CATHETERIZATION PROTOCOL
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Cath Procedure Diagnosis  **Pericardiocentesis**

Hospitalization Requirement  Yes, as pericardial drain usually placed

Blood on hold (1 unit PRBC)  Yes

Pre-Cath Preparation  CBC, INR/PTT, type and screen
Drainage system for pericardial drain
Avoid G.A. particularly if tamponade physiology
Vials to collect pericardial fluid for lab analysis: cytology, culture (bacteria, viruses, TB, fungi) and cell count
Resuscitation equipment and drugs
Anesthesia back-up

Special:  **Echo** or fluoroscopic guidance

Cardiac Catheterization (subxiphoid approach but intercostals route also commonly performed):

Pt is in a 30° sitting-up position, with oxygen mask on.
Echo performed first (if pt stable and machine/sonographer available) to identify largest area of effusion to determine subxiphoid or intercostal route.
Prep a large area centered around intended access site.
Preferred site for subxiphoid pericardiocentesis is just to the left of the xiphoid process, 1 cm inferior to the bottom rib.
Instill 1% lidocaine.
Maintaining negative pressure on the syringe, insert the needle at a 45° angle to the skin, advancing in the direction of the patient's left shoulder. Observe closely for ventricular ectopy (a sign of myocardial contact) while advancing the needle. If this is noted, the needle should be withdrawn 1 to 2 cm. (Once air or fluid begins to fill the syringe, clamp the needle at the skin edge with a hemostat to prevent further advancement - optional). If using an angiocatheter, advance an additional 1 to 2 mm, ensuring that the plastic over-the-needle catheter is in the pericardial space. Withdraw the needle, and quickly occlude the hub of the angiocatheter; then reattach the stopcock and syringe. Aspirate the pericardial fluid slowly. Seldinger technique used to insert pericardial drain/pigtail catheter. Position confirmed by echo. Pericardial drain inserted and connected to Pleurovac (underwater system) or bulb suction.

Hemodynamic data: Continuous ECG, BP and saturation monitoring
Angiography  Not required as usually guided by echo but can be used to confirm wire position and guide drain positioning.

Catheters:  18- to 20-gauge angiocatheter or spinal needle, the length of which depends on the age of the child (2.0 to 2.5 in. for infants and young children; 3.5 in. for older children and adolescents). Attach a syringe and a three-way stopcock
Pericardiocentesis kit (2 types)

Complications: myocardial puncture and coronary artery or vein laceration causing hemopericardium, arrhythmias, pneumothorax, pneumopericardium, laceration of internal mammary artery, liver laceration and aortic injury.

Post-Cath Management  Inpatient monitoring while drain in situ and for several days after with repeat echo fluid checks.

Special:  Drain usually removed at 24-48 hrs if no significant drainage and echo shows minimal or no effusion reaccumulation.

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