GI PROCEDURE DVD Library

Endoscopic Retrograde Cholangiopancreatography (ERCP)

General Information

Objectives

I. Identify pathological conditions that affect the biliary pancreatic system that will require an ERCP
- A. Indications
- B. Contraindications

II. Discuss the ERCP Procedure
- A. Preparation of equipment
- B. Pre-Procedure care
- C. Procedure care
- D. Post procedure care

III. Identify two potential complications and interventions related to ERCP
- A. Pancreatitis
- B. Bleeding

I. Background of Endoscopic Retrograde Cholangioprancreatography (ERCP)

A. Endoscopic retrograde cholangio-pancreatography (ERCP) is one of the more technically challenging procedures for an endoscopy nurse. It is a procedure that allows physician to diagnose and perform therapeutics on problems in the liver biliary pancreatic system. The procedure combines endoscopy techniques with X-ray.

B. The biliary system consists of the gallbladder, hepatic, cystic and common bile duct which joins with the main pancreatic duct to form the ampulla of vater. The pancreatic duct and ampulla of Vater are surrounded by an arrangement of smooth muscles called the Sphincter of Oddi. The functions of the biliary system are to collect, concentrate and store bile and to release it into the duodenum when it is needed for digestion.

C. The pancreas is a fish shape, lobulated gland that lies behind the stomach. It has three segments: the head, body and tail. Majority of the pancreatic tissue consists of pyramidal acinar cells. The acini are arranged around small central lumen into which they drain enzymes. The enzymes then drain into duct of Wirsung - the main pancreatic duct which runs the whole length of the pancreas from left to right and joins the common bile duct.

D. Most individuals have an accessory pancreatic duct called the duct of Santorini which leads from the head of the pancreas and drains into the duodenum at the minor papilla.

II. Endoscopic Retrograde Cholangiopancreatography (ERCP)

A. *History*: Since the introduction in 1968, ERCP has become a widely used endoscopic procedure for a variety of disorders. In the early 1970's, endoscopic sphincterotome gained widespread acceptance in the United States, and has become an established therapeutic procedure for pancreatic and biliary disorders. The applications and variety of accessories have continued to grow since.

B. *Indications*: ERCP may be performed to assess the liver, gallbladder, biliary tree and/or the pancreas for diagnosis such as: Jaundice of undetermined etiology, obstructed flow of bile through the hepatic, biliary, cystic or pancreatic ducts (e.g. stones, tumors strictures, sclerosing cholangitis, papillary stenosis, etc.), cholelithiasis, suspected or known pancreatic disease (e.g. congenital anomaly that is associated with pancreatitis, pancreas divisium, etc.), stenotic accessory papilla, etc.

C. *Contraindications*: ERCP should not be done on the uncooperative patient, patient unable to tolerate procedure, recent myocardial infarction, patient non-compliant with NPO status, presence of barium in UGI tract and patient with severe lung disease.

D. *Complications*: National overall complication rate post ERCP is 5 – 10%. Pancreatitis remains the most common complication of ERCP. However, bleeding after sphincterotome, infections, and cardiopulmonary complications as well as perforations may occur. In general, prior to ERCP to avoid any complication, pre intervention should occur. This includes:
   - Pre-procedural evaluation of patient to identify those at higher risk.
   - Avoid unnecessary ERCP
   - Evaluate if an alternative procedure could be done, i.e. Endoscopic Ultrasound, MRCP, etc.

III. Procedure

1. Fluoroscopy – Highest quality image with least possible exposure to radiation.
2. Proper Shielding – lead aprons, glasses, thyroid protection, lead draping for patient.
3. Plan for procedure – side viewing scope and upper endoscope.
4. Monitoring equipment – ECG, pulse oximetry, blood pressure, and respiratory status.
5. Medication to include medication for sedation/anesthesia, reversal agents, radiopaque dye, glucagon, epinephrine, atropine, and other possible medications needed for an emergency or sedation.
6. Prepare extra syringes of sterile saline. Prepare extra syringes of diluted radiopaque dye per physician preference.
7. Label all syringes.
8. Discuss with physician procedural plans. Gather accessories that will be needed.

