa T, et al. Pitfalls in MR pancreatographic interpretation. Radiographics 2001;21:23-37.
4. Watanabe Y, Dohke M, Ishimori T, et al. Diagnostic pitfalls of MR cholangiopancreatography in the evaluation of the biliray tract and gallbladder. Radiographics 1999;19:415-29.

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