

General Reference:

SNM Practice Guideline for Hepatobiliary Scintigraphy 4.0

Common Indications:

Evaluation of biliary dyskinesia

Pre-scan Clinical History:

Determine history related to stated clinical history. Locate any pertinent imaging results which describe related findings.

Patient Preparation:

1. Optimally, adult patients should be NPO 2 to 6 hours prior to exam, but less than 24 hours.
2. Patients must withhold narcotic pain medications for a period equal to 4 half lives (at least 6 hours for morphine sulfate, 8 hours for demerol).

Relative Contraindications (if present, consult with nuclear medicine physician prior to scan):

1. Recent nuclear medicine studies
2. Recent barium contrast studies of GI tract
3. Pregnancy

Radiopharmaceutical and Route of Administration (Adult):

Tc99m-Choletec, 4.0 - 6.0 mCi IV.

If approved by the Nuclear Medicine Physician, that Tc99m-**Myoview** 4.0 - 6.0 mCi may be used if Choletec is not available.

CCK Preparation:

1. Inject 5mL sterile water into a 5mg kinevac vial and agitate. This will create a concentration of 1mg per 1mL (for 3mg vials, adjust the sterile water to 3ml to create a 1mg/1ml concentration).
2. Calculate the amount of CCK to be infused according to the following formula:
$$(\text{weight in pounds}/2.2)(0.02).$$
 This will give the amount in ml to be withdrawn from the CCK vial.
3. Withdraw the calculated amount from the CCK vial and inject into a 50mL 0.9% normal saline bag.

Procedure:

Unless otherwise specified all imaging acquired 128x128 Matrix, LEHR, typical zoom x 1.23

1. Start an IV
2. With the patient under the camera, inject Choletec and acquire flow and dynamic images.
 - i. Flow: 60 frames at 2 seconds/frame (2 minutes)
 - ii. Dynamic: 60 frames at 60 seconds per frame (60 minutes)

Note that the first hour dynamic image acquisition is OPTIONAL, and may be omitted for the sake of department throughput and efficiency in busy facilities. Inject the patient, have them wait

in a suitable location, then acquire an anterior static image at one hour post injection, and confirm ***gallbladder visualization***.

3. If the gallbladder is visible at one hour post injection, **acquire a right lateral static image** (300 seconds).
4. Note that ***proximal small visualization is NOT REQUIRED*** in order to proceed with CCK challenge. Perform a second dynamic acquisition in the LAO projection during a one hour infusion of the CCK solution, 60 frames, 1 minute per frame (one hour total).
5. Ask the patient if he/she experienced pain or nausea/vomiting which duplicates the symptoms during the CCK infusion. If so, ask the patient to rank it on a 0-10 scale. Record this information on the HIDA information sheet. Note however that this symptom ***does not correlate with gallbladder pathology***.
6. Process and store the gallbladder ejection fraction curve, accounting for decay factor during the one hour emptying.

Alternate Procedure for patients that cannot lie supine for prolonged periods:

Unless otherwise specified all imaging acquired 128x128 Matrix, LEHR, typical zoom x 1.23

1. Start an IV
2. With the patient under the camera, inject Choletec and acquire flow and dynamic images.
 - i. Flow: 60 frames at 2 seconds/frame (2 minutes)
 - ii. Dynamic: 60 frames at 60 seconds per frame (60 minutes)
3. Halt the dynamic acquisition upon recognition of activity within the gallbladder and record the time; bowel visualization not required at this point.
4. Return patient to imaging table 45 minutes after gallbladder visualization and acquire a right lateral.
5. Acquire a 60-second "Pre-CCK" static in the LAO position.
6. Prepare and infuse the CCK solution over one hour; the patient may be sitting or in a recliner during the infusion.
7. When the CCK infusion is complete, return the patient to the camera as quickly as possible and acquire a 60-second "Post-CCK." static image.
8. Ask the patient if he/she experienced pain or nausea/vomiting which duplicates the symptoms during the CCK infusion. If yes, ask the patient to rank it on a 0-10 scale. Record this information on the HIDA information sheet.
9. Process and store the gallbladder ejection fraction data. You will need to account for isotope decay between "Pre-CCK" and "Post-CCK" acquisitions.

Review:

Prepare images and documents for clinical review as per **Nuclear Imaging Acquisition and Presentation Guidelines**.