



# **PEDIATRIC SURGERY UPDATE ©**

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### **Acute Pancreatitis**

Acute pancreatitis (AP) is unusual in the pediatric patient, can affect all age groups and should be considered in children presenting with acute abdominal complaints. Causes are diversely and clinical course less severe. The three most common etiological factors are: trauma, drug-induced, and biliary tract disorders. Other factors to consider are: infections (mumps, ascaris, adenovirus), metabolic (branched-chain organic acidemias), structural defects (anomalous union of pancreatico-biliary ductal system), and hereditary. Blunt abdominal trauma is the leading cause (20-30%) of AP by crushing the fixed organ between the spine. Drugs associated to the development of AP are: steroids, L-asparaginase, valproic acid, acetaminophen (drug withdrawal is treatment of choice). Biliary disorders related to AP are gallstone and choledochal cysts by causing transient ductal obstruction. Most common complaint of children with AP is abdominal pain. Diagnosis is confirmed with elevated amylase/lipase in serum and urine (lipase is more specific since pancreas is major source). Imaging studies of utility are US, CT-Scan and ERCP. The use of ERCP in previously idiopathic cases of AP have increased the yield of diagnosing anomalous pancreatico-biliary junctional defects. Management during early phase is supportive with IV therapy, NG decompression, NPO (to decrease acid stimulation and prevent secretin release), and nutritional (TPN). Surgery is rarely required except complications such as abscess and pseudocyst formation.

### **Water in Neonates**

Water represents 70-80% of body weight of normal neonates and premature babies respectively. Total body water (TBW) varies inversely with fat content (prematures have less fat deposits). TBW is distributed into 1/3 extracellular (ECF) and 2/3 intracellular (ICF) fluids compartments. The ECF is composed of plasma volume (4-5% body weight), interstitial and transcellular fluids. There is a change in body water upon entrance of the fetus to his new extrauterine existence; A gradual decrease in TBW and ECF, and an increase in the ICF. This shift is interrupted with a premature birth. Inappropriate IV therapy can lead to persistent PDA, bronchopulmonary dysplasia, NEC, and

intraventricular hemorrhage. Insensible water losses are from lung (1/3) and skin (2/3). Transepithelial (skin) water loss is the major component and decreases with increase in postnatal age. Radiant warmers and phototherapy increase insensible losses. Newborns produce a urine output of 2 cc/kg/hr to clear the osmotic solute load at an osmolality of 250 mOsm/kg. Their kidney have a low glomerular filtration rate and concentrating ability (limited urea in medullary interstitium) and are therefore less tolerant to dehydration. Electrolytes requirement of full-term: Na 2meq/kg/day, K 2 meq/kg/day at a rate of fluid of 100cc/kg/24 hrs for the first 10 kg of weight.

### **Hepatoblastoma**

Hepatoblastoma (HB) is the most common primary malignant neoplasm of the liver in children mostly seen in males less than four year of age. Diagnostic work-up (US, Scintigraphy, CT-Scan) objective is predicting resectability and tumor extension. Diagnostic laparotomy will decide resectability. Markers associated to this tumor are: alpha-fetoprotein and gamma-glutamyltransferase II. Only reliable chances of cure is surgical excision although half are unresectable at dx. Unresectable tumors can be managed with preop chemotx. Disadvantages of preop chemotx are: progressive disease, increase morbidity, post-op complications, and toxicity. Advantages are: decrease in tumor size, covert three-fourth cases into resectable, although extent of surgery is not decreased. Tumor necrosis is more extensive in pt. receiving preop chemotx. Osteoid present in tumors after chemotx may represent an inherent ability of the tumor to mature and differentiate. Diploid tumors on DNA flow cytometry show a better prognosis.

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