



PEDIATRIC SURGERY Update © **Vol. 42 No. 02 FEBRUARY 2014**

SIRS

SIRS, refers to the Systemic Inflammatory Response Syndrome, a stress response defined by abnormalities of temperature, heart rate, respiratory rate and peripheral WBC. Two or more of the following disturbances make the diagnosis of SIRS: Core temperature above 38.5 or below 36 C; tachycardia defined as mean heart rate above two standard deviations above normal for age or bradycardia defined as mean heart rate less than the 10th percentile for age; tachypnea defined as mean respiratory rate above two standard deviations for age; leukocyte count elevated or depressed for age or 10% immature neutrophils. The pediatric group is divided in six clinically and physiologically meaningful age groups for age-specific vital sign and laboratory variables to meet SIRS criteria. There is a mandatory requirement for abnormality of temperature or leukocyte count to be present for a diagnosis of SIRS be considered. Since SIRS plus infection equal sepsis it is crucial to recognize SIRS in its initial phase to start adequate management. Multiple initializing triggers SIRS such as infection, trauma and surgery. Most pediatric cases of SIRS occur in the 2-5 year age group with a median age of 30 months. Severe sepsis refers to acute organ dysfunction or tissue hypoperfusion secondary to infection and septic shock is severe sepsis plus hypotension not reversed with fluid resuscitation. There is a high risk of developing sepsis in children with SIRS. Early SIRS diagnosis eventually leads to early goal-therapy for sepsis. Pediatric appendicitis that presents initially with SIRS have a higher length of stay and risk incidence of developing intraabdominal abscess. Systemic organ failure and intestinal dysfunction are strong risk factors for postoperative SIRS in children. These preexisting conditions lead to disruption of normal intestinal flora or barrier function predisposing children to dramatic SIRS episodes after intestinal surgery.

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Splenoma

The term splenoma refers to a splenic hamartoma. Splenoma is a very rare and benign lesion in the pediatric age. Approximately 80% of splenic hamartomas produce no clinical symptoms. Splenic hamartomas may be solitary or multiple and are usually well defined but not encapsulated. There is no predilection for sex or age. Most patients with splenic hamartomas are asymptomatic and found as an incidental finding at laparotomy or autopsy. A few splenic hamartomas have clinical findings. Common clinical findings include bleeding tendency caused by thrombocytopenia, digestive symptoms as abdominal pain and loss of appetite from compressive symptoms. Spontaneous rupture with bleeding has been reported. In children, hamartoma of the spleen with haematologic abnormalities may be followed by growth retardation, frequent infections, fever and night sweating. Histologically splenic hamartomas can be classified as red pulp hamartomas when they contain sinuses and structures equivalent to the pulp cords, white hamartomas when they contain mostly lymphoid tissue, and mixed type when they have a mixture of the above. Ultrasound characteristic of splenic hamartomas include hyperechoic nodules with a cystic component. CT-Scan will need intravenous contrast material to see the difference between the hamartoma seen as a solid homogenous mass without calcification and the normal splenic tissue. Radiocolloid scintigraphy demonstrates uptake within the lesion, but less than that of normal spleen. In MRI imaging the tumor is isointense relative to normal splenic tissue on T1-weighted and of increased intensity with T2 weighting. The management of symptomatic splenic hamartoma is excision by either total or partial splenectomy depending on the size, age and splenic involvement.

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Transport Surgical Neonate

Transporting a neonate with a surgical condition from one institution to another involve pre-transport intensive care level of resuscitation, stabilization and continuing transport to ensure the baby arrives in stable condition. Good communication and coordination between referring and receiving hospital is of utmost importance. Transport can occur in-utero, by road or air (helicopter or airline). In-utero is the best mode of transfer to a

facility that has NICU with working pediatric surgeons. High-risk neonates are more likely to survive when they are delivered in a perinatal center compared with local delivery followed by transfer. When using air transport physiologic changes due to altitude and decreased atmospheric pressure can cause a decrease in oxygen concentration and expansion of gases causing increased oxygen requirement and tachypnea. This issue is important in patients with air trapped in closed cavities such as pneumothorax, pneumoperitoneum, volvulus and bowel obstruction. Before leaving these cavities must be drained since gases will expand and cause respiratory distress. Should there be a possibility the child might require ventilation during transfer it is safer to electively intubate and ventilate before leaving the source institution. If the baby is unstable or on high ventilatory setting, the baby should not be transported. During transport all tubes should be secured safely, and running IVF's with medication should be working properly. Each institution should have a pre-departure checklist with the essential transport equipment and medication available. In cases of NEC if there is an evident perforation of the bowel, insertion of a peritoneal drain with or without lavage with normal saline should be considered to improve ventilation and acidosis.

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 ISSN 1089-7739