Pointers for the RN

1. Confirm right patient and right procedure.
2. Obtain informed consent.
3. Verify that the patient has a responsible driver for transportation home.
4. Obtain baseline vital signs to include temperature, blood pressure, respirations, heart rate, oxygen saturation, and pain assessment.
5. Obtain patient's medical history to include allergies, current medications, and information pertinent to current complaint.
6. Notify physician if patient is currently on anticoagulation therapy, aspirin, or non-steroidal anti-inflammatory drugs.
7. Verify medical clearance, if applicable.
8. Verify length of NPO status.

Pointers for the RN and Associate

1. Team should discuss actual procedure planned based on patient's history and physical.
2. Plan for procedure and locate all accessories needed based upon team discussion.
3. Talk to physician to find out what supplies/accessories will be needed for this particular patient/procedure. What is this physician's preference if multiple products are available. Have these products at hands reach and ready to go.
4. If it has been a while since you have assisted with an ERCP, read your policy and procedural manual, the SGNA Procedural manual, and/or any package inserts for accessories to be used during procedure.
5. Check the duodenoscope for angulation and test elevator to make sure it moves up and down easily and that it will lock in place.
6. Have ERCP cart with all accessories readily available so you can retrieve what ever you need as procedure can change at any given moment.

Pointers for the RN and Associate – During the Procedure

1. Perform "Time Out" with patient and team prior to procedure.
2. As a team confirms procedure, accessories needed, cautery setting, patient position required, and verbally address any concerns or questions.
3. The best possible outcomes depend on open, continuous communication between all caregivers.
4. Continuously monitor patient per conscious sedation guidelines.
5. With a Billroth II anastomosis, an end viewing endoscope may be indicated.
6. Helpful tips:
    a. 1/3 to 1/2-strength dye helps in visualization of stones.
    b. Full strength dye is better for stricture detection.
    c. Label all syringes, bottles or open basins of medication or fluids.
    d. Make sure all contrast dye syringes are free of bubbles.
    e. Prime all catheters before use.
    f. Flush all catheters with sterile saline pre exchange.
    g. Never inject without physician direction, repeat instructions to physician prior to injection and state what you are injecting.
    h. As a rule, dye or saline injection should not require force.
    i. Familiarize yourself with the equipment and accessories.
    j. Wipe down guide wire with a gauze sponge saturated with sterile saline with all exchanges.
    k. Do not "force" guide wire. Inform physician when guide wire will no longer advance.
    l. Continually watch fluoroscopy screen when advancing guide wire.
    m. Watch video screen when doing exchanges – observe stripes/rings on guide wire to help maintain even exchange with physician.

n. If using a short wire system, make certain physician locks device between exchanges.
o. Use guide wire to help advance catheter, per physician instructions.
p. Move away from physician as you do exchanges. The straighter the guide wire, the easier the exchange.
q. When injecting dye into pancreas, be certain to inject slowly to minimize trauma to pancreatic duct.
r. If patient is experiencing severe pain due to injection into bile duct, aspirate some bile to decrease pressure.
s. Keep patient as comfortable as possible. Communicate to physician any concerns in patient status.
t. Document everything you used and did.

Pointers for the RN and Associate – Post Procedure

1. Verify all accessories/supplies used during procedure are accounted for.
2. Document all medications used, procedures completed, accessories used, fluoroscopy time, quantity and concentration of dye injected.
3. If stent has been placed, be sure to document type, length, diameter and product code/serial number of stent.
4. If cautery used, document where grounding pad was placed, site appearance before grounding placement and post grounding pad removal, and cautery setting used.
5. Restock/replace all ERCP supplies used so cart is ready for the next procedure.

Pointers for the RN Post Procedure

1. Obtain handoff from procedure room RN. Get a thorough report, in particular: cardiovascular status, respiratory status, medications given, therapeutics, complications, interventions, etc.
1. Monitor vital signs (heart rate, respirations, blood pressure, oxygen saturation).
2. Monitor level of consciousness/mental status.
3. Monitor level of comfort/response.
4. Monitor for symptoms of pancreatitis – sudden increase in temperature, diaphoresis, increase abdominal pain/tenderness.
5. Observe patient for complications.