CCT: NEONATAL PERICARDIOCENTESIS

PURPOSE
A. To identify and perform pericardiocentesis in a neonate with cardiac compromise thought to be related to a pneumopericardium or pericardial effusion

SCOPE
A. This guideline applies to all members of the Indiana University Lifeline Critical Care Transport team.

DEFINITIONS
None

GUIDELINES
B. Indications:
   a. Pneumopericardium, pericardial effusion, or hemopericardium complicated with tamponade. The diagnosis is suspected clinically when cardiac output becomes suddenly compromised. The diagnosis is made by transillumination, chest radiograph, ultrasound, or clinical evaluation.

C. Complications:
   a. Hemorrhage, laceration of heart, infection, death (if air or fluid cannot be adequately evacuated), cardiac air embolus, pneumopericardium, pneumomediastinum, pneumothorax, arrhythmia, hypotension.

D. Equipment
   a. Sterile gloves
   b. Iodine antiseptic solution and alcohol swab
   c. Swabs or gauze
   d. 16 to 20 gauge cannula over 1 to 2 inch needle device (Angiocath)
   e. 3-way stopcock
   f. 10-20ml syringe
   g. T-connector

E. Procedure
   a. Identify left subxiphoid notch, usual entry point is 0.5cm to 1cm below the tip of xiphoid process slightly left of midline. Needle should be elevated 30 to 40 degrees and aimed at the left shoulder.
   b. Assemble selected needle device, stopcock, syringe, and check connections. A T-connector may be inserted between the needle device and the stopcock.
   c. Prep selected site with antiseptic solution if time permits, allow drying. Sterilely drape.
   d. If blood is aspirated, immediately withdraw the needle; leave the cannula in place, until blood can no longer be aspirated. Bloody fluid raises the concern that the needle may have entered the heart. Several clues may be helpful in distinguishing between pericardial fluid and intracardiac blood:
   A. In an infant with tamponade, aspirating 10 mls of blood from the heart will have
minimal effect on the acute hemodynamics, whereas draining as little as 5 to 15 mls from the pericardial space can result in significant hemodynamic improvement within 30 seconds.

B. Placing a few drops on a clean gauze may help distinguish the two sources, because serosanguineous fluid will separate into a central dark zone and a more serous peripheral zone, but this can take several minutes.

5. Hold the catheter firmly in place, remove the needle, and attach the T-connector or stopcock to the cannula

6. Continue to aspirate air or fluid, using stopcock to allow syringe to be emptied as needed.

B. Secure the cannula over needle device. Repeat aspiration as needed, or attach a Heimlich valve to allow air to constantly evacuate.

Required Documentation:

B. Indication for procedure
C. Vital signs before, during and after
D. Time of procedure
E. Patient tolerance
F. ML of air or fluid removed and characteristics of fluid

Citations/References: