



A COMPARISON STUDY OF USG WITH MRCP IN DIAGNOSING CHOLELITHIASIS

General Surgery

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ABSTRACT

Background: To compare the sensitivity of USG and MRCP in diagnosing cholelithiasis. **Methods:** Prospective study of which 50 patients were included in the study who met the inclusion and exclusion criteria. **Result:** USG has the same sensitivity, specificity and accuracy when compared to MRCP and is also cost effective and can be easily performed in any patients. **Conclusion:** MRCP is costly when compared to USG. MRCP has more disadvantages when compared to USG. From this we conclude that MRCP is not necessary in diagnosing cholelithiasis.

KEYWORDS

INTRODUCTION

Cholelithiasis is the commonest surgical problem encountered in Surgical practice.

CAUSES OF CHOLELITHIASIS

Gall stone formation is multifactorial and the causes involved are related to the type of gall stones.

RISK FACTORS AND MECHANISMS FOR CHOLESTROL GALLSTONES:

INCREASED CHOLESTROL FORMATION

1. OLD AGE
2. FEMALE GENDER
3. PREGNANCY
4. RAPID WEIGHT LOSS.
- IMPAIRED GALL BLADDER EMPTYING
1. PREGNANCY
2. GB STASIS
3. FASTING
4. TOTAL PARENTERAL NUTRITION
5. SPINAL CORD INJURY

DECREASED BILE SALT SECRETION

1. PREGNANCY

Here MRCP and USG were done for 50 patients in diagnosing cholelithiasis which showed sensitivity, specificity and accuracy does not vary in both but USG is more cost effective and easily affordable in diagnosing cholelithiasis.

MATERIALS AND METHODS

Study design: prospective study.

Study population: 50 patients were included in the study. The study group consist of male and female patients, between the age of 22 to 65 years (with a mean age of 43 years). For all 50 patients, per operative findings were obtained. The study was Approved by the institutional ethical committee.

Sample Size: 50 (Study period: 2017 - 2020)

Consent : Informed consent obtained from all patients.

INCLUSION CRITERIA

1. Patients who were having a history of pain abdomen, vomiting, fever and any other symptoms and signs suggestive of cholecystitis.

EXCLUSION CRITERIA

1. Patients with claustrophobia.
2. Patients with cardiac pacemakers.
3. Patients with metallic implants.
4. Hemodynamically unstable patients.

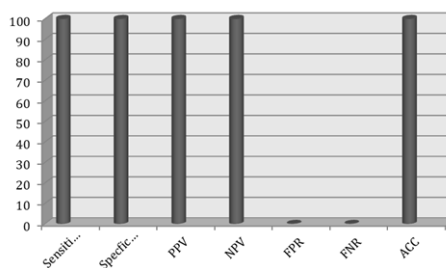
RESULT

The data were collected from a sample of 50 patients. The study

subjects consisted of 28 male and 22 female patients, between the age of 24 to 60 years (with mean age of 43.56 ± 8.49 years).

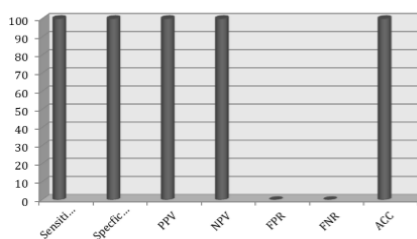
The above data showed no significant difference in sensitivity, specificity and accuracy of both USG and MRCP in diagnosing cholelithiasis.

Sensitivity and Specificity of MRCP



x axis-values
y axis-scores in %

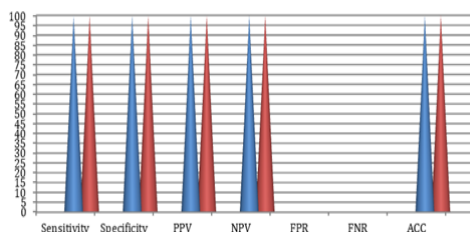
Sensitivity and Specificity of USG



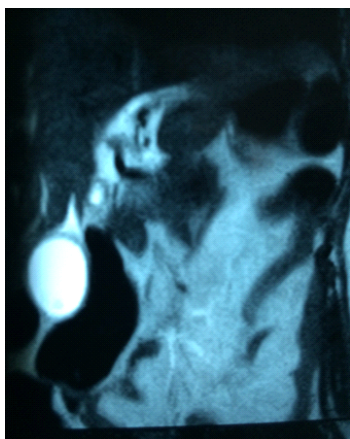
x axis-values
y axis-scores in %

Comparison of USG and MRCP

Sensitivity & Specificity



x axis-values
y axis-score in %

Cholelithiasis in MRCP

- GB distended with internal calculus measuring 4 mm.
- Minimal wall thickening with pericholecystic fluid collection noted.

Cholelithiasis in USG

- A calculus measuring 4 mm noted in the fundus of the GB.
- Internal echoes noted within the GB-?sludge.

DISCUSSION

Fifty cases of cholelithiasis – 28 males and 22 females were included in our study. A sizeable percentage (36%) of the patients belongs to the age group 41–50 years. Mean age of the whole group was 43.56 ± 8.49 . 44% with the complaints of abdominal pain followed by 42% with vomiting and 14% with Cholecystitis. There is no significant difference between male and female. Highest 44% of them had complaints of abdominal pain.

USG was able to detect 100% of cholelithiasis.

MRCP was able to detect 100% of cholelithiasis.

On Comparing both USG with MRCP in diagnosing cholelithiasis, no cases were missed by both.

USG was able to diagnose as same number of cases as MRCP. In our study USG has 100% sensitivity, 100% Specificity & 100% accuracy rate. MRCP has 100% sensitivity, 100% Specificity and accuracy is 100% in diagnosing cholelithiasis. As MRCP has lot of disadvantages and costlier than USG, we can say that USG is superior to MRCP in diagnosing cholelithiasis. This is useful in planning further management of the disease. Thus USG may replace MRCP for diagnostic purposes in case of cholelithiasis. MRCP may then be reserved for patients who comes with obstructive jaundice.

Magnetic Resonance CholangioPancreatography (MRCP) is superior imaging modality in diagnosing choledocolithiasis rather than cholelithiasis mainly because it is

- 1) Non invasive procedure
- 2) No radiation required
- 3) Anaesthesia is not required
- 4) Less operator dependent
- 5) Can be performed in patients in Whom endoscope access is unavailable or unsuccessful.

USG is superior to MRCP in diagnosing cholelithiasis because

1. cheaper than MRCP
2. Sensitivity ,Specificity and Accuracy as same as MRCP in diagnosing cholelithiasis.
3. Can be easily performed in non-cooperative and unconscious patients, who cannot undergo MRCP.
4. Can be performed in metal implanted patients.(MRCP cannot be performed)
5. Simple and faster procedure.
6. Anaesthesia not required.

CONCLUSION

MRCP has the same sensitivity,specificity and accuracy as USG in diagnosing Cholelithiasis . MRCP is costly when compared to USG. MRCP procedure has more disadvantages,when compared to USG. From this we conclude that MRCP is not necessary in diagnosing cholelithiasis .

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