



PEDIATRIC SURGERY Update © **Vol. 43 No. 01 JULY 2014**

Port CVC: Infections

Central venous catheters (CVC) related infections are the most common complication of harboring a central venous catheter with or without a port. This is followed by thrombosis of the catheter/port and mechanical problems. CVC using a port is extremely valuable for the long-term use of chemotherapy in children with malignancies. The most common causative organism of infected port CVC is coagulase negative staphylococcus. Factors that increase the risks of port CVC infections include younger age at the time of a malignant diagnosis, patient with leukemia and intensive chemotherapy with periods of severe neutropenia. It is globally recommended that the patient have an optimal neutropenic level at the time of port placement to decrease the infection risk. The number of port CVC removed due to infection is significantly greater the younger the patient. Other factors identified as increasing the rate of catheter removal due to blood stream infection include periods of hypotension, persistent bacteremia, stem cell transplantation, exit site infection, inappropriate empiric therapy and Candida infections. The use of prophylactic antibiotics is not recommended as an effective management to prevent catheter-associated blood stream infections in children. The use of chlorhexidine-impregnated dressings has shown to be a clinical management that decreases the incidence of bacterial colonization. In the setting of an infection the port CVC should be removed if the child has persistent or relapsing bacteremia in spite of adequate systemic antibiotic therapy, if the blood stream infection is caused by gram negative bacilli or Candida species, and if the patient clinical picture warrants removal.

References:

- 1- Elihu A, Gollin G: Complications of implanted central venous catheters in neutropenic children. *Am Surg* 73(10): 1079-1082, 2007
- 2- Adler A, Yanily I, Steinberg R, et al: Infectious complications of implantable ports and Hickman catheters in paediatric haematology-oncology patients. *J of Hospital Infection* 62(3): 356-358, 2006
- 3- Loh AH, Chui CH: Port-A-Cath insertions in acute leukemia: does thrombocytopenia affects morbidity? *J Pediatr Surg* 42(7): 1180-1184, 2007
- 4- Adler A, Yanily I, Solter E, et al: Catheter-associated bloodstream infections in pediatric hematology-oncology patients: factors associated with catheter removal and recurrence. *J Pediatr Hematol Oncol* 28(1):23-28, 2006
- 5- Dogar SA, Khan MA: Implantable port devices in paediatric oncology patients: a clinical experience from a tertiary care hospital. *J Pak Med Assoc.* 63(10): 1248-1251, 2013
- 6- Garland J, Alex C, Mueller C, et al: A randomized trial comparing povidone-iodine to a chlorhexidine gluconate-impregnated dressing for prevention of central venous catheter infections in neonates. *Pediatrics.* 107(6): 1431-1436, 2001

Autoimmune Hepatitis

Autoimmune hepatitis (AIH) is a progressive inflammatory disorder of the liver characterized by high level of transaminases, immunoglobulin G, presence of autoantibodies, histological evidence of interface hepatitis with portal plasma cell infiltration, and unknown etiology. Most affected children are females in their adolescent age. Two types of AIH are recognized. Type 1 is the most common and is characterized by positive antinuclear and/or anti-smooth muscle antibody presenting around puberty. Type 2 presents at a younger age and has positive anti-liver kidney microsomal antibodies and/or anti liver cytosol 1 antibodies. Type 2 presents with higher levels of bilirubin and transaminases, along with a more fulminant course of hepatic failure. Clinically children with AIH present with nonspecific symptoms of malaise, nausea/vomiting, anorexia, abdominal pain, followed by jaundice, dark urine and pale stools. Most children have clinical signs of chronic liver disease. Sclerosing cholangitis is often associated with AIH as an overlap syndrome suggesting both are part of the same pathogenic process. AIH responds to immunosuppression (steroids and azathioprine) and treatment should be initiated promptly to avoid progression of disease. Goals of treatment are to reduce or eliminate liver inflammation, to induce remission, improve symptoms, and prolong survival. With early treatment remission occurs in 80% of cases. Cirrhosis is found in 40-80% at diagnosis. Development of end-stage liver disease requiring liver transplant is 10% with most children remaining clinically stable with a good quality of life on long-term treatment. The role of surgery in AIH is provide histologic evidence of progression of disease by open or laparoscopic liver biopsy.

