



PEDIATRIC SURGERY UPDATE ©

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CVC Sepsis

Central Venous Catheter (CVC) placement has improved care and survival of sick infants. Catheter sepsis with an incidence of 10-30% remains the most common complication of CVC insertion. Defined as an apparent clinical infection in a patient with a CVC proven by positive blood culture when no other source can explain it. Principal isolated organism is coagulase-negative staphylococci (CONS). These organisms are associated to foreign body placement (V-P shunts, CVC, etc.) due to their adherent properties. Although contamination of the catheter can occur during insertion or subsequent care, catheter hub contamination is the primary site of entry of organism with secondary colonization of the tip. The mechanism of infection is a poorly cleaned entry site. Factors which increase the incidence CVC sepsis are: younger age, primary diagnosis, use of TPN (lipid emulsions), multiple catheter use, thrombus and fibrin sheath formation. Management of definite CVC sepsis consists of antibiotics or removal. The use of urokinase and antibiotics can effectively and safely manage these episodes leading to more than 90% of infected catheter salvage. Persistent multiple organisms or fungal sepsis will need catheter removal. A dilemma is to leave a possible infected or remove a non-infected catheter. AOLC (Acridine-orange leucocyte cytopsin) test is specific and sensitive in rapidly (one hour) distinguishing catheter septicemia when compared with NBT and CRP. Catheter care should include: skin disinfection of catheter exit site with two 10-second application of povidone swabs every 24 hour, and occlusion with a sterile semipermeable dressing. Low-dose vancomycin added to TPN solutions has eliminated CONS-CVC sepsis and increased useful catheter life. Staff training in caring for CVC will reduce the incidence of CVC related-sepsis.

Bezoars

Bezoars are rare foreign body concretions formed in the stomach and small bowel composed mainly of hair (tricho), vegetable matter (phyto) or milk curds (lacto). Most cases are females children, 6-10 years old, with bizarre appetite (trichophagia) and emotional disturbances. Originally the mass forms in the stomach and can move to the small bowel by fragmentation, extension or total

translocation. Diagnosis can be confirmed by UGIS, CT-Scan or endoscopy. The child can develop an asymptomatic palpable abdominal mass, pain, obstruction or perforation. Other children will reduce intake and develop weight loss. Predisposing conditions to bezoar formations are: gastric dysmotility and decreased acidity. Management can consist of mechanical or pulsating jet of water fragmentation via the endoscope, operative extraction, shock-wave lithotripsy (ESWL) with subsequent evacuation, or dissolution by oral ingestion of proteolytic enzymes (papain, acetylcysteine, cellulase). With ESWL the shock wave pressure needed is less than half used for urolithiasis cases.

Cytokines

Cytokines (CK) are proteins produced by our own cells (macrophages, lymphocytes, mast cells, fibroblasts, etc.) which modulate the acute phase of inflammation after injury, infection and neoplastic growth. They play a key role in control of hemopoiesis and immunity. Characterized so far: tumor necrosis factor (TNF), interleukin (IL) 1 to 6, recently 8, and interferon. Recombinant technologies have made them available. CK enhances neonatal myeloid progenitor proliferation, modulates neonatal bone marrow neutrophil storage and proliferation pools, induces peripheral neutrophilia and protects against the increase mortality associated with bacterial sepsis. Early postoperative increases in plasma IL-6 and IL-8 represent the stress response of neonates to surgery with an exaggerated response during postop complications. IL-6 is responsible for the acute phase response, and IL-8 with marked chemotactic property. IL-6 initial elevations during NEC have correlated with the need for surgical intervention.

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