

PRACTICE GUIDELINES: MANAGEMENT OF PEDIATRIC SOLID ORGAN INJURY



OBJECTIVE: Provide guidelines for the management of LIVER and SPLEEN injuries in pediatric patients.

STANDARD:

Pediatric patients presenting with trauma to the liver or spleen should be treated based on vital signs stability rather than grade of injury.

GUIDELINES:

Vital signs stable:

1. Admit to floor
2. Activity as tolerated
3. Regular diet
4. CBC on admission and/or 6 hours post injury

Vital signs abnormal following initial volume resuscitation (20ml/kg of isotonic IVF):

1. Admit to ICU
2. Bedrest (until VS normal)
3. CBC Q6 hours (until VS normal)
4. NPO (until VS normal and Hgb stable)
5. Consider blood transfusion
 - a. Unstable vitals after 20cc/kg bolus of isotonic IVF
 - b. Hgb <7
 - c. Signs of ongoing or recent bleeding
6. If bleeding continues based on unstable vitals or signs of bleeding despite pRBC transfusion, consider:
 - a. MTP
 - b. Operative exploration
 - c. Angioembolization
 - i. Not indicated for contrast blush on admission CT without unstable vitals
7. Once VS normal and Hgb stable, patient may be transferred to floor or considered for discharge

Discharge criteria:

Based on clinical picture NOT grade of injury

- Normal vital signs
- Tolerating a diet
- Minimal abdominal pain

Follow up:

- Activity restriction: grade + 2 weeks
- Consider imaging for symptomatic patients with prior high-grade injuries

REFERENCES:

Acker, S., Petrun, B., Partrick, D., Roosevelt, G., Bensard, D. (2015). Lack of utility of repeat monitoring of hemoglobin and hematocrit following blunt solid organ injury in children. *Journal of Trauma Acute Care Surgery*, 79(6), 991-4.

APSA Blunt Liver/Spleen Injury Guidelines (2019). Retrieved April 6, 2020 from https://eapsa.org/apsa/media/Documents/APSA_Solid-Organ-Injury-Guidelines-2019.pdf

Gates, R., et al. (2019). Non-operative management of solid organ injuries in children: An American Pediatric Surgical Association Outcomes and Evidence Based Practice Committee systemic review. *Journal of Pediatric Surgery*, 54(8), 1519-1526.

McVay, M., Kokoska, E., Jackson, R., Smith, S., (2008). Throwing out the “grade” book: management of isolated spleen and liver injury based on hemodynamic status. *Journal of Pediatric Surgery*, 43(6), 1072-6.

Notrica, D., et al (2019). Adherence to APSA activity restriction guidelines and 60-day clinical outcomes for pediatric blunt liver and splenic injuries (BLSI). *Journal of Pediatric Surgery*, 54(2), 335-339.

Notrica, D., et al (2015). Nonoperative management of blunt liver and spleen injuries in children: Evaluation of the ATOMAC guidelines using GRADE. *Journal of Trauma Acute Care Surgery*, 79(4), 683-693.

St. Peter, S., Aguayo, P., Juange, D., Sharp, S., Snyder, C., Holcomb, G., Ostlie, D. (2013). Follow up of prospective validation of an abbreviated bedrest protocol in the management of blunt spleen and livery injury in children. *Journal of Pediatric Surgery*, 48, 2437-2441.