References:

- 1- Mieli-Vergani G, Heller S, Jara P, Vergani D, et al: Autoimmune hepatitis. *J Pediatr Gastroenterol Nutr.* 49(2):158-64, 2009
- 2- Chai PF, Lee WS, Brown RM, McPartland JL, Foster K, McKiernan PJ, Kelly DA: Childhood autoimmune liver disease: indications and outcome of liver transplantation. *J Pediatr Gastroenterol Nutr.* 50(3):295-302, 2010
- 3- Mieli-Vergani G, Vergani D: Autoimmune liver diseases in children - what is different from adulthood? *Best Pract Res Clin Gastroenterol.* 25(6):783-95, 2011
- 4- Della Corte C, Sartorelli MR, Sindoni CD, Girolami E, Giovannelli L, Comparcola D, Nobili V: Autoimmune hepatitis in children: an overview of the disease focusing on current therapies. *Eur J Gastroenterol Hepatol.* 24(7):739-46, 2012
- 5- Vajro P, Paoletta G: Autoimmune hepatitis: current knowledge. *Clin Res Hepatol Gastroenterol.* 36(3):284-6, 2012
- 6- Vitfell-Pedersen J, Jørgensen MH, Møller K, Heilmann C: Autoimmune hepatitis in children in Eastern Denmark. *J Pediatr Gastroenterol Nutr.* 55(4):376-9, 2012

Traumatic Bile Leaks

Traumatic bile leaks are a potential complication and sequelae of blunt hepatic injury whether managed operatively or non-operatively occurring exclusively in higher-grade injuries (> Grade III). A bile leak in the setting of trauma occurs after traumatic biliary tract laceration, parenchymal disruption, ductal ischemia, delayed rupture of subcapsular bile collections or persistent leak following hepatorrhaphy or hepatic resection during laparotomy. The bile leak leads to an intrahepatic biloma or intraperitoneal leakage of

bile. The affected child develops symptoms such as nausea, increasing pain, abdominal distension, prolongation of the intestinal ileus and ascites after an initial period of clinical improvement from his hepatic trauma. The first study to confirm the diagnosis should be a HIDA scan due to its high sensitivity. Drainage of the biloma whether image-guided, laparoscopic or during laparotomy should be the first therapeutic intervention once the diagnosis of the biliary leak is made. Properly placed catheters can convert a leak into a controlled bile fistula. If the child continues to leak, an ERCP should be performed along with endoscopic sphincterotomy, nasobiliary drainage and/or stent placement across the papilla. The stent lowers the intrabiliary pressure by keeping the ampulla open. Biliary leaks can take more than six months to resolve. Strict follow-up is required for removal of the indwelling biliary stent as they can dislodge, block and cause pancreatitis.

Reference:

- 1-Hollands MJ, Little JM: Post-traumatic bile fistulae. *J Trauma*. 31(1):117-20, 1991
- 2- Castagnetti M, Houben C, Patel S, Devlin J, Harrison P, Karani J, Heaton N, Davenport M: Minimally invasive management of bile leaks after blunt liver trauma in children. *J Pediatr Surg*. 41(9):1539-44, 2006
- 3- Durakbasa CU, Balik E, Yamaner S, et al: Diagnostic and therapeutic endoscopic retrograde cholangiopancreatography (ERCP) in children and adolescents: experience in a single institution. *Eur J Pediatr Surg*. 18(4):241-4, 2008
- 4- Sharma BC, Mishra SR, Kumar R, Sarin SK: Endoscopic management of bile leaks after blunt abdominal trauma. *J Gastroenterol Hepatol*. 24(5):757-61, 2009
- 5- Kulaylat AN, Stokes AL, Engbrecht BW, McIntyre JS, Rzucidlo SE, Cilley RE: Traumatic bile leaks from blunt liver injury in children: a multidisciplinary and minimally invasive approach to management. *J Pediatr Surg*. 49(3):424-7, 2014